



Custodial Integrator

User Guide

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USING THE MANUAL

Audience and Format

This manual describes how to use the Custodial Integrator application to transfer data from WebPortfolio to delimited file format. The manual is written for the Data Administrator or Programmer who is responsible for interpreting these delimited files.

Related Documents

The following related documents are available from ByAllAccounts:

- [WebPortfolio for Custodial Integrator Users](#): This manual documents the WebPortfolio features that are needed for users of Custodial Integrator including configuring accounts and reviewing account data.
- [Custodial Integrator Validation FAQ](#): provides an overview of the account validation process
- [The Custodial Integrator Solution](#): provides an overview of the Custodial Integrator solution
- [Custodial Integrator Installation Guide](#): describes the system requirements, installation procedure, and initial configuration for the Custodial Integrator product

Terminology

The following are some terms used in this manual:

- **CI** – the acronym for Custodial Integrator
- **WebPortfolio** - The data aggregation service and application provided by ByAllAccounts
- **WP** – an abbreviation for WebPortfolio

CUSTODIAL INTEGRATOR OVERVIEW

This chapter will familiarize you with the Custodial Integrator (“CI”) application. It includes conceptual information on the data translation process and an overview of the application’s user interface. The **Application User Interface** section provides information on CI user interface components – the main application view and the CI Configuration dialog. The **Data Translation** section provides details on how data translation is accomplished and what files are generated.

Application Overview

Custodial Integrator is an application that you install and run on a computer within your intranet. It creates delimited output files and deposits them into a directory that you specify. Custodial Integrator delivers data from WebPortfolio by utilizing the BAA DataConnect programming interface. CI provides the several capabilities that would otherwise require custom software development if you chose to use DataConnect alone, including the following:

- Provides data in easy-to-use delimited file format (DataConnect provides XML)
- Handles communication with WebPortfolio service via DataConnect
- Provides additional standardization of the data for uniformity across custodians
- De-normalizes security references in holding and transaction objects that would otherwise require custom business logic
- Provides graphical interface for control of download
- Provides ability to view account update status, configure custom security translations, and provide user-specific identification string for each account

Figure 1 illustrates the overall flow of data from the Financial Institution to your local file system. The WebPortfolio service gathers data each morning and stores it in the WebPortfolio repository. CI downloads data over the Internet from the WebPortfolio service, and stores it on your computer. CI then processes this data to produce delimited files. This entire process is referred to as *data translation*.

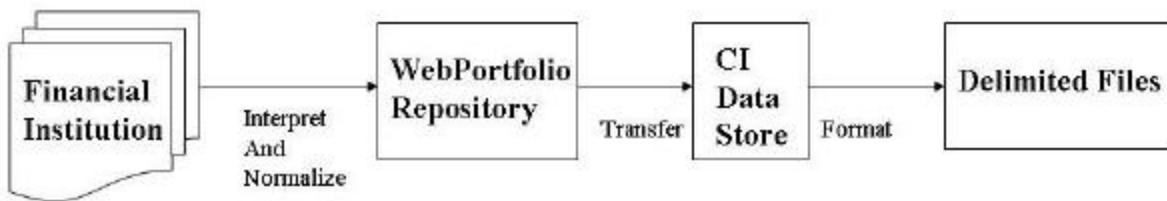


Figure 1 - Custodial Integrator overview

You perform the CI data translation process by running the CI application. The time required to complete the data translation process will vary depending on the volume of positions and transactions that are downloaded from WebPortfolio.

Application User Interface

Main View

The CI application **main view**, shown in Figure 2, is the main work area for data translation from WebPortfolio to files.

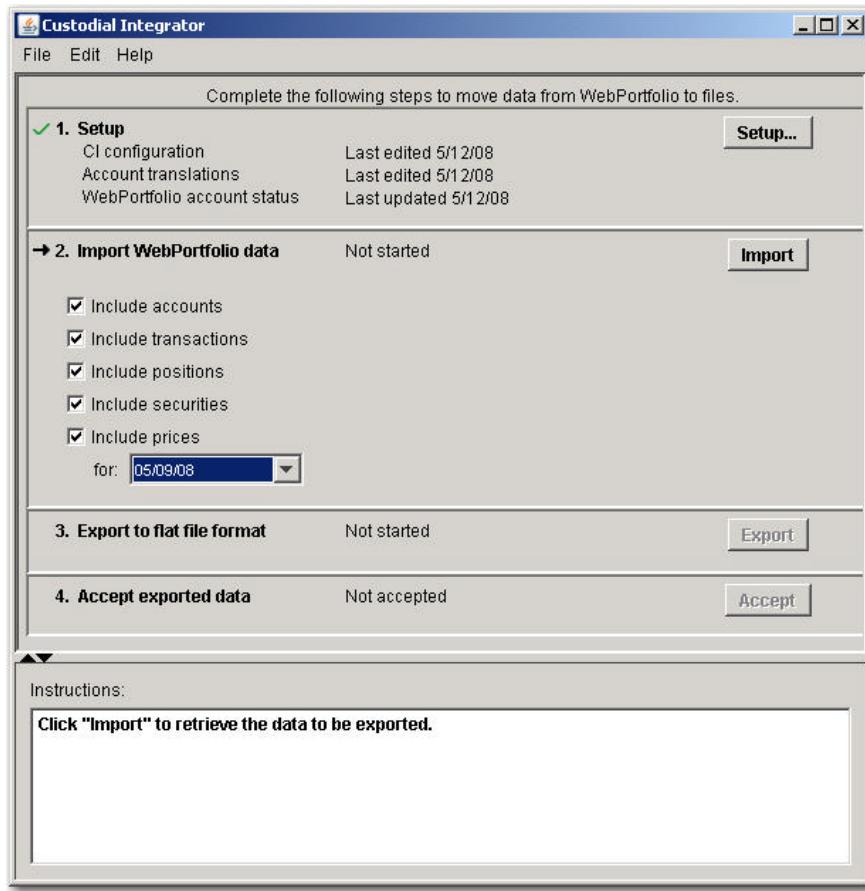


Figure 2 - CI Main View

The four steps in the data translation process as shown in the main view are:

1. Setup

This section handles the CI configuration that is required for data translation. You must provide information about your desired output location and define at least one WebPortfolio account for translation. The Setup section of the main view shows the status of the required and optional setup segments along with the date when the corresponding configuration information was last updated.

2. Import WebPortfolio data

This section defines the parameters for importing data from WebPortfolio into the CI local data store. Use the **Import** button to start the import process. Account translation errors must be resolved before you can complete the Import process. CI will alert you to several conditions including stale data and missing security symbols. You may wish to take action to resolve these issues prior to the Export step.

3. Export to flat file format

Once WebPortfolio data has been imported into CI, CI is able to generate files into a designated folder. Use the **Export** button to run the export process.

4. Accept exported data

CI maintains state information about your transaction downloads. You manually accept a download to enable CI to update its state information. Use the **Accept** button to accept the most recent download. We recommend that you perform this step after you have verified that CI properly produced your output files.

The CI main view includes an **Instructions** window at the bottom of the view. This window provides instructions and other information relevant to the current state of the main view. If you are unsure as to what to do next in the main view, check the Instructions window.

The CI main view provides the following menu:

- **File**
 - o **Exit** - exits the CI application
- **Edit**
 - o **Configuration** - invokes the CI Configuration dialog, Configuration tab
 - o **Account Translation** – invokes the CI Configuration dialog, Account Translation tab
 - o **Security Translation** – invokes the CI Configuration dialog, Security Translation tab
- **Help**
 - o **About CI** – shows CI product information, system information, and service agreement.

User Interface Features

The following features are common to more than one area of the user interface:

- Tables – Tables of information such as those used in multiple tabs of the CI Configuration dialog have the following common features:

- o Sorting

You may sort a table's content using any one column in the table. The table's column header indicates which column is the current sort key by including an up arrow (^) (for sort ascending) or a down arrow (v) (for sort descending) in the label. To sort on a new column or to change the sort order for the current sort key click the column header.

- o Searching

Many tables will include controls to search through the table. These controls include a column name selector, a choice of "contains" or "starts with", and a field in which to enter a comparison value. There will also be a Search button and a List All button. You can restrict the set of items displayed in the table by completing a search:

- i. choose a column to search on from the column name selector
 - ii. choose "contains" or "starts with"
 - iii. enter the comparison text into the text field
 - iv. click the **Search**

The table now displays only the rows that match your search criteria. Click List All to cause the table to list all of its rows.

- o Delete button

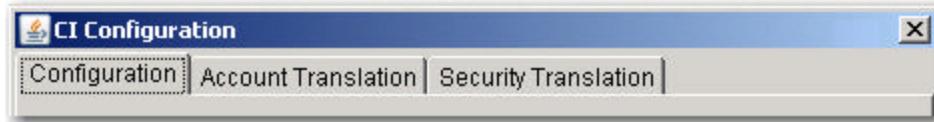
Use Delete to delete one or more rows from a table. First select the rows to be deleted using a mouse click. You can use a single mouse click to select one row, then optionally shift-click for range select and ctrl-click for single row extended select. Use Delete to delete the selected rows. You will then be prompted to confirm the deletion. Click Yes to perform the delete, No to cancel the delete.

- **Print** button

Print is available for tables and dialog boxes that include significant content such as the *View Data Issues* dialog. Clicking Print will bring up the standard Windows Print dialog to allow you to choose a Printer and other print options.

CI Configuration

The CI Configuration dialog is accessible via the *Setup...* button or the CI *Edit* menu and contains the following tabs:



Configuration

This section defines CI product configuration information such as CI access credentials and the types of files to be generated.

Account Translation

Defines which WebPortfolio accounts you want to download. Also shows the update status of configured accounts (when the account was last updated with data from its Financial Institution) and when those accounts were last exported to delimited files and allows you to request an on-demand update of accounts.

Security Translation

Defines translations from WebPortfolio securities to your security symbols.

More information on each of these configuration areas is available in subsequent sections of this document.

Data Translation

In the data translation process, data flows from the Financial Institution through to delimited files. This process consists of the following major steps:

1. A Financial Institution makes data available online.
2. WebPortfolio gathers data from Financial Institutions each day and then interprets, normalizes, and stores it in the WebPortfolio repository.
3. CI retrieves data from the WebPortfolio Repository and stores it locally.
4. CI performs additional standardization steps and outputs the data to delimited files.

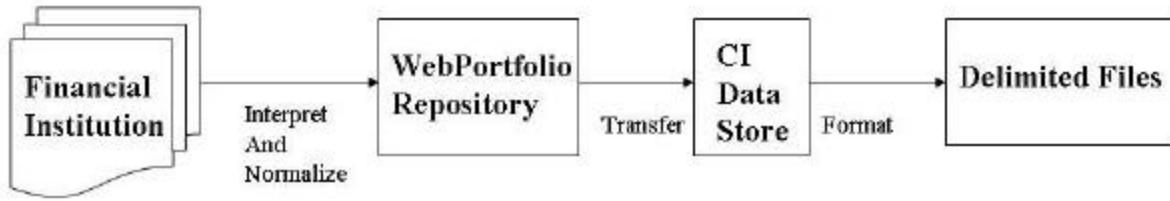


Figure 3 - Data Flow

You may view the data at the Financial Institution, in the WebPortfolio Repository via the WebPortfolio application, or in the CI output files. The CI application provides no general capability for viewing the information prior to generating the output files.

It is important to note that the quality and completeness of data made available by different Financial Institutions varies widely. For this reason, accounts at each Financial Institution must undergo a validation process that includes thorough review of the account data and adjustment to the translation process. For more information on data validation, please read the companion document *Custodial Integrator Validation FAQ*.

After validation is complete, a Financial Institution may present some new data that was not observed during the validation process and thus does not translate correctly for your target system. Such issues are considered bugs and you should report them to ByAllAccounts technical support for resolution.

Output Files

Custodial Integrator has the ability to deliver up to five types of files in a single session. CI can produce each of the following delimited files (yyyymmdd is replaced with the prior business day's date). If prices for business days before the prior business day are requested then CI will generate a Security and Price file for each of those prior business days and these files will be named with the corresponding business date.

The columns to be included in each output file can be customized in the Setup->Configuration, Output Configuration section, Advanced button. Additional customizations of the output data are also available in this area. Please refer to section **Output Configuration** on page 36 for more information.

File Type	File Name
Account	BAAACT_yyyymmdd.csv
Transaction	BAATRX_yyyymmdd.csv
Position	BAAREC_yyyymmdd.csv
Security	BAASEC_yyyymmdd.csv
Security Price	BAAPRI_yyyymmdd.csv

CI optionally creates the files listed in the following table. Position and Transaction filters cause the omission of matching objects from the main file for that object type. Filters can be used to omit unmanaged assets (Position) or to omit certain types of transactions (e.g. Trades) from being delivered in the CI output files. Other options include

File Type	File Name	Purpose
Transaction	BAAEXCLUDEDTX_yyyymmdd.csv	If a transaction or position filter is in use then filtered transactions are written to this file.
Transaction	BAAUNSETTLEDTX_yyyymmdd.csv	If the "Back out unsettled transactions" option is selected then unsettled transactions will be written to this file.
Position	BAAEXCLUDEDREC_yyyymmdd.csv	If a position filter is in use then filtered positions are written to this file.

All files are written to the output folder that you have configured in CI. If any file of the same name already exists in the output folder, CI will display a warning and give you the option to overwrite or append to the existing file. Additional details for each file are included in the following sections.

The following table defines the Data Types for the columns included in the output files.

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. Values gathered directly from a Financial Institution may have six or more digits to the right of the decimal point. No punctuation is used to separate thousands, millions, etc.
TIMESTAMP	<p>Provides a full time stamp, including time zone of the WebPortfolio server. The timestamp uses the form: YYYYMMDDHHmmSS [{gmt-offset}]:{tz-name}] where:</p> <p>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).</p> <p>Example: 20030721143522 [-5:EST] is July 21, 2003 2:35:22 PM, Eastern Standard Time</p>

Account File

CI generates an entry in the Account file for each account listed in the Account translations configuration section of CI. The following table defines the columns of output that CI creates for the Account file:

Col #	Column Header	Value Required	Data Type	Description
1	ACCOUNT_IDENTIFIER	v	CHAR64	Unique alphanumeric string that identifies this account within the set of accounts configured within CI. This will contain the ACCOUNT_NUMBER if you have not configured an alternate identifier when you set up the account in the Account Translation tab of Setup.
2	NAME	v	CHAR64	User-assigned nickname for the Account from WebPortfolio.
3	ONLINE_ACCESS_ENABLED	v	BOOLEAN	TRUE (1) if this Account has sufficient online access credentials for WebPortfolio to gather data from the Financial Service identified for this Account; FALSE (0) in all other cases.
4	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).
5	ACCOUNT_NUMBER		CHAR64	Alphanumeric string used to identify this Account at the Financial Service where this Account is held.
6	UPDATE_STATUS_INFO		CHAR1024	The status (textual description) of the last attempt to download this Account from the Financial Institution.
7	UPDATE_STATUS_ERRCODE		CHAR6	Error code for the result of the last attempt to download this Account from the Financial Institution.
8	LAST_UPDATE_ATTEMPT		TIMESTAMP	Date/time of the last access test or update attempt for this Account.
9	CAPTIVE	v	BOOLEAN	If TRUE, then the Advisor managing this Account for the Investor considers this Account to contain captive assets (assets under management).
10	DATA_BASIS	v	CHAR12	States whether the data in the account is SETTLEMENT (value "SETTLEMENT") basis or TRADE

				basis (value "TRADE").
11	FINANCIAL_INSTITUTION_NAME		CHAR256	Name of the financial institution in which the account is held.
12	PRIOR_BUSINESS_DAY_DATE		DATE	The date of the business day prior to the day that the file was generated.
13	ADVISOR_IDENTIFIER		CHAR64	Unique internal identifier for the WebPortfolio Advisor user associated with this account.
14	ADVISOR_FIRST_NAME		CHAR64	First name of advisor user associated with this account.
15	ADVISOR_MIDDLE_NAME		CHAR64	Middle name of advisor user associated with this account.
16	ADVISOR_LAST_NAME		CHAR64	Last name of advisor user associated with this account.
17	CLIENT_IDENTIFIER	v	CHAR64	Unique internal identifier for the WebPortfolio Investor user (also called Client) associated with this account.
18	CLIENT_FIRST_NAME	v	CHAR64	First name of investor user associated with this account.
19	CLIENT_MIDDLE_NAME		CHAR64	Middle name of investor user associated with this account.
20	CLIENT_LAST_NAME	v	CHAR64	Last name of investor user associated with this account.

Transaction File

CI generates an entry in the Transaction file for each transaction in the current download. This may include transactions from business days other than the prior business day. The following table defines the columns of output that CI creates for the Transaction file:

Col #	Column Header	Required	Data Type	Description
1	ACCOUNT_IDENTIFIER	v	CHAR64	Unique alphanumeric string that identifies this account within the set of accounts configured within CI.
2	SYMBOL	v	CHAR512	Symbol used to identify this security. The value may be a CUSIP, TICKER, SEDOL, ISIN, or a CI-generated symbol (OTHER).
3	SYMBOL_TYPE	v	CHAR6	Describes the type of the symbol in the SYMBOL field. Text is one of the following: CUSIP, TICKER, SEDOL, ISIN, OTHER.
4	FI_SUPPLIED_CUSIP		CHAR9	Security's CUSIP as provided by the Financial Institution.
5	FI_SUPPLIED_TICKER		CHAR32	Security's Ticker as provided by the

				Financial Institution.
6	FI_SUPPLIED_SEDOL		CHAR7	Security's SEDOL as provided by the Financial Institution.
7	FI_SUPPLIED_ISIN		CHAR12	Security's ISIN as provided by the Financial Institution.
8	ID	v	NUMBER	Unique numeric ID for this Transaction. This is a BAA Internal ID and is unique across all transactions within the WebPortfolio repository.
9	TX_TYPE	v	CHAR20	Type of Transaction. Please refer to the table below for valid values.
10	EXECUTION_DATE	v	DATE	Date on which this Transaction was executed. Also called Trade Date.
11	SETTLEMENT_DATE		DATE	Date on which this Transaction was settled.
12	COMMISSIONS_FEES		NUMBER	Commission and/or fees associated with this Transaction.
13	UNITS		NUMBER	Number of units (of security) involved in this Transaction.
14	UNIT_PRICE		NUMBER	Per share price of the Security for purposes of this Transaction.
15	TOTAL_AMOUNT		NUMBER	Total \$ value associated with this Transaction (may be negative).
16	CURRENCY_CODE		CHAR3	ISO 4217 currency code for the TOTAL_AMOUNT.
17	FI_SUPPLIED_CURRENCY		CHAR64	Currency identifier supplied by the Financial Institution for TOTAL_AMOUNT.
18	PRINCIPAL_UNITS		NUMBER	Principal units of the transaction as reported by the Financial Institution.
19	PRINCIPAL_TOTAL_AMOUNT		NUMBER	Principal amount of the transaction as reported by the Financial Institution.
20	INCOME_UNITS		NUMBER	Income units of the transaction as reported by the Financial Institution.
21	INCOME_TOTAL_AMOUNT		NUMBER	Income amount of the transaction as reported by the Financial Institution.
22	TOTAL_AMOUNT_BASE		NUMBER	Total amount of the transaction in the Base currency for the account.
23	UNIT_PRICE_BASE		NUMBER	Unit price of the transaction in the Base currency for the account.
24	CURRENCY_CODE_BASE		CHAR3	ISO 4217 currency code for the account's base currency.

25	FI_SUPPLIED_CURRENCY_BASE		CHAR64	Currency identifier supplied by the Financial Institution for TOTAL_AMOUNT_BASE.
26	PRINCIPAL_TOTAL_AMOUNT_BASE		NUMBER	The principal portion of the amount of the transaction converted to the base currency of the account
27	INCOME_TOTAL_AMOUNT_BASE		NUMBER	The income portion of the amount of the transaction converted to the base currency of the account
28	TOTAL_AMOUNT_LOCAL		NUMBER	The amount of the transaction in the local currency
29	UNIT_PRICE_LOCAL		NUMBER	The share price of the security involved in the transaction in the local currency
30	CURRENCY_CODE_LOCAL		CHAR3	ISO 4217 currency code for TOTAL_AMOUNT_LOCAL and UNIT_PRICE_LOCAL.
31	FI_SUPPLIED_CURRENCY_LOCAL		CHAR64	The local currency of the transaction as provided by the institution.
32	PRINCIPAL_TOTAL_AMOUNT_LOCAL		NUMBER	The principal portion of the amount of the transaction in the local currency
33	INCOME_TOTAL_AMOUNT_LOCAL		NUMBER	The income portion of the amount of the transaction in the local currency
34	EXCHANGE_RATE_LOCAL_TO_BASE		NUMBER	The local-to-base exchange rate as provided by the Financial Institution.
35	EXCHANGE_RATE_LOCAL_TO_USD		NUMBER	The local-to-USD exchange rate as provided by the Financial Institution.
36	NAME		CHAR512	Either the name of the Security or a short description of the Transaction.
37	DESCRIPTION		CHAR2000	Text provided by the Financial Service that describes the transaction.
38	FI_SUPPLIED_TX_TYPE		CHAR64	Text provided by the Financial Institution that describes the type of activity that this transaction represents.
39	FI_SUPPLIED_TX_TYPE2		CHAR64	Secondary text provided by the Financial Institution that describes the type of activity that this transaction represents.
40	FI_SUPPLIED_TX_TYPE_CODE		CHAR16	Transaction type code or abbreviation provided by the Financial Institution.

41	FLOW_AMOUNT	V	NUMBER	Total amount of the cash flow for this transaction relative to the cash balance of the account.
42	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).
43	CREATION_DATE	V	DATE	Date when this Transaction object was created in WebPortfolio.
44	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 list of Transaction type codes that follows this table for valid values.
45	CONTRACTUAL_SETTLEMENT_DATE		DATE	The date by which the transaction must contractually settle as provided by the Financial Institution.
46	POST_DATE		DATE	The date that the transaction posted as provided by the Financial Institution.
47	ACCOUNT_NUMBER		CHAR64	Alphanumeric string used to identify this Account at the Financial Service where this Account is held.
48	NET_AMOUNT		NUMBER	For Reinvestment transactions on cash equivalents this is set to the absolute value of the first non-null of the following: PRINCIPAL_TOTAL_AMOUNT_LOCAL + INCOME_TOTAL_AMOUNT_LOCAL, FLOW_AMOUNT, TOTAL_AMOUNT. For all other transactions this is set to the absolute value of the first non-null of the following: PRINCIPAL_TOTAL_AMOUNT + INCOME_TOTAL_AMOUNT, FLOW_AMOUNT, TOTAL_AMOUNT
49	NET_AMOUNT_LOCAL		NUMBER	For Reinvestment transactions on cash equivalents this is set to the absolute value of the first non-null of the following: PRINCIPAL_TOTAL_AMOUNT_LOCAL

				+ INCOME_TOTAL_AMOUNT_LOCAL, FLOW_AMOUNT, TOTAL_AMOUNT. For all other transactions this is set to the first non-null of the following: PRINCIPAL_TOTAL_AMOUNT_LOCAL + INCOME_TOTAL_AMOUNT_LOCAL, FLOW_AMOUNT, TOTAL_AMOUNT
50	PRIOR_BUSINESS_DAY_DATE		DATE	The date of the business day prior to the day that the file was generated.
51	TX_SUBTYPE		CHAR20	The transaction's subtype as determined by CI. Possible subtype values are in bold followed by the transaction types to which they apply in parentheses: ACCRUED (BUY, SELL), TAX (DEBIT, CREDIT), FOREIGNTAX (DEBIT, CREDIT), MATURITY (SELL) SHORTTERMGAIN , LONGTERMGAIN , UNCLASSIFIEDGAIN , MIDTERMGAIN (DIVIDEND, REINVESTMENT), IN, OUT (ATM, INCOME, INTEREST, JOURNAL, POINT_OF_SALE, TRANSFER)
52	SECURITY_TYPE	v	CHAR20	Transaction's security type. Possible values: BOND, CASH, STOCK, MUTUALFUND, OPTION, OTHER
53	FI_ID		CHAR64	Unique internal identifier for the financial institution that reported the transaction
54	TX_COMPOSITE_TYPE	v	CHAR128	Customizable transaction type composite field that is the concatenation of one or more of the following transaction fields: TX_TYPE, TX_SUBTYPE, SECURITY_TYPE, FI_ID. Default composition: TX_TYPE- TX_SUBTYPE-SECURITY_TYPE
55	CI_SYNTHESIZED	v	BOOLEAN	1 indicates the transaction was created by CI (sweeps). 0 indicates the transaction was not synthesized by CI. 0 is the default.

56	REVERSAL	V	BOOLEAN	1 indicates the transaction is a reversal. 0 indicates the transaction is not a reversal.
57	ACCRUED_INCOME		NUMBER	Amount of accrued interest
58	ACCRUED_INCOME_BASE		NUMBER	Amount of accrued interest in the account's base currency
59	ACCRUED_INCOME_LOCAL		NUMBER	Amount of accrued interest in the account's local currency
60	FI_SUPPLIED_DESCRIPTION		CHAR2000	Transaction description
61	INCOME_TYPE		CHAR20	Type of income for REINVESTMENT type only, Possible values: INCOME, INTEREST, DIVIDEND.
62	POSITION_ID		NUMBER	Unique numeric ID for the position with which this transaction is associated. This is a BAA Internal ID and is unique across all positions within the WebPortfolio repository.
63	PRINCIPAL_OR_INCOME		CHAR1	Defaults to 'P'. Set to 'I' if the transaction has a non-zero and non-blank value in the INCOME_TOTAL_AMOUNT field.

The following table shows the valid values for the **TX_TYPE** and **ORIG_TX_TYPE** columns:

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)
INVESTMENT_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

The following table defines the sign used for the FLOW_AMOUNT and FLOW_UNITS field in the Transaction file. The sign is based on the transaction type. Signs available are:

- o Positive
- o Negative
- o Neutral – used only by FLOW_AMOUNT, this is a flow of 0
- o 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 Deposit	Positive	Positive
Direct Debit	Negative	Negative
Dividend	Positive	Positive
Fee	Negative	Negative
Income	Positive	Positive
Interest	As is	As is
Investment 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

Position File

CI generates an entry in the Position file for each position in the accounts listed in the Account translations configuration section of CI. The units and market value for the positions are as of the prior business day. CI does not currently provide a way to obtain a Position file for a business day other than the prior business day. The following table defines the columns of output that CI creates for the Position file:

Col #	Column Header	Required	Data Type	Description
1	ACCOUNT_IDENTIFIER	v	CHAR64	Unique account identifier for the account that contains this position.
2	SYMBOL	v	CHAR512	Symbol used to identify this security. May be a CUSIP, TICKER, SEDOL, ISIN, or OTHER.
3	SYMBOL_TYPE	v	CHAR6	Describes the type of the symbol in the SYMBOL field. Text is one of the following: CUSIP, TICKER, SEDOL, ISIN, OTHER.
4	FI_SUPPLIED_CUSIP		CHAR9	Security's CUSIP as provided by the Financial Institution.
5	FI_SUPPLIED_TICKER		CHAR32	Security's Ticker as provided by the Financial Institution.
6	FI_SUPPLIED_SEDOL		CHAR7	Security's SEDOL as provided by the Financial Institution.
7	FI_SUPPLIED_ISIN		CHAR12	Security's ISIN as provided by the Financial Institution.
8	NAME		CHAR128	The holding's name (typically identifies the security) as provided by Financial Service or entered by the user (offline accounts).
9	UNITS		NUMBER	Units of the Security held.
10	COST_BASIS		NUMBER	Financial service-supplied or user-supplied cost basis for the Holding. Note: This is a total basis not a per-share basis.
11	MARKET_VALUE		NUMBER	Total market value for this Holding as retrieved from the Financial Institution or entered by the user.
12	UNIT_PRICE		NUMBER	Unit price for the security as provided by the Financial Institution.
13	PRICE_DATA_AS_OF		DATE	Date for which the UNIT_PRICE is valid.
14	CURRENCY_CODE		CHAR3	ISO 4217 currency code for MARKET_VALUE and UNIT_PRICE

				MARKET_VALUE and UNIT_PRICE
15	FI_SUPPLIED_CURRENCY	CHAR64	Currency identifier for MARKET_VALUE and UNIT_PRICE as provided by the Financial Institution.	
16	ACCRUED_INCOME	NUMBER	Value of the income that has accrued to the holding but has not yet been distributed.	
17	PRINCIPAL_UNITS	NUMBER	Principal units as reported by the Financial Institution.	
18	PRINCIPAL_COST_BASIS	NUMBER	Principal cost basis as reported by the Financial Institution.	
19	PRINCIPAL_MARKET_VALUE	NUMBER	Principal market value as reported by the Financial Institution (e.g. PRINCIPAL CASH market value).	
20	INCOME_UNITS	NUMBER	Income units as reported by the Financial Institution.	
21	INCOME_COST_BASIS	NUMBER	Income cost basis as reported by the Financial Institution.	
22	INCOME_MARKET_VALUE	NUMBER	Income market value as reported by the Financial Institution (e.g. INCOME CASH market value).	
23	MARKET_VALUE_BASE	NUMBER	The market value of the position converted to the base currency of the account.	
24	UNIT_PRICE_BASE	NUMBER	The price of the position converted to the base currency of the account.	
25	CURRENCY_CODE_BASE	CHAR3	ISO 4217 currency code of the base currency of the account as determined from the FI_SUPPLIED_CURRENCY_BASE field.	
26	FI_SUPPLIED_CURRENCY_BASE	CHAR64	The base currency of the account as provided by the Financial Institution.	
27	ACCRUED_INCOME_BASE	NUMBER	Value of the income in the base currency that has accrued to the holding but has not yet been distributed.	
28	PRINCIPAL_MARKET_VALUE_BASE	NUMBER	The principal portion of the market value of the position in the base currency of the account.	
29	INCOME_MARKET_VALUE_BASE	NUMBER	Income market value as reported by the Financial Institution (e.g. INCOME CASH market value).	
30	MARKET_VALUE_LOCAL	NUMBER	The market value of the position in the local currency of the	

				holding.
31	UNIT_PRICE_LOCAL		NUMBER	The price of the position in the local currency of the holding
32	CURRENCY_CODE_LOCAL		CHAR3	ISO 4217 currency code of the local currency of the holding as determined from the FI_SUPPLIED_CURRENCY_LOCAL field.
33	FI_SUPPLIED_CURRENCY_LOCAL		CHAR64	The local currency of the holding as provided by the Financial Institution.
34	ACCRUED_INCOME_LOCAL		NUMBER	Value of the income in the local currency that has accrued to the holding but has not yet been distributed.
35	PRINCIPAL_MARKET_VALUE_LOCAL		NUMBER	Principal market value as reported by the Financial Institution (e.g. PRINCIPAL CASH market value).
36	INCOME_MARKET_VALUE_LOCAL		NUMBER	Income market value as reported by the Financial Institution (e.g. INCOME CASH market value).
37	EXCHANGE_RATE_LOCAL_TO_BASE		NUMBER	The local-to-base exchange rate as provided by the Financial Institution.
38	EXCHANGE_RATE_LOCAL_TO_USD		NUMBER	The local-to-USD exchange rate as provided by the Financial Institution.
39	COUPON		NUMBER	The interest payment rate of a debt instrument.
40	MATURITY_DATE		DATE	The date a debt instrument becomes due and pays in full.
41	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.
42	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.
43	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 will be empty.
44	VALUE_SOURCE	v	CHAR12	The source of the market value for this holding. May be one of

				<p>the following strings: FI, WPAPPROX, USER.</p> <ul style="list-style-type: none"> • FI - the market value was collected from the Financial Institution. • WPAPPROX – WebPortfolio approximated the market value 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.
45	ACCOUNT_NUMBER		CHAR64	Alphanumeric string used to identify this Account at the Financial Service where this Account is held.
46	PRINCIPAL_OR_INCOME		CHAR1	Defaults to 'P'. Set to 'I' if the position has a non-zero and non-blank value in the INCOME_UNITS field.
47	PRIOR_BUSINESS_DAY_DATE		DATE	The date of the business day prior to the day that the file was generated.
48	ASSET_CLASS		CHAR64	<p>The asset class of this security, one of:</p> <ul style="list-style-type: none"> Unclassified Stocks Bonds Cash Real Estate Other
49	ASSET_SUBCLASS		CHAR128	The asset subclass of this security, see list below.
50	POSITION_ID		NUMBER	Unique numeric ID for the Position. This is a BAA Internal ID and is unique across all positions within the WebPortfolio repository.

Asset subclass values:

- 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)
- 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

Security File

Col #	Column Header	Required	Data Type	Description
1	SYMBOL	v	CHAR512	Symbol used to identify this security. May be a CUSIP, TICKER, SEDOL, ISIN, or a dummy symbol (when no official symbol can be determined).
2	SYMBOL_TYPE	v	CHAR6	Describes the type of the symbol in the SYMBOL field. Text is one of the following: CUSIP, TICKER, SEDOL, ISIN, OTHER.
3	NAME	v	CHAR128	Name for this Security (e.g., "Ford Motor Company")
4	SECTYPE	v	CHAR20	Type of Security, one of: BOND CASH MUTUALFUND OPTION OTHER STOCK
5	TICKER		CHAR32	Ticker symbol for this Security (e.g., "F"), if available
6	CUSIP		CHAR9	Committee on Uniform Security Identification Procedures (CUSIP) for this Security (e.g., "345370860"), if available
7	SEDOL		CHAR7	Stock Exchange Daily Official List number for this security, if available. SEDOL is a code used by the London Stock Exchange to identify foreign stocks, especially those that aren't actively traded in the U.S. and don't have a CUSIP.
8	ISIN		CHAR12	ISIN for this security, if available. A unique international code that identifies a securities issue. Each country has a national numbering agency that assigns ISIN numbers for securities in that country.
9	COUPON		NUMBER	Coupon rate for debt instruments.
10	MATURITY_DATE		DATE	Maturity date for debt instruments.
11	PRIOR_BUSINESS_DAY_DATE		DATE	The date of the business day prior to the day that the file was generated.
12	ASSET_CLASS		CHAR64	The asset class of this security, one of: Unclassified

				Stocks Bonds Cash Real Estate Other
13	ASSET_SUBCLASS		CHAR128	The asset subclass of this security, see list under Security file description.

Price File

CI generates an entry in the Price file for each security referenced by a position or transaction in the current download and for which a price is available for the prior business day. The following table defines the columns of output that CI creates for the Price file:

Col #	Column Header	Required	Data Type	Description
1	SYMBOL	v	CHAR512	Symbol used to identify this security. May be a CUSIP, TICKER, SEDOL, ISIN, or a dummy symbol (when no official symbol can be determined).
2	SYMBOL_TYPE	v	CHAR6	Describes the type of the symbol in the SYMBOL field. Text is one of the following: CUSIP, TICKER, SEDOL, ISIN, OTHER.
3	CLOSE_PRICE	v	NUMBER	The closing price of the security for the date in PRICE_AS_OF.
4	PRICE_AS_OF	v	DATE	The date for which CLOSE_PRICE is the closing price of the security.
5	CURRENCY_CODE		CHAR3	ISO 4217 currency code. This will always be USD or blank in this release of CI.
6	PRIOR_BUSINESS_DAY_DATE		DATE	The date of the business day prior to the day that the file was generated.

Additional Data Standardization

CI provides additional standardization of the data, in particular, transaction data, to make it more uniform across custodians. This standardization is done via several mechanisms and the most common transactions that require this additional standardization are these:

- Reinvestments

Custodians report reinvestment activity in a variety of ways, sometimes with multiple transactions and other times with just a single transaction. This behavior can even vary by account within a single custodian. CI provides standardization to a single Reinvestment transaction in these cases when the "Combine dividend with other transactions that represent a reinvestment..." option is enabled (Setup- >Configuration- >Advanced->Transactions tab- >General Options).

- Exchanges

Often reported as "Transfers" the activity of exchanging one mutual fund for another in a retirement account is more correctly modeled as a trade (Buy, Sell) rather than an asset transfer. CI converts exchanges that are reported by the custodian using "Transfer" type code or language to a Buy or Sell as needed.

- Retirement account Contributions and Distributions

Many retirement plan web sites do not report on cash activity explicitly. The account holder's contributions to the account are often reported as a single "Contribution"

transaction with a related mutual fund (or other security). The transaction actually represents a deposit of cash to the account and a subsequent purchase of the security. Similarly compact reporting is made on the withdrawal side, where a "Distribution" transaction with a related mutual fund actually represents a sell of the fund and a withdrawal of cash. CI converts these transactions to appropriately account for cash by generating a Cash Deposit and a Buy for Contributions and a Sell and a Cash Withdrawal for Distributions.

- Retirement account Fees

Similar to the previous item, Fees may be reported as a Fee against a mutual fund (or other security). The Fee transaction describes the selling of the fund and then a withdrawal of cash to pay the named fee. CI converts these transactions to appropriately account for cash by converting them to a Sell and a Fee.

CI provides options to control how certain types of transactions are output:

- Bond purchase/sale - You can opt to have CI identify and combine Bond purchase transaction pairs where one transaction is the bond purchase and the other is the purchase of the associated accrued interest. The same option controls combining Sell and Sell Accrued transactions for Bonds. Since some custodians report a single transaction that includes the accrued income while other custodians report two transactions, this option lets you produce a consistent single transaction for these cases regardless of which way the custodian reports the activity.
- Reinvestments - You can opt to have CI identify and combine two transactions (Dividend and Buy, Dividend and Reinvestment) into a single Reinvestment transaction. Some custodians report reinvestment of dividends using multiple transactions while others use just a single transaction. This option lets you consistently produce a single transaction for a reinvestment regardless of custodian behavior.

Data Customization

CI provides support for the following data customizations:

- Position Filters

Position filters are used to omit from CI's output any positions you do not want delivered to your target system. When a position is omitted, all associated transactions are also omitted. Position filters are implemented for you by ByAllAccounts and are encoded in an XML file that is specific to you. Filtered positions are not included in the BAAREC_yyyymmdd.csv file but they are written to another file named BAAEXCLUDEDREC_yyyymmdd.csv file. Similarly, filtered transactions are not included in the BAATRX_yyyymmdd.csv but are written to the BAAEXCLUDEDTRX_yyyymmdd.csv file.

- Transaction Filters

Transaction filters are used to omit from CI's output any transactions you do not want delivered to your target system. Transaction filters are implemented for you by ByAllAccounts and are encoded in an XML file that is specific to you. Filtered transactions are not included in the BAATRX_yyyymmdd.csv but are written to the BAAEXCLUDEDTRX_yyyymmdd.csv file.

- Custom Transaction Translation

CI provides a default set of transaction translations for standardization purposes. You can override these translations to produce different transaction output using the custom transaction translation mechanism. Custom transaction translations are implemented for you by ByAllAccounts and are encoded in an XML file named CiTxTransCommonCust.xml.

- Automatic generation of sweep transactions

CI can create “sweep” transactions for accounts where the custodian does not explicitly report those transactions. “Sweep” transactions are those which move the cash that is generated by another transaction into or out of the “sweep” holding, typically a money market. You control whether CI creates these sweep transactions by enabling the “Create sweep transactions using this holding” option in the Account Translation.

CI enables you to specify the symbol, symbol type, and security type of the sweep symbol for each account for which you want sweep transactions to be created. The following reserved symbols are not allowed for use as the sweep symbol: CASH BALANCE, MONEY MARKET BALANCE, or MARGIN BALANCE. If you have an account that reports the money market position as simply “MONEY MARKET” then WebPortfolio will assign the ticker “MONEY MARKET BALANCE”. In this case, use CI to define the translation for MONEY MARKET at the account level in the Add/Edit Account Translation dialog. You should then use the new symbol for money market in the Sweep configuration.

For each download of transactions, CI will determine which transactions from the custodian require a sweep transaction. Original transactions with a positive (and non-zero) FLOW_AMOUNT will cause a Buy of the sweep security while transactions with a negative FLOW_AMOUNT will cause a Sell of the sweep security. Transactions with a zero FLOW_AMOUNT will not cause any sweep transactions. The following table shows which final (after all additional normalization and translation steps have occurred) CI transactions will cause sweep transactions to be generated if sweeps are configured for the associated account:

TX_TYPE	Sweep Transaction Type
ATM	
IN	BUY
OUT	SELL
BUY	SELL
CHECK	SELL
CLOSURE	No sweep
CREDIT	BUY
DEBIT	SELL
DEPOSIT	BUY
DIRECT_DEBIT	SELL
DIRECT_DEPOSIT	BUY
DIVIDEND	BUY
FEE	SELL
INCOME	BUY
INTEREST	BUY
INVESTMENT_EXPENSE	SELL
JOURNAL (CASH)	
IN	BUY
OUT	SELL
MARGIN_INTEREST	SELL
OTHER	No sweep
PAYMENT	SELL
POINT_OF_SALE	SELL
REINVESTMENT	No sweep
REPEAT_PAYMENT	SELL
RETURN_OF_CAPITAL	BUY
SELL	BUY
SERVICE_CHARGE	SELL
SPLIT	No sweep
TRANSFER (CASH)	
IN	BUY
OUT	SELL
WITHDRAWAL	SELL

Sweep transactions use the TOTAL_AMOUNT of the originating transaction as well as its currency. The sweep will only be created if the original transaction's local currency matches its base currency.

Customized Transaction Translation

CI provides for additional customization of data translation via the CI initialization file, CI.ini. The following table lists the CI parameters that affect customization. Please refer to the Custodial Integrator Installation Guide for more information on setting a parameter in the initialization file.

Parameter label	Parameter value(s)	Default	Description	Example
overwriteposzerounits	useMV use1 none	useMV	Used to handle positions where neither quantity nor price is reported by the financial institution. If not specified or useMV is specified then the quantity is set to the market value of the position and the price is set to \$1. If use1 is specified then set the quantity to 1 and the price equal to the market value. If none is specified then do not report any quantity for the position in either the reconciliation file or the position file.	overwriteposzerounits =useMV

Security Identification

Several of the output files (transaction, position, price) require a security reference. Due to the variations in source data from Financial Institutions and the limitations of the WebPortfolio security master, a valid symbol may not always be available from WebPortfolio for CI to use in its output. Please note that you can define security translations in Custodial Integrator. The following lists the default security identification behavior of CI in the various situations that can occur:

1. Security Found in WebPortfolio Security Master:
 - a. The position (or transaction) as presented by the Financial Institution has a Ticker and/or a CUSIP and the symbol identifies a security in the WebPortfolio security master. CI will use the Ticker from the WebPortfolio security master in this case as the security symbol for the Position and all transactions against this position. If no Ticker is available in the WebPortfolio security master then CI will use the CUSIP from the WebPortfolio Security Master.
 - b. The position (or transaction) as presented by the Financial Institution has no symbol information but WebPortfolio is able to identify it as a security in the WebPortfolio security master through evaluation of descriptive information for the position. CI will use the Ticker from the WebPortfolio security master in this case as the security symbol for the position and all transactions against this position. If no Ticker is available in the WebPortfolio security master then CI will use the CUSIP from the WebPortfolio Security Master.
2. Symbol info provided by institution but not found in WebPortfolio Security Master:

The position (or transaction) as presented by the Financial Institution has a Ticker and/or a CUSIP but WebPortfolio is unable to identify a corresponding security in the WebPortfolio security master using this symbol information. CI will use the symbol

information from the Financial Institution (Ticker if present, otherwise CUSIP) to identify the security in the output files. CI has no way to ascertain if the Financial Institution is providing a 'dummy' or otherwise invalid symbol. CI will use the security type 'OTHER' in this case.

3. No Symbol Information:

The position (or transaction) as presented by the Financial Institution has no symbol information and BAA is not able to identify it as a security in the BAA security master. CI has no symbol information for the security in this case. CI will use the 'name' of the position (when present) to identify the security for a position. The name is the descriptive name for the position presented by the Financial Institutions. If no name is present for a position or transaction then CI will use the symbol string specified in the CI Configuration field named: **String used when none of these symbols is available**. This defaults to 999999.

USING CUSTODIAL INTEGRATOR

Starting Custodial Integrator

Invoke the Custodial Integrator application through the *Custodial Integrator* icon that has been installed on your Windows desktop. Double-clicking the icon causes CI to start up and display its identifying splash screen:



This will be followed by a display of the main view. To exit the application, use the File->Exit menu item.

CI Configuration

The first time you use CI you will establish the configuration for the accounts that you wish to process on an ongoing basis. You will subsequently need to change your CI configuration only if your output directory changes, your import/export preferences change, or you want to add or remove WebPortfolio accounts from the data translation process. Such changes will typically not occur at the same frequency that you have established for using CI to download data.

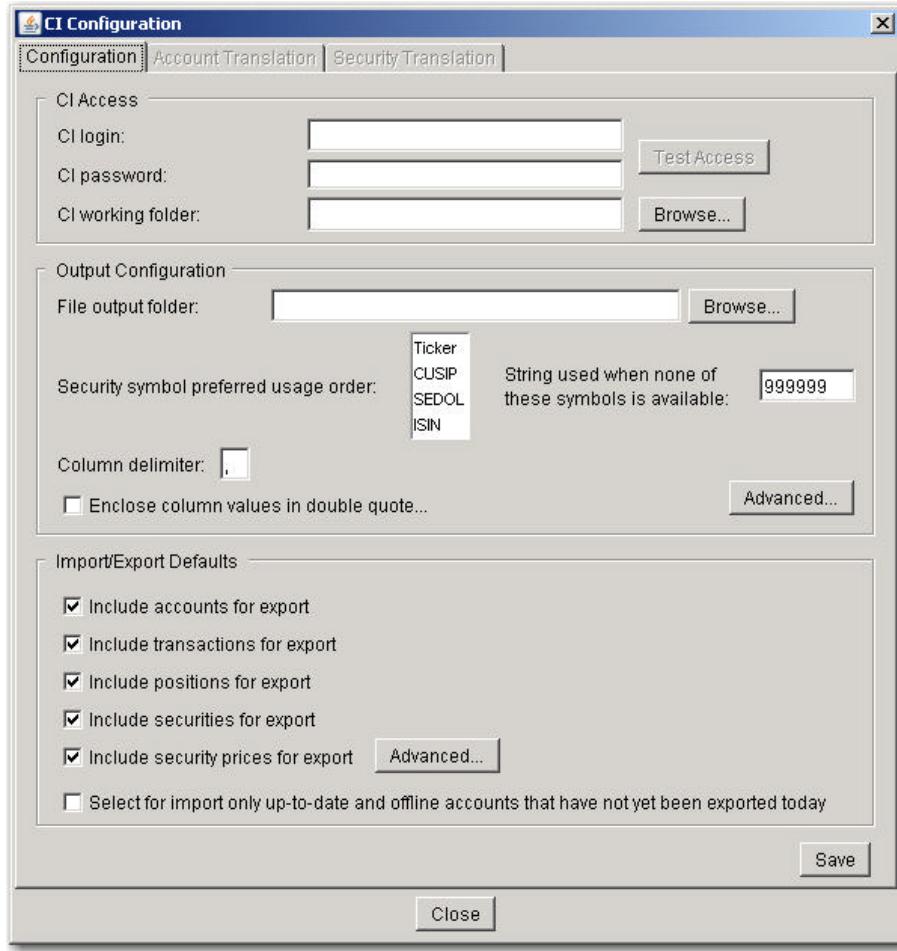
This section provides an explanation of the features in the CI Configuration section of the application. You will need to be familiar with these features to do your initial CI configuration as well as to monitor and maintain it.

Your system administrator has performed some minimal configuration of CI as part of the installation process. We will now review in detail the capabilities of the CI configuration section of the application and update your configuration to prepare for your first download. To begin:

1. Run the CI application using the CI icon on your Windows desktop. The main view displays.
2. Click **Setup...** to bring up the CI Configuration tabbed dialog.

The Configuration tab of the CI Configuration dialog will now appear as shown in Figure 4 below. It contains the following sections of configuration information:

- **CI Access:** login and password to access data from the WebPortfolio service
- **Output Configuration:** configuration settings for the files to be generated
- **Import/Export Defaults:** default settings for the data translation process, including which files to generate.

**Figure 4 - CI Configuration**

CI Access

This section contains login and password that are used to access your firm's data from the WebPortfolio service. This login and password is often the same as what you use to log in to WebPortfolio Advisor.

CI Login – the login assigned to you for data access by ByAllAccounts

CI Password – the password assigned to you for data access by ByAllAccounts

Enter the CI login and password you received from ByAllAccounts in the CI Access section then verify that the login and password have been entered correctly by choosing the Test Access button in the CI Access section. Once the test is complete you should see the message "Access was successfully tested." at the bottom of the CI Access section. If you do not see this message, please contact your system administrator or ByAllAccounts Technical Support to resolve the issue before continuing with the configuration.

This section also includes the **CI Working Folder**, a folder where CI can write temporary files. Set this to a folder specifically created for CI's use and make sure that the folder grants read and write access to those Windows users who will run CI.

Output Configuration

This section contains your preferences for formatting and delivery of output files.

This section enables you to configure the following:

File output folder - designates the folder to receive output files created by CI. Click the **Browse...** button to navigate to the desired directory.

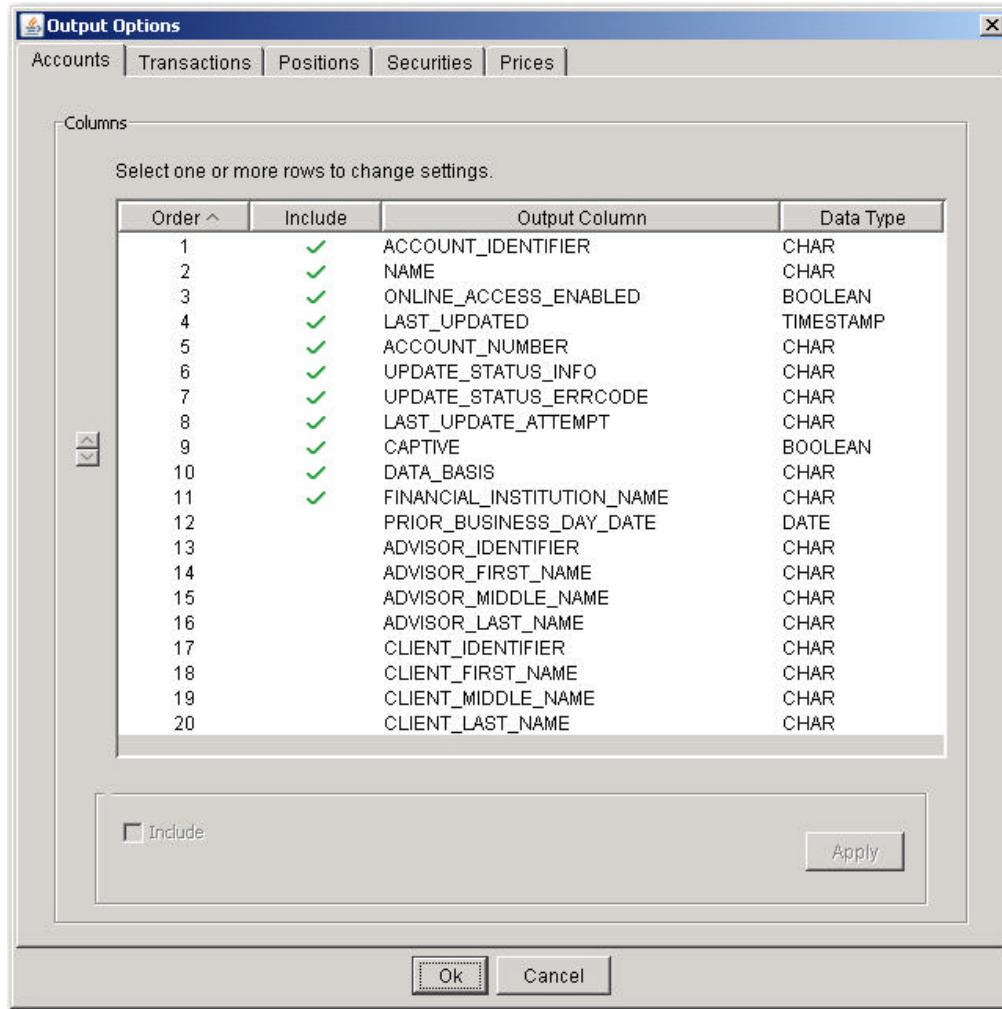
Security symbol preference order – the four types of security symbols that are gathered by WebPortfolio are listed in order. Use the up and down arrow to reorder the symbol types to reflect your preference. If multiple types of security symbols are present for a security (e.g. a CUSIP and a Ticker), CI uses your preference to determine which symbol to use for security identification.

String used when none of these symbols is available – if no symbol is available from the Financial Institution and you do not define a security translation to provide a symbol, CI will generate a unique symbol for the security using the string you provide here as a symbol prefix. Symbols generated in this way will have a symbol type of OTHER.

Column delimiter – the character used to separate columns of data in the output. If you do not opt to enclose column values in double quotes (see next option) then CI will strip the column delimiter from the column values. For example, if you use a comma (",") to delimit but do not use double-quotes to enclose values then CI will strip all commas from your string values prior to writing them to the delimited file.

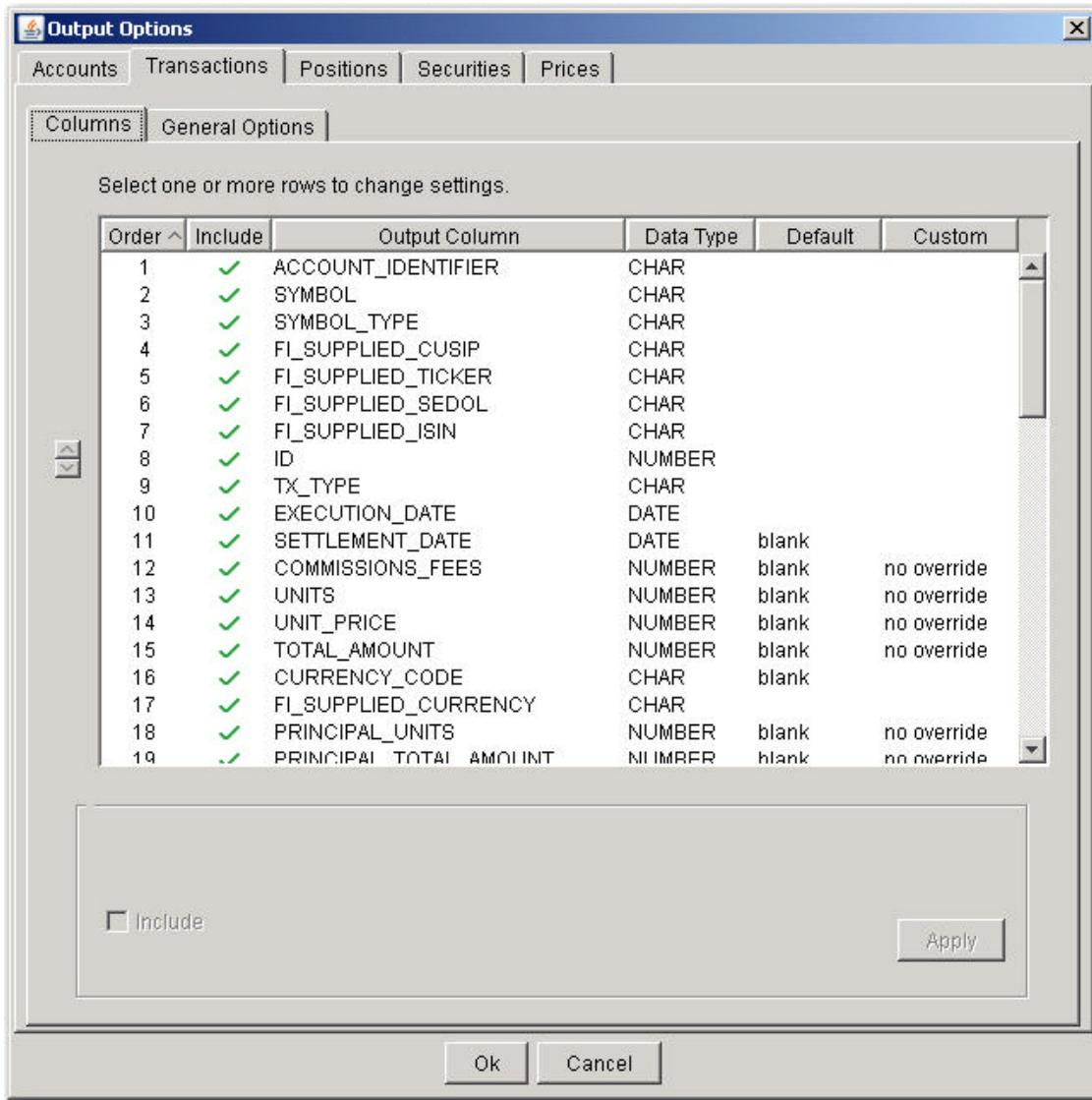
Enclose column values in double quotes ("") – enclose column header strings and column values in double-quotes.

The **Advanced** button produces the following sub-dialog:



The **Output Options** dialog provides a tab of customization options for each of the five output files. All tabs enable you to control which columns are included in the output file and to control the order of those columns in the output file. To prevent a column from being included, select the column, uncheck the **Include** box at the bottom of the dialog, and click **Apply**.

The **Transactions** tab is shown as follows:

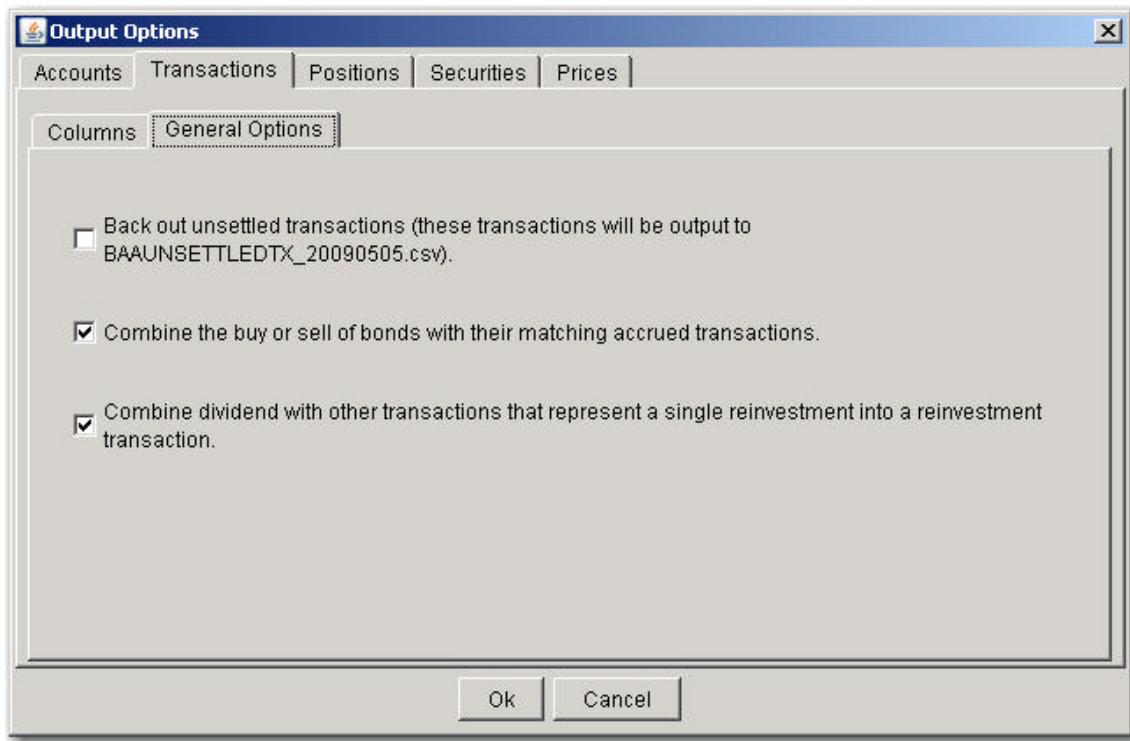


The **Transactions** tab, **Columns** sub-tab also allows you to specify a blank or zero ("0") value to be used for NUMBER type fields (other than the ID) in the case where the field has no value (from the custodian). It allows you to have the absolute value function applied to each of the following fields via a custom option: COMMISSIONS_FEES, TOTAL_AMOUNT, UNIT_PRICE, PRINCIPAL_TOTAL_AMOUNT, INCOME_TOTAL_AMOUNT, TOTAL_AMOUNT_BASE, UNIT_PRICE_BASE, PRINCIPAL_TOTAL_AMOUNT_BASE, INCOME_TOTAL_AMOUNT_BASE, TOTAL_AMOUNT_LOCAL, UNIT_PRICE_LOCAL, PRINCIPAL_TOTAL_AMOUNT_LOCAL, INCOME_TOTAL_AMOUNT_LOCAL.

You can also specify default values for some fields when no value is provided in the source data:

- o CURRENCY_CODE, CURRENCY_CODE_LOCAL – Choose a specific currency code to use.
- o SETTLEMENT_DATE – default to Prior Business Day
- o EXCHANGE_RATE_LOCAL_TO_BASE, EXCHANGE_RATE_LOCAL_TO_USD – use 0 or 1

The **Transactions** tab, **General Options** sub-tab is shown here:



The **Transactions** tab, **General Options** sub-tab provides these global options:

- 'Back out unsettled transactions'.

This option, off by default, will cause CI to perform special handling of transactions whose settlement date is later than the prior business day. These transactions will be reversed in the associated position (e.g. a Buy that is unsettled would cause a reduction in shares of the corresponding position) and the transactions will not be included in the transaction output file. For positions that are adjusted and subsequently have non-zero units, the positions' market value, principal market value, and income market value will be recalculated by using the percentage change in units as a factor. The same calculation will be performed for the base and local market values, principal market values, and income market values. They will be written to a special additional file named BAAUNSETTLEDTX_yyyymmdd.csv.

- Combine the buy or sell of bonds with their matching accrued transactions

This option, selected by default, causes the combining of a Buy and Buy Accrued or a Sell and Sell Accrued transaction into a single transaction. These transaction pairs occur for bond purchases and sales. The resulting transaction contains the accrued interest purchase in the ACCRUED_INCOME. Disable the option to prevent CI from combining these transactions.

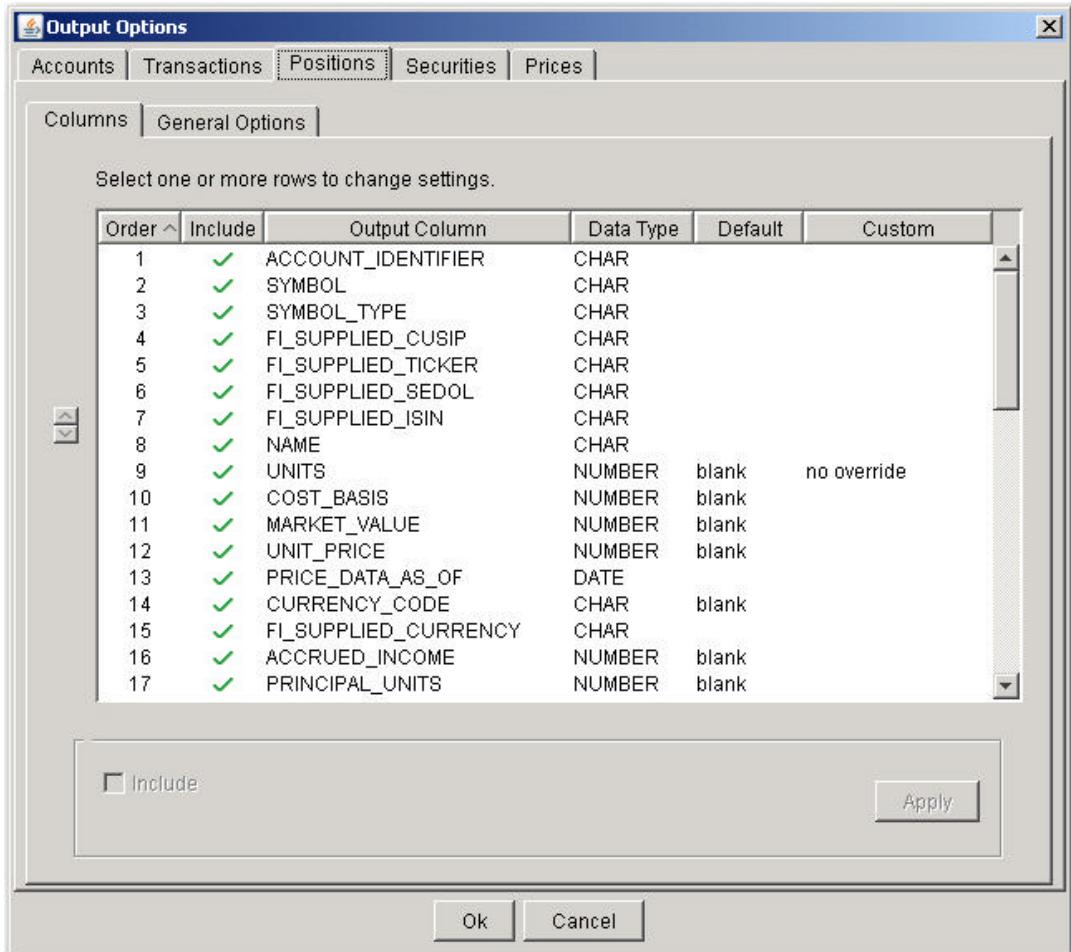
- Combine dividend with other transactions that represent a single reinvestment into a reinvestment transaction

This option, selected by default, causes the combining of a pair of transactions that represent a dividend reinvestment:

- Dividend and a Buy
- Dividend and a Reinvestment

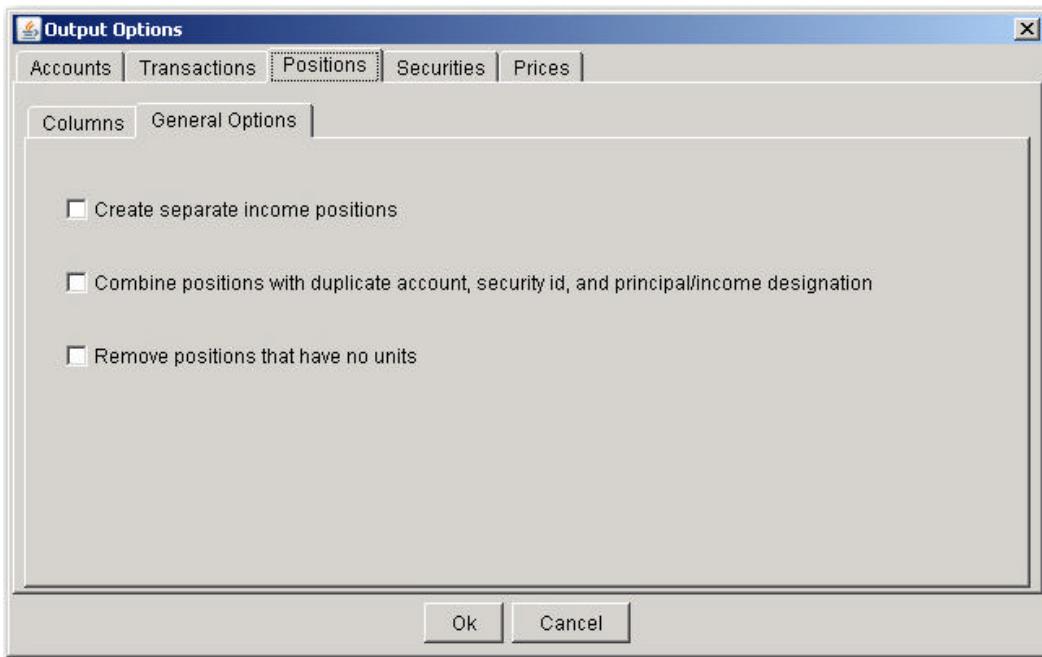
The resulting transaction has a TX_TYPE of Reinvestment. Disable the option to prevent CI from combining these transaction pairs.

The **Positions** tab, **Columns** sub-tab is shown here:



The **Positions** tab also allows you to specify a blank or zero ("0") value to be used for NUMBER type fields (other than the ID) in the case where the field has no value (from the custodian). It allows you to provide a default currency code value for CURRENCY_CODE, FI_SUPPLIED_CURRENCY_CODE, and CURRENCY_CODE_LOCAL columns. You can choose from a list of standard currency codes for this setting. Another option you have is to override the UNITS value with the value of the PRINCIPAL_UNITS field. Finally, the PRINCIPAL_OR_INCOME field can have a default set to blank, 'P', or 'I'.

The **Positions** tab, **General Options** sub-tab is shown here:



The **Positions** tab, **General Options** sub-tab provides these global options:

- Create separate income positions

For any position that has a non-zero value for INCOME_UNITS as well as a value for either UNITS or PRINCIPAL_UNITS, this option specifies that CI should create a new position in the position file to represent the Income portion of the position. The new position will have units, cost basis, and market value all set to the value from the INCOME_UNITS field. The PRINCIPAL_OR_INCOME field will be set to 'I' and all of its PRINCIPAL fields will be set to the default (blank or zero). All remaining fields in the income position will be set from the original position. The original position will have its INCOME_UNITS field set to the default (blank or zero).

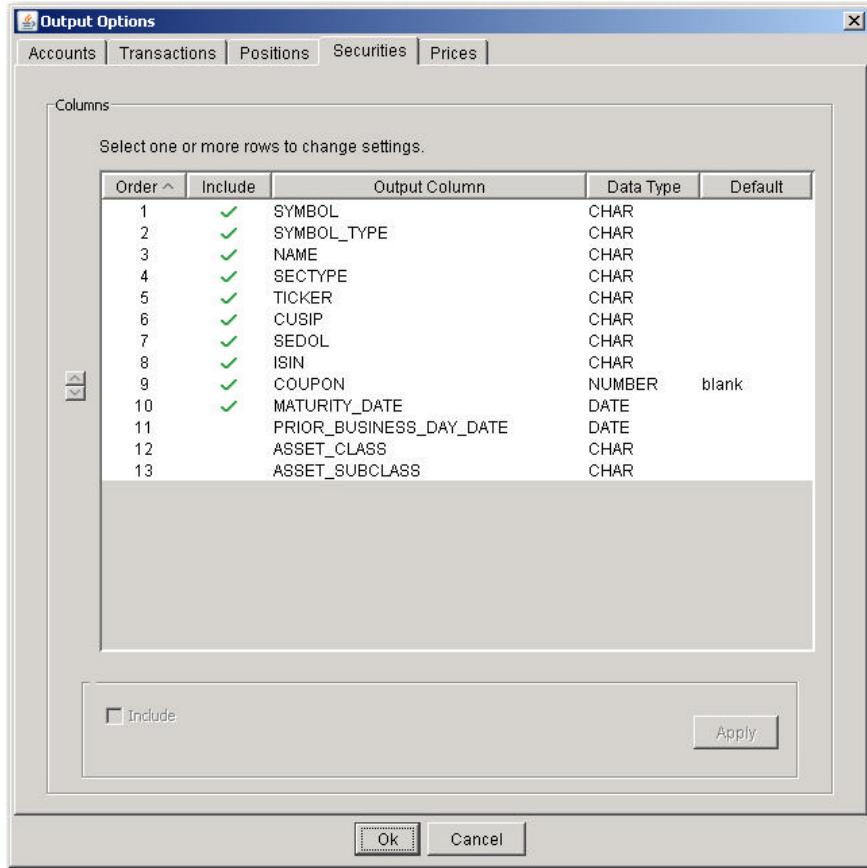
- Combine positions with duplicate account, security id, and principal/income designation

Where there exist multiple positions of the same security within an account and those positions have the same principal/income designation, CI will combine those positions into a single position for output. The combined position UNITS, COST BASIS, and MARKET_VALUE fields will contain the sum of the corresponding fields from the original positions.

- Remove positions that have no units

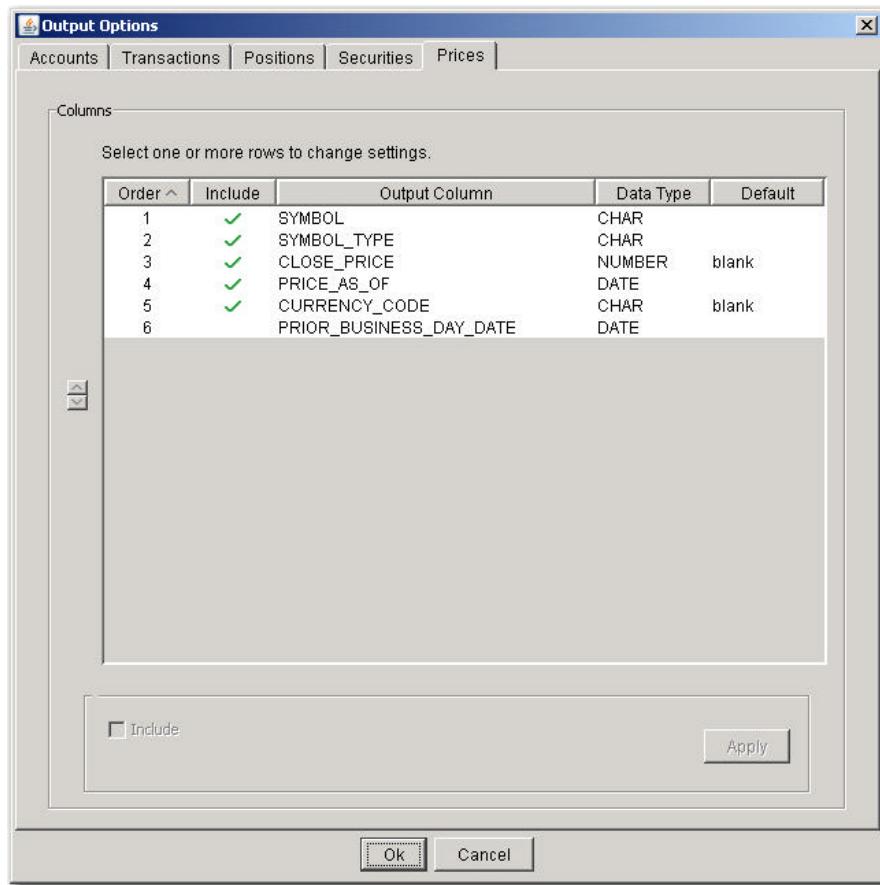
After other position manipulations are performed (backing out unsettled transactions, creating separate income positions, combining positions), CI will exclude from the output any position that has zero in the units field.

The **Securities** tab is shown as follows:



The **Securities** tab allows you to specify a blank or zero ("0") value to be used for NUMBER type fields in the case where the field has no value (from the custodian).

The **Prices** tab is shown as follows:



The **Prices** tab allows you to specify a blank or zero ("0") value to be used for NUMBER type fields in the case where the field has no value (from the custodian). It also allows you to choose a default currency code for the CURRENCY_CODE column.

Import/Export Defaults

This section of the configuration defines the data translation settings you will use on a daily basis. Most of these settings can be overridden in the main view for a particular import/export session.

Include accounts for export – this option controls the creation of an account file.

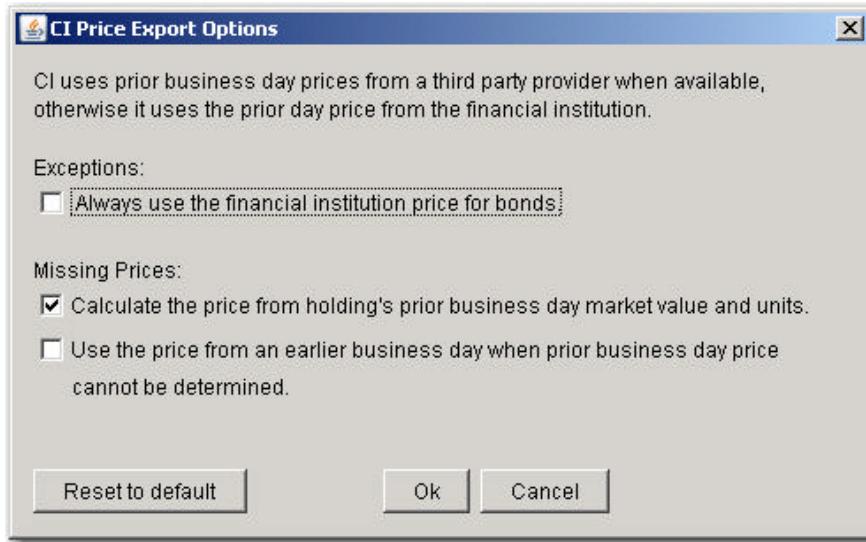
Include transactions for export – this option controls the creation of a transaction file.

Include positions for export – this option controls the creation of a position file.

Include securities for export – this option controls the creation of a securities file.

Include security prices for export – this option controls the creation of a security prices file.

The **Advanced** button produces the following sub-dialog with additional options:



CI uses the prior day closing price from our third party pricing provider. If a price is not available for the security from this provider then CI uses the price provided by the financial institution. One exception to this is that you can configure CI to always use the financial institution's price for bonds instead of first using the third party provider price (when available).

When no price is available from the third party or from the financial institution then the settings in the 'Missing Prices' section specify what should be done. If the 'Calculate the price...' option is set then CI will calculate the price using the holding's market value and units. CI may not always be able to calculate a price in these situations.

The second Missing Prices option, 'Use the price from an earlier business day...' enables you to use a price from an earlier business day (normally considered a 'stale' price) – this can be a useful option when there are holdings that do not price every day. Please note that if the 'Calculate price...' option is checked then CI will first attempt calculation of the price and failing this will use an available earlier business day price if the second Missing Prices option is checked. Prices from a day earlier than prior business day are only used for accounts that are updating successfully from the custodian. If you check the 'Use the price from an earlier business day...' option we strongly recommend that you click the 'View Prices' button in the main view on each download and review prices in that list that have a date earlier than the prior business day.

Select for import only up-to-date and offline accounts that have not yet been exported today – WebPortfolio begins data collection at 1 AM and attempts to update all accounts in WP by approximately 8 AM. Depending on what time you begin the download process, data may not be available for all your accounts, resulting in a need to perform the data translation process multiple times throughout the day. Selecting this option as a default will automatically select any accounts that are ready for download on the Account Status Tab. Accounts that are considered ready for download are those that (1) have updated in today's WebPortfolio data gathering cycle, and (2) have not yet been processed through CI today. For more information see the Account Status section on page 50.

Review the settings in this section of the configuration, make any desired changes, and then press Save. The next step is to configure Accounts for translation.

Account Translation

The Account Translation tab enables you to configure which WebPortfolio accounts you want to download for CI. It also provides functions for maintaining accounts within Custodial Integrator.

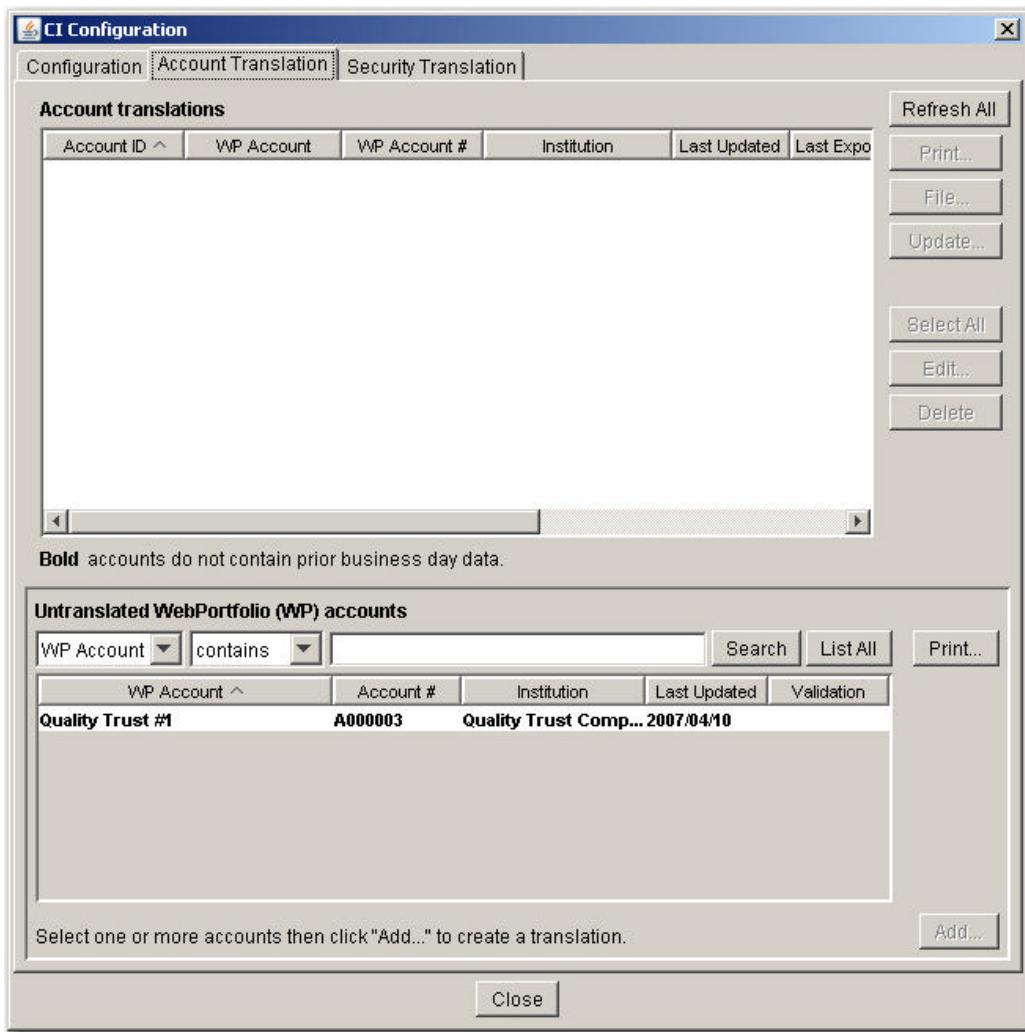


Figure 5 - Account Translation

The Account Translation tab is divided into two major sections. The upper section includes a single table (**Account translations**) that shows the WebPortfolio accounts that have been configured for delivery to output files. The lower section includes a table of accounts present in WebPortfolio for your firm that have not yet been selected for translation (**Untranslated WebPortfolio accounts**). These accounts will not be included when output files are generated.

The **Account translations** table includes the following columns:

- **Account ID** - this is the account identifier that you want used to identify the account in the output files. For example, each transaction will include the value of the **account id** to identify its account of origin. The account file, position file, and transaction file all include the account identifier. CI will automatically assign a value to this field using the Account Number you entered into WebPortfolio for this account. You will need to enter a different value if you have already configured the account in your target system and the account number differs from that in WebPortfolio. You will also need to enter a different value for this account number if the WebPortfolio account number is not unique within the set of accounts you will be downloading through Custodial Integrator. You can edit this field.
- **WP Account** – this is the WebPortfolio Account name (nickname) for reference.

- **WP Account #** - this is the WebPortfolio Account number.
- **Institution** – this is the name of the Financial Institution Service where the account is held.
- **Last Updated** - this is the date when WebPortfolio last gathered data for the account from the Financial Institution
- **Last Exported** – this is the date when Custodial Integrator last exported this account to delimited files
- **Tx date** – this is the date that will be used to determine which transactions should be downloaded in the next cycle. For CI installations that are configured to be trade-date based (the default), the following behavior applies:
 - After the first download for an account is Accepted (see Data Download process) this column will display the word 'latest' for the account instead of a date. This indicates that CI will download all transactions posted to the account since the last download. If an institution posts transactions late to its web site then you could receive transactions with trade date more than one business day in the past. You can edit this field.

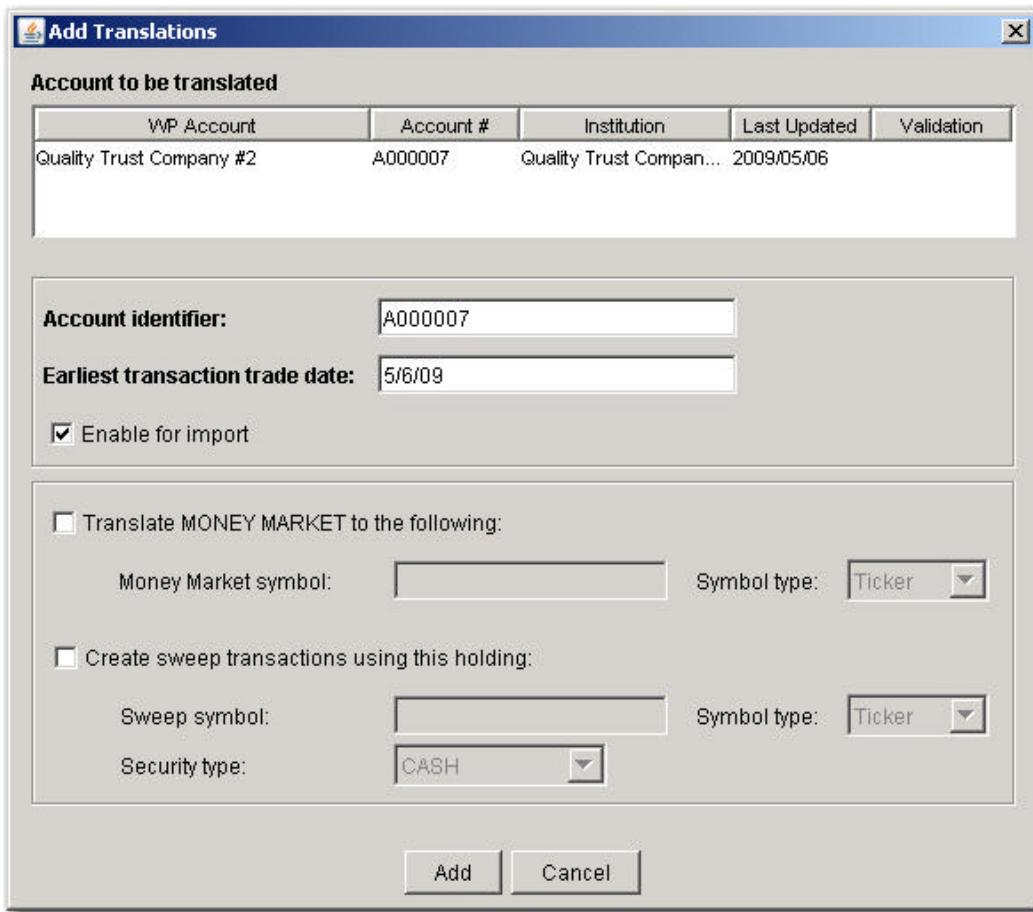
For CI installations that are configured to be settlement-date based, the following behavior applies:

- This column will always show a date that controls which transactions will be retrieved in the next download. CI will retrieve all transactions with settlement date on or after the date shown here. You could receive transactions that will settle in the future, and you will also receive these transactions in your transaction file each day until the settlement date is reached. this account. CI updates this field after the download is complete in preparation for the next download. You can edit this field.
- **Validation** – this is the validation status of the account's Financial Institution and will be one of the following:
 - validated – the account's Financial Institution has been validated for your use with CI. ByAllAccounts recommends that you only translate accounts in CI that have this status.
 - in process – validation is in progress but has not yet been completed
 - invalid – the account's Financial Institution could not be validated for your use with CI due to insufficient data from the institution
 - N/A – you have opted to not use accounts at this Financial Institution with Custodial Integrator
- **MM Symbol** – this is the money market symbol to be used for positions and transactions for this account that refer to a general 'money market' instead of to a specific money market fund. You can edit this field.
- **Sweep Symbol** – this is the symbol to be used for sweep transactions synthesized by Custodial Integrator. You can edit this field.

Adding Account Translations

CI will only download WebPortfolio accounts for which you define an account translation. To add a WebPortfolio account to the translation:

1. Select the account in the **Untranslated WebPortfolio accounts** table and click the **Add** button.
2. The **Add Translations** dialog will appear:

**Figure 6 – Add account translation**

3. CI will automatically enter the account number from WebPortfolio into the **Account identifier** field. You may change the number if you wish to use an account identifier for this account that differs from its custodial account number. What you enter here will be used in the Account ID field for all output files that include an account identifier.
4. Enter a date into the **Earliest transaction trade date** field. This date will be used to control which transactions are included in the first download for this account. Transactions with trade date on or after the date you enter will be included.
5. The **Enable for import** option is checked by default and you will normally want to leave this selected. If for some reason you want to add the translation but do not want the account included in the output files then uncheck this option.
6. Enter a money market symbol (optional). This option is used for accounts at financial institutions that report the money market position as simply 'MONEY MARKET' or 'MONEY MARKET BALANCE' or they report transactions against 'MONEY MARKET' instead of against a specifically named money market fund. Enter here the account-specific money market symbol that you would like used for such positions and transactions in the account when data is generated for output files. You may still have to create additional security translations for money market related items in this account. This field is not required.
7. Enter information for a sweep security for this account but only if you want CI to synthesize sweep transactions. When you enable the 'Create sweep transactions using this holding' option, CI will create sweep Buy and Sell transactions as needed by the other transactions reported for the account. For example, a cash Dividend transaction would cause CI to synthesize a sweep Buy in the amount of the cash Dividend transaction.
8. Click **Add**

Once you add an account to the **Account translation** table it is no longer listed in the **Untranslated WebPortfolio accounts** table.

You can add multiple accounts to the Account Translation table at once if the following criteria are met:

1. Each account can be configured with the default account number (from WebPortfolio)
2. Each account will use the same setting for *money market symbol*.
3. Each account will use the same setting for *earliest transaction trade date* option.
4. All accounts will be either Enabled or Disabled for Import.

To add multiple accounts at once, select them all from the Untranslated table using Shift-Click or Ctrl-Click then press Add. The **Add Translations** dialog appears:

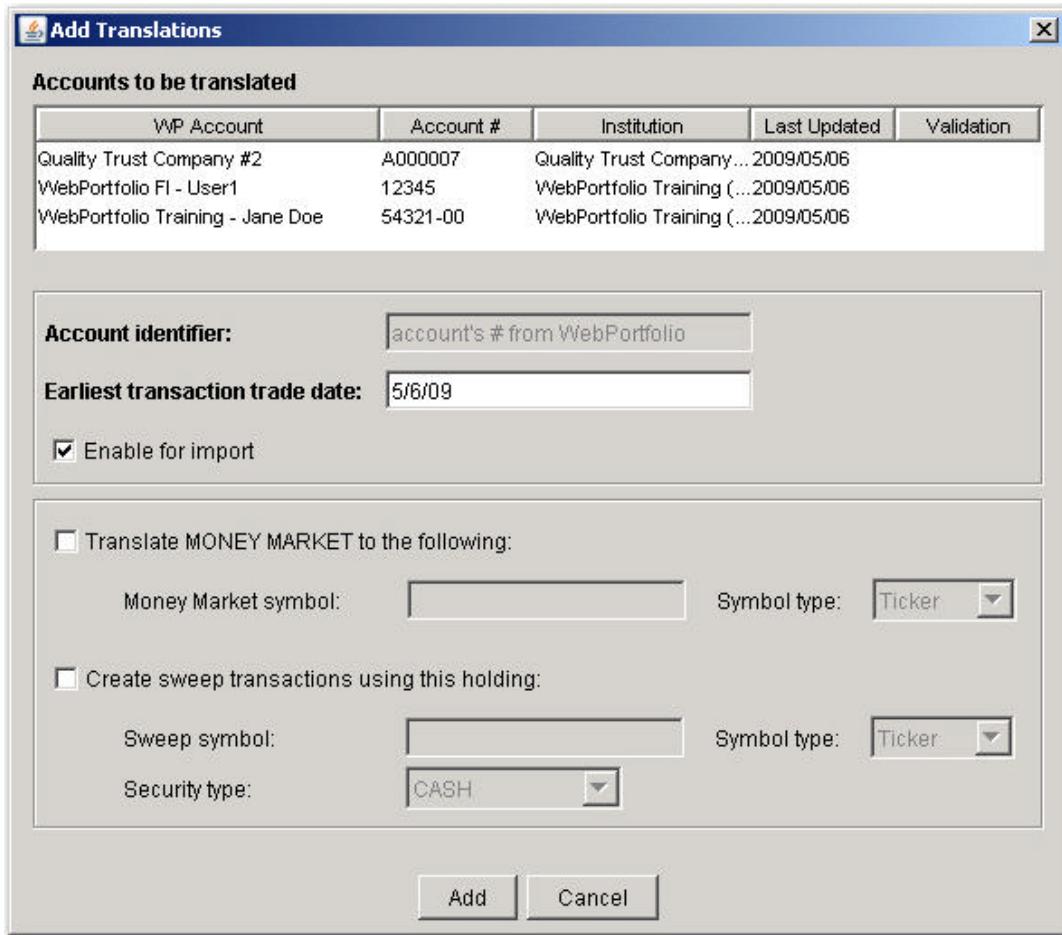


Figure 7 - Add multiple account translations

You may then modify the **Earliest transaction trade date**, **Money Market symbol** and **symbol type**, **Sweep** security information, and **Enable for import** options and click **Add** to add translations for all accounts.

Add some account translations now by following the steps listed above. The remainder of this section describes other capabilities of the **Account translation** tab.

The **Account translation** table contains accounts that are configured for CI to process.

WebPortfolio accounts are created and maintained in the WebPortfolio application and are selected for the CI in this table. These items can be modified or removed in WebPortfolio and this can result in CI's reference to the items becoming invalid. If CI detects an invalid account reference in the Account translation then CI will display that entry in **blue** text. You must resolve the reference error before you can proceed with the download. Typically the reference will be in error because

the account has been removed from WebPortfolio. If this is the case then you should also remove the entry in the Account translation table for this account by selecting the account in the table and pressing the **Delete** button.

Editing Account Translations

The **Account Translation** tab provides for editing existing account translations. You can edit a single account translation or you can edit multiple account translations. To edit a single account translation, select that translation in the Account translations table (top table) and click the **Edit...** button. The **Edit Translations** dialog appears as in the following picture:

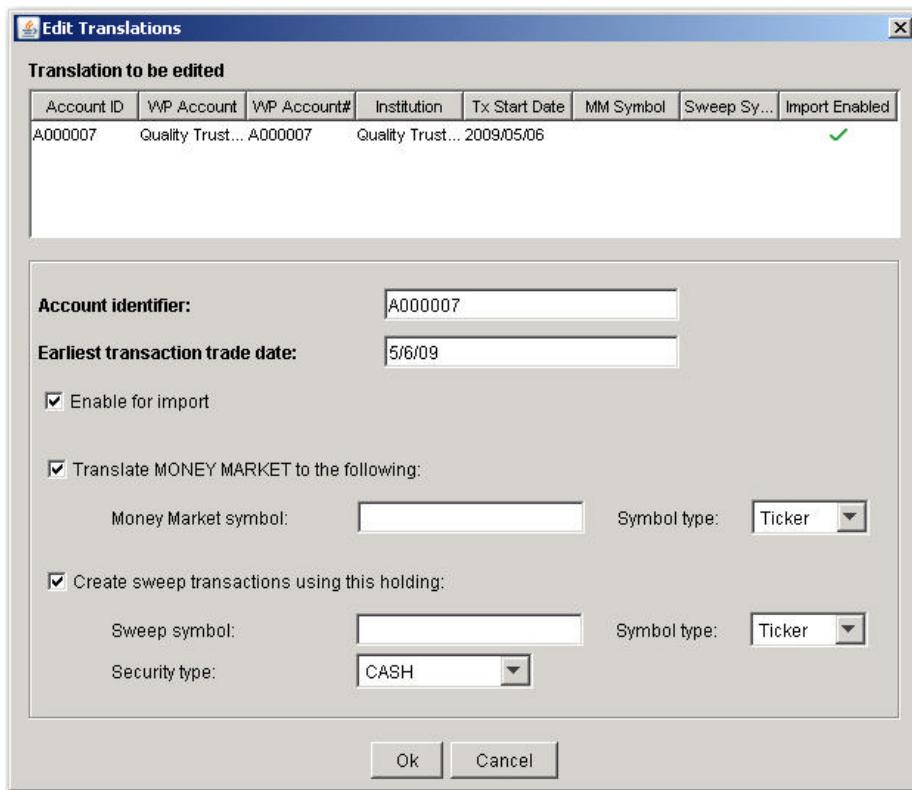
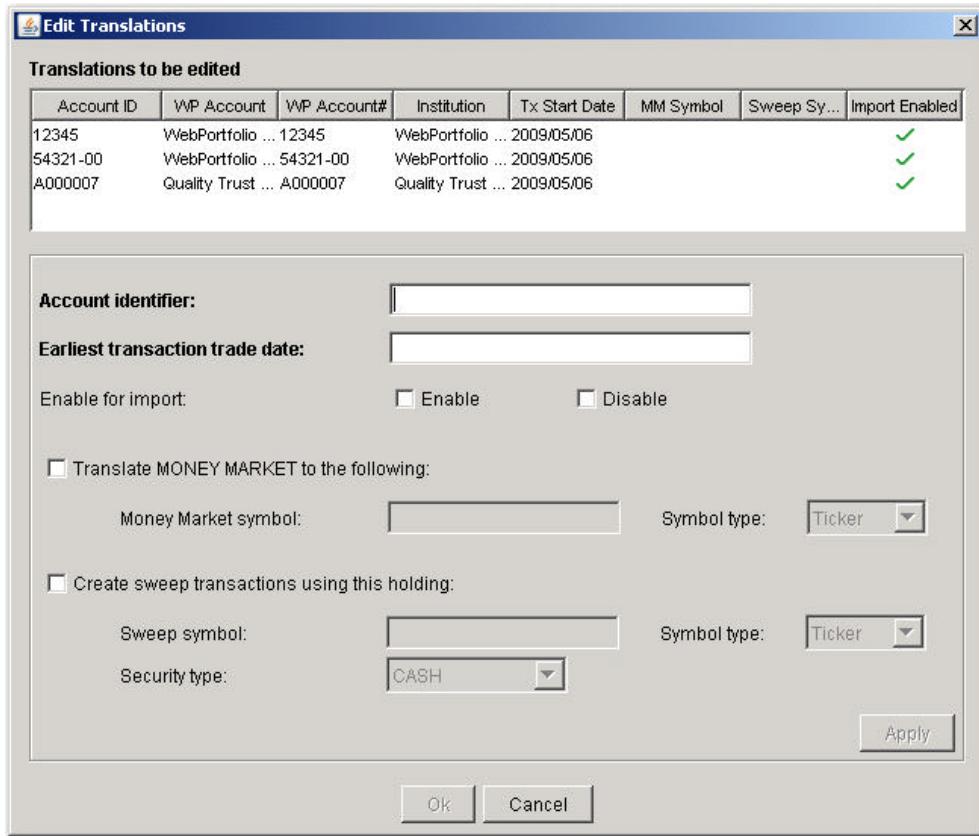


Figure 8 - Edit Account translation

The account translation to be edited is shown in the table at the top. The fields that can be edited are shown in the bottom portion of the dialog. To edit the translation, simply edit the information in the fields shown at the bottom and click Ok.

To edit multiple account translations, select all of the translations in the Account translations table using your mouse and extended select (Ctrl-click to add a single row to the selection, Shift-click to add a range of rows to the selection) and click **Edit...** The **Edit Translations** dialog appears as in the following picture:

**Figure 9 - Edit multiple account translations**

The account translations to be edited are shown in the table at the top. The fields that can be edited are shown in the section below. The values you enter in the lower section will be applied to all of the translations shown in the upper section. If you make a mistake you may terminate the operation without affecting your account translations by selecting the **Cancel** button.

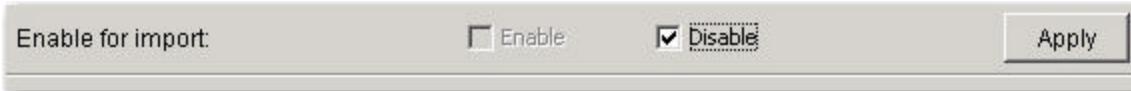
To edit the translations:

1. Enter new values into the fields at the bottom of the dialog. The apply button will become enabled as soon as there is a new value to apply.
2. Apply your change to the translations by clicking **Apply**.
3. Repeat this process to obtain the desired changes.
4. Click **Ok** to save the changes or **Cancel** to exit without making the changes. Note that even if you have hit the **Apply** button you can still **Cancel** without affecting your translations.

Disabling Account Translations

You can disable the delivery of accounts to output files without deleting the account translation. This might be your preferred method of handling accounts that are not updating due to client login/password problems and for which you must wait for a lengthy period before the account will update successfully. To disable the inclusion of a translated account in delimited file output, do the following:

1. Select the account(s) in the **Account translation** table.
2. Click the **Edit...** button.
3. Check the **Disable** check-box under **Enable for import** section:



4. Click **Apply**

5. Click **Ok**

The disabled accounts are now shown in Red in the Account translation table. You can re-enable the accounts by completing the process above but checking the **Enable** check box instead.

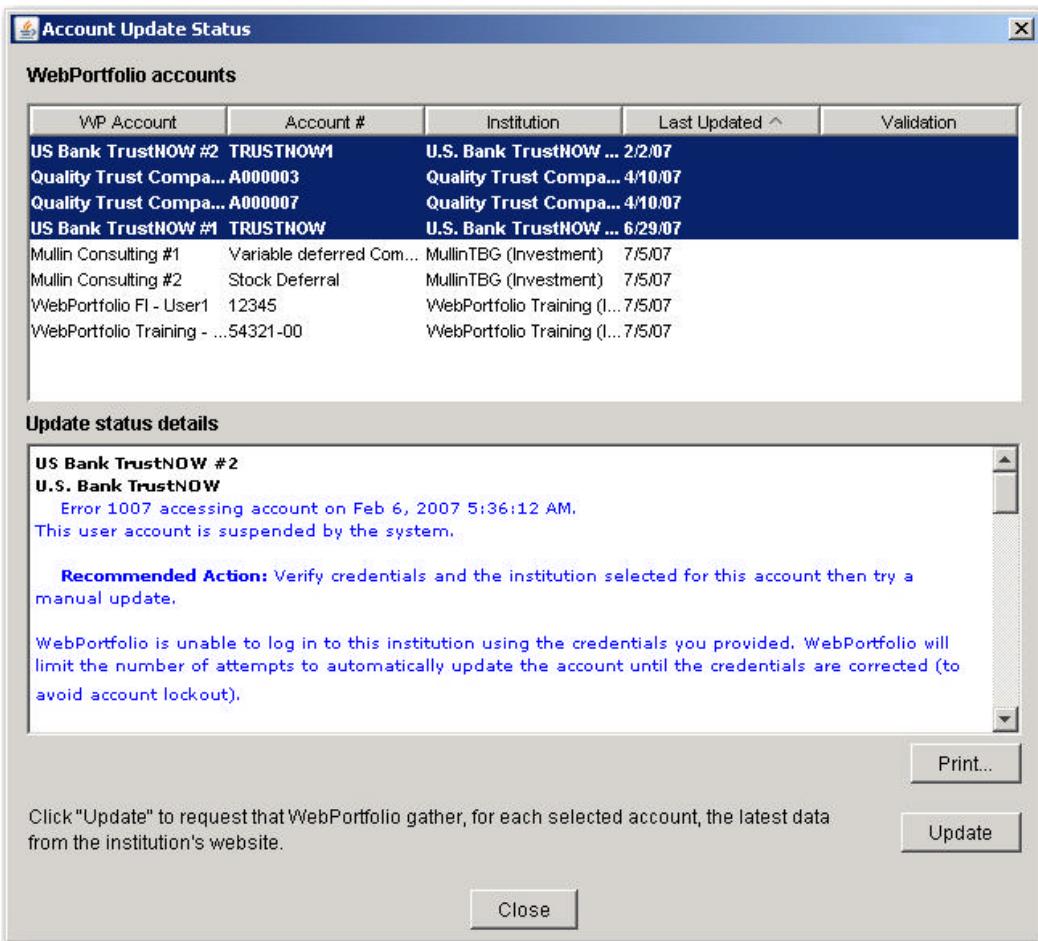
Deleting Account Translations

You may remove account translations when you no longer want those accounts delivered to output files. Deleting an account translation in Custodial Integrator does not affect that account's status in WebPortfolio. If you want to eliminate data gathering for an account you must remove it from WebPortfolio. To delete account translations in CI, select them from the **Account translations** table and then click the **Delete** button. CI will ask you to confirm the deletion. If you confirm, the accounts will be removed from the **Account translations** table and appear in the **Untranslated WebPortfolio Accounts** table.

Account Update Status

The Account Translation tab enables you to review the account update status, that is, when WebPortfolio last updated the account from the Financial Institution and if that update was successful. It will also indicate accounts that do not contain data as of prior close by showing those accounts in **bold**. You should review the detailed status of all accounts in **bold** and take corrective action prior to finalizing your Import. If your account translation tab shows accounts in bold:

- Click the **Update...** button
- The **Account Update Status** dialog will appear as follows:

**Figure 10 - Account update status**

This dialog shows all translated accounts in the upper table (**WebPortfolio accounts**) and it operates similar to the WebPortfolio Account Update status dialog. All accounts that are out of date are selected. The update status for the selected accounts is shown in the **Update status details** section in the lower half of the dialog. You can review the status by scrolling through the Update status details. You may also select an individual account to see the update status for just that account.

If an account is showing a login failure then you must use WebPortfolio to update the account login, password, etc. and test those credentials. For most other account update errors, a manual update may correct the situation. To manually update accounts from within this dialog, select the accounts to be updated in the upper table and click the **Update** button. CI will initiate the Update process for the selected accounts and will provide a 'working' indicator in the lower portion of the dialog:

Updating accounts in WebPortfolio.....

You will not be able to perform any operations in CI until the Update completes. Once the Update completes, the Update dialog will show the latest status of the accounts.

Other Functions in Account Translation

Account translation provides these additional functions:

- The **Refresh all** button will refresh CI's WebPortfolio account listing from the WebPortfolio service and display it in the dialog.
- The **Print...** button will print the account translations table.
- The **Select All** button will select all of the account translations in preparation for a subsequent action (e.g. Edit).

Security Translations

Creating Security Translations

The Security Translation tab contains translations of WebPortfolio securities to securities in your target system (the system into which you are sending the data from CI). WebPortfolio security identification originates with information from the Financial Institution. The Financial Institution may provide a valid CUSIP, ticker, an invalid symbol, and/or a name. WebPortfolio attempts to map this information to securities in the WebPortfolio security master. In the event that WebPortfolio is unable to do this mapping then it will provide the original symbol and name information presented by the Financial Institution.

There are several instances that may require you to create security translations in CI:

1. Your system uses a security identifier other than the one used in WebPortfolio.
2. Your system uses a different security type than the one used in WebPortfolio (e.g. classifying a money market fund as 'Cash and Money Fund' vs. 'Mutual Fund').
3. The Financial Institution provides a symbol but WebPortfolio cannot locate the security in its security master and does not know what the type of the security is (e.g. Cash, Mutual Fund). If no translation is created, CI will use the security type OTHER for this security and this may have undesirable consequences.
4. No security identifier (symbol) is available from WebPortfolio. CI will use the security name unless a security translation is provided.

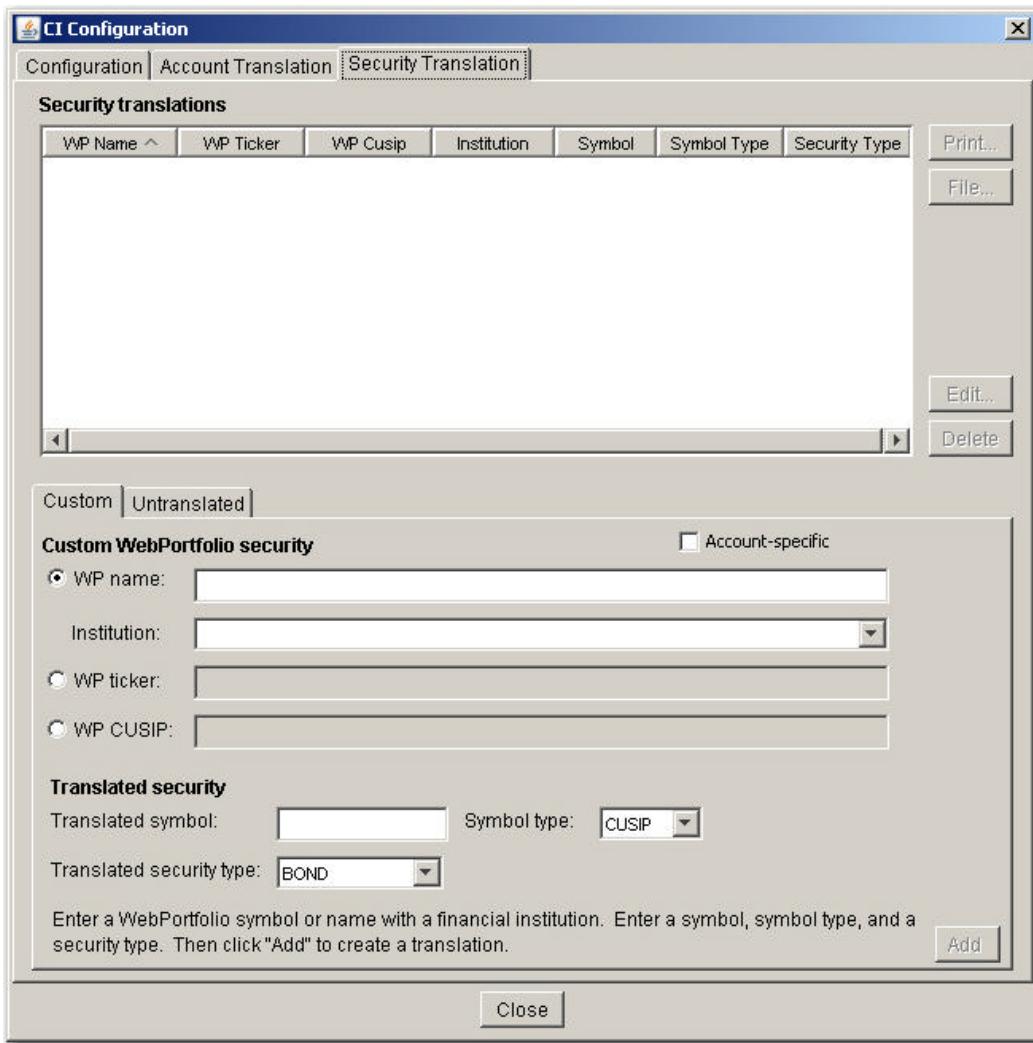


Figure 11 - Security Translation

The Security Translation tab consists of two main sections. The upper section contains a single table that shows security translations that have been defined and is used for viewing and maintaining those translations.

The lower section contains two tabbed areas for creating security translations:

Custom (shown above) this tab enables you to create security translations ad-hoc. This is the tab you will use to create translations for cases 1 through 3 above.

Untranslated (shown below) – this tab shows WebPortfolio securities in the current download for which no security symbol (Ticker or CUSIP) is available in WebPortfolio. If you do not define a security translation for these securities then the 'WP Name' will be used. In the rare situation where no name is available, the symbol column in the output file will contain only the unique symbol string (defaults to 999999).

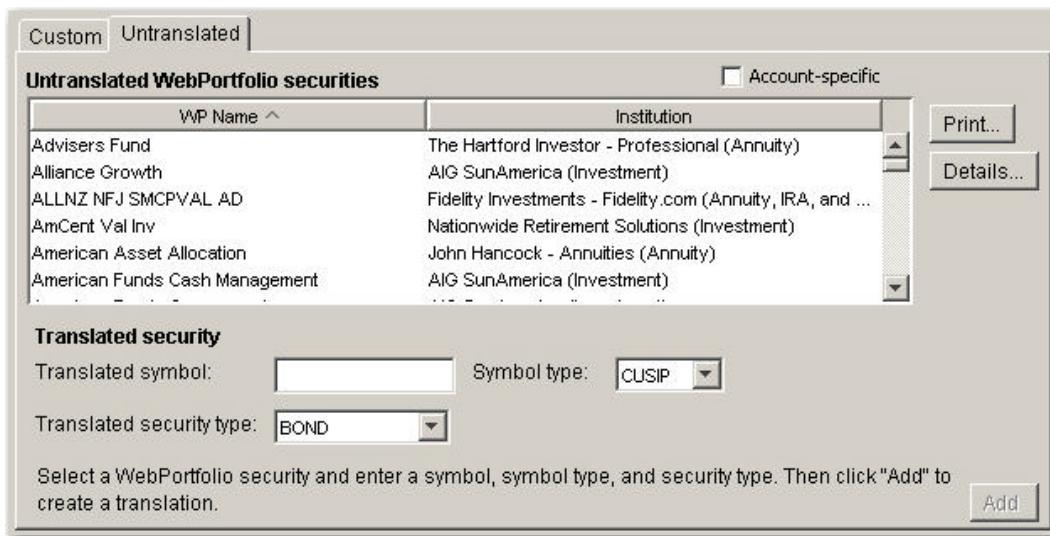


Figure 12 - Untranslated securities

You will create Security Translations for securities without symbols as part of your download process.

Defining Security Translations Ad-Hoc

You may need to establish security translations even if the Financial Institution provides a symbol. You can use the **Custom** tab in the Security Translation dialog to create a security translation. Begin by going to the Security Translation tab in the CI Configuration dialog and Click **Custom** to show the Custom sub-tab. The tab will appear as follows:

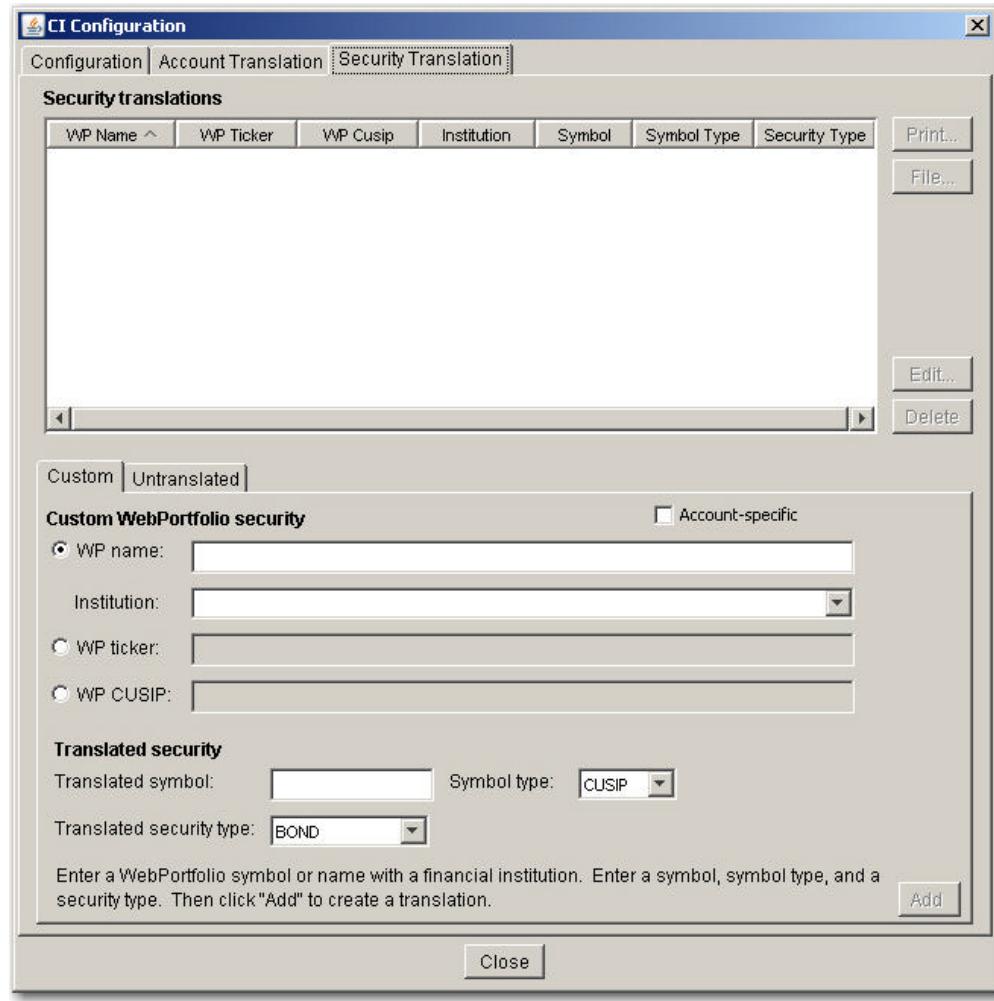
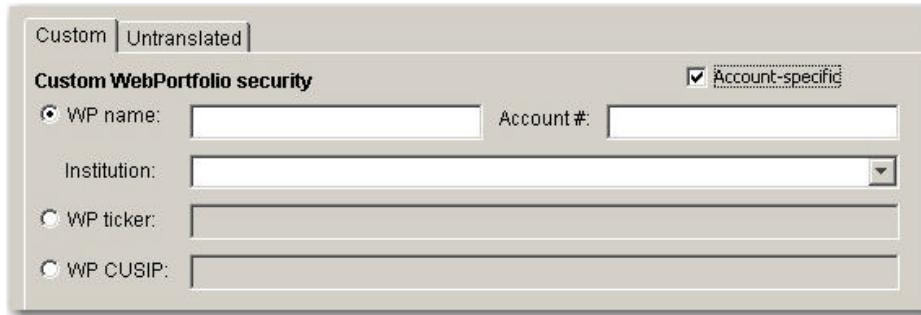
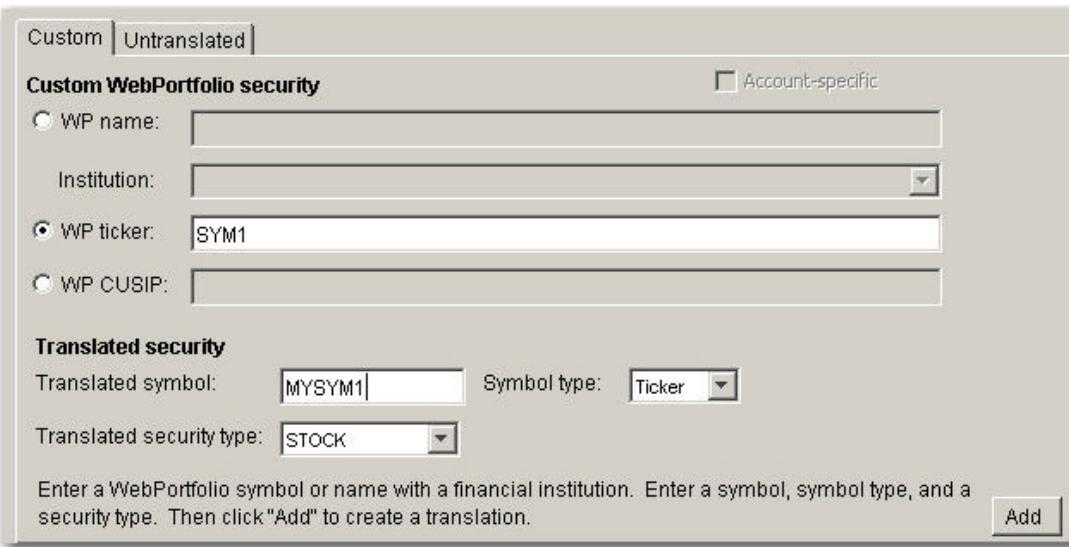


Figure 13 - Security Translation: custom

The **Custom WebPortfolio Security** section of the dialog provides two ways for you to create a custom translation: (1) specify the WP Ticker or CUSIP that WebPortfolio shows for this security, or (2) specify the security name and the Financial Institution where the security is held. The second option can also be used to create an account-specific security translation. Checking the Account-specific checkbox will result in the display of an Account # field as shown in this picture:



The predominant use of a Custom security translation is case (1) above, symbol-to-symbol translations. To make this type of translation, click the 'WP ticker' option so that the Custom tab appears as follows:



To create the translation:

1. Enter the symbol that CI is delivering to the output file in the WP Ticker field.
2. Enter a **Translated symbol** and select the correct **Symbol type**.
3. Enter a **Translated security type**
4. Click **Add**
5. The new Security Translation appears in the **Security translations** table at the top of the dialog.

Most translations that fall into case (2) above will be created through the **Untranslated Security** tab rather than through the **Custom** tab.

Resolving Untranslated Securities

During the Import step, CI will identify those securities for which it does not have a symbol. If any such securities exist, CI will display a **Security Translation...** button in the Main View under the Import step. Complete the following steps to define a Security Translation for Untranslated Securities:

1. Click the **Security Translation** button. The CI Configuration dialog appears and shows the Security Translation tab:

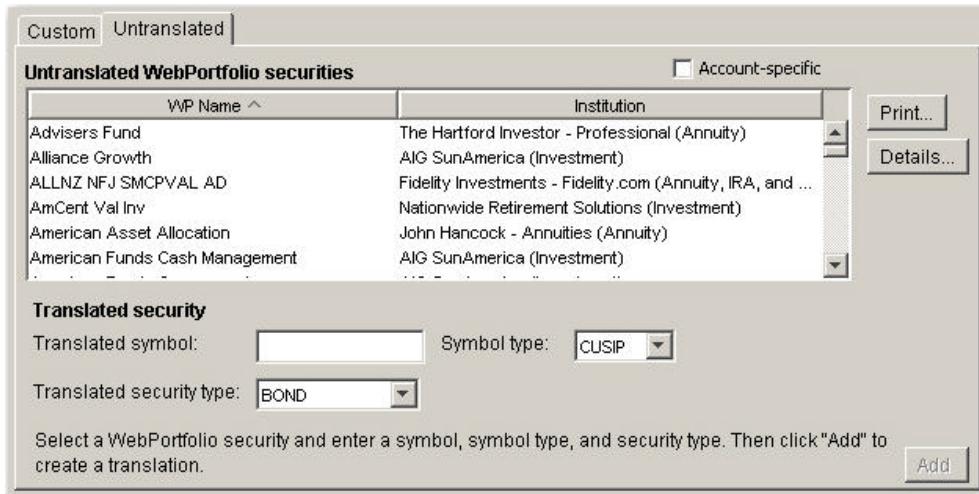


Figure 14 - Security translation: Untranslated

2. The **Untranslated WebPortfolio securities** table contains the securities in this download that could not be translated. In the example above, numerous untranslated securities are shown.
3. Research the security and determine the correct symbol and type to use. Click the **Details...** button to view the positions and transactions in the current download that refer to the untranslated securities listed in this table.
4. Select a security to be translated from the **Untranslated WebPortfolio securities** table.
5. Enter a **Translated symbol**, **Symbol type**, and select a **Translated Security Type**.
6. Click **Add**
7. The new Security Translation appears in the **Security translations** table at the top of the dialog.

Account-specific Security Translations

The Security Translation sub-tabs (Untranslated and Custom) allow you to create account-specific security translations. Use account-specific security translations for the rare cases where securities with the same identifying information (WebPortfolio Symbol or WebPortfolio Financial Institution + Security Name) that are held in different accounts (but usually at the same Financial Institutions) are actually different securities. For example, you may have two annuity accounts at one Financial Institution that both hold a security named 'Stock Index'. The 'Stock Index' security held in one account is not the same as the 'Stock Index' security held in the second account and typically the securities will have different prices.

If you create account-specific security translations for a security you will subsequently be required to establish a new account-specific translation for each account that contains the security. In addition, you will not be able to establish a global security translation for that security. Therefore, for a given security you are either using a global translation or multiple (one or more) account-specific translations.

You will create security translations that are not account-specific most of the time. You must take an additional action to establish an account-specific translation. This action is to check the checkbox labeled 'Account specific' in any one of the Security Translation sub-tabs (Untranslated, Custom). Once you check this, the Security Translation dialog will change to present an account number for those Untranslated securities for which you may establish an account-specific translation. The Custom sub-tab will change to allow you to enter an account number along with WP Name and Institution as part of the security translation. Any account-specific translations you have defined are shown in the upper part of the Security Translation tab and will display the account number associated with the translations. Remember that while the 'Account-specific' checkbox is checked that all of the security translations you create will be account-specific. For this reason, you should always establish all of your global translations first and then establish account-specific translations.

Editing Security Translations

The Security Translation tab provides an Edit button to enable you to edit existing security translations. To edit a security translation, select one row in the Security Translations table and click the Edit button:

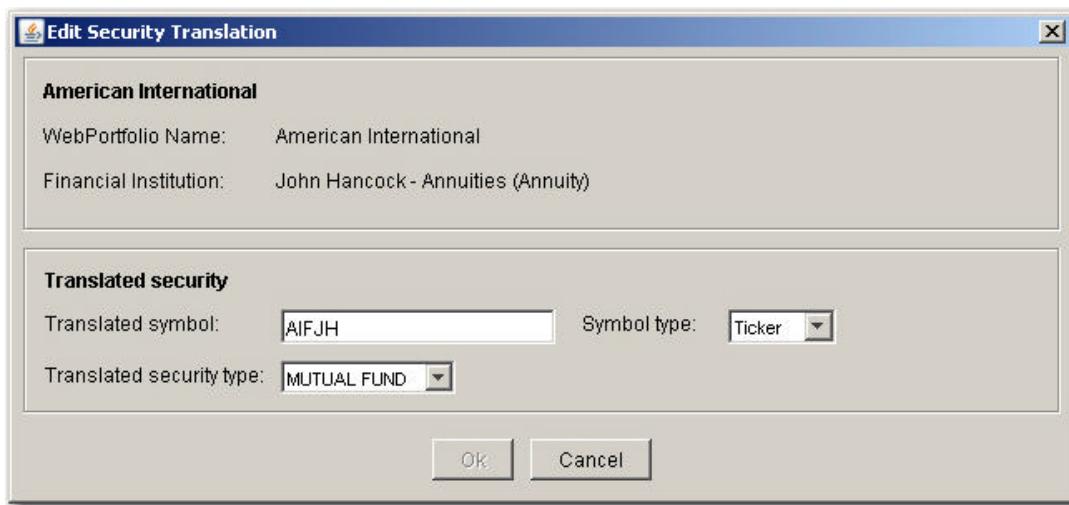


Figure 15 - Edit Security Translation

The Edit Security Translation dialog allows you to change the right-hand side, or “output” side, of the translation. As shown in the picture above, the security name “American International” at the institution “John Hancock – Annuities (Annuity)” is mapped to ticker AIFJH with a type of MUTUAL FUND. Change the values in the **Translated security** section to map this security name to a different target symbol and then click Ok to save that change.

The Edit Security Translation dialog shows the key fields for the translation and will look different for symbol-to-symbol mappings and for account-specific mappings. A symbol-to-symbol mapping will appear as in the following picture:

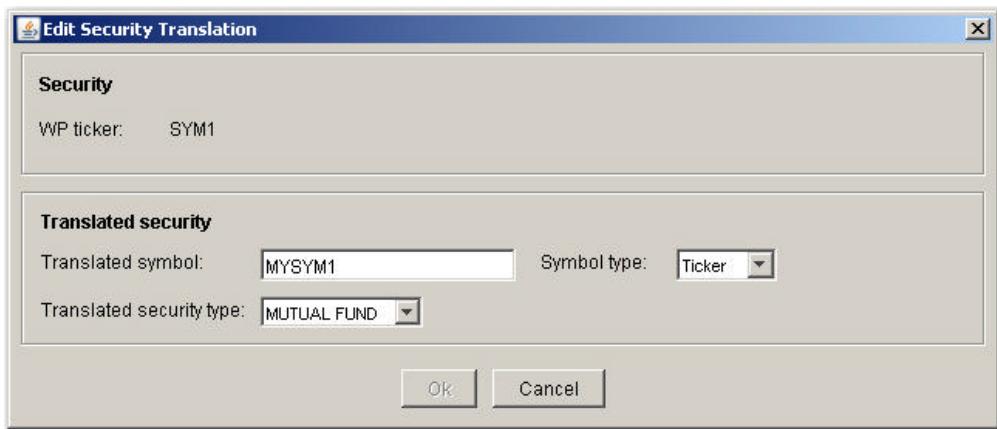


Figure 16 - Symbol to Symbol Translation

An account-specific mapping will look like this, note that the Account number for the John Hancock Annuities account that is mapped is shown:

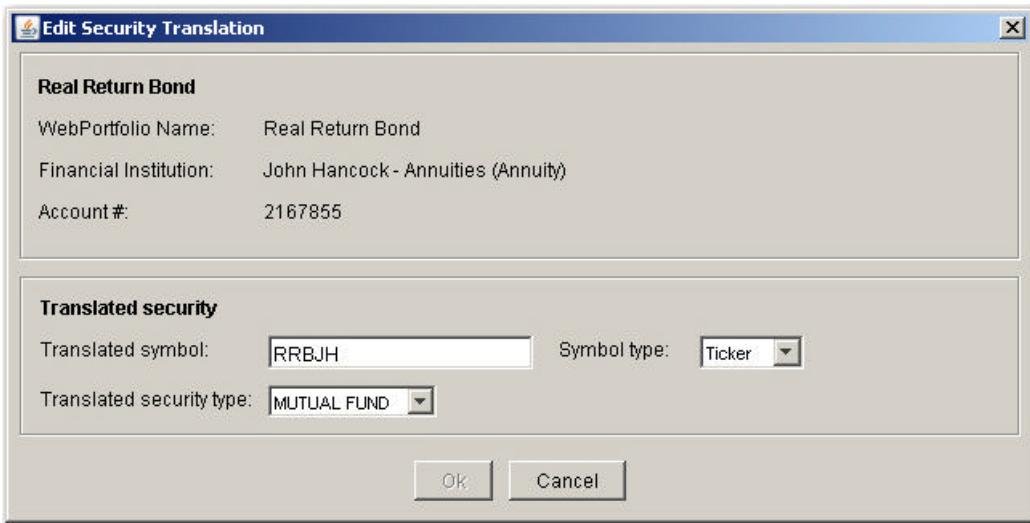


Figure 17 - Account-specific mapping

If you need to change portions of the security translation that are not editable then you should delete the security translation and create it again.

Data Download

You invoke CI daily (or less frequently) to download data from WebPortfolio and deliver it to files. Each data download session will consist of the following steps:

- 1) Review account status to determine if any accounts are failing to update or do not contain prior day data. Resolve account update issues.
- 2) Import: download data from WebPortfolio
 - a. Resolve account translation errors: Review erroneous account translations and determine why the account reference is no longer valid then delete or re-create the problem account translations in the Account Translation configuration tab.
 - b. Resolve stale account data issues by performing a manual update.
 - c. Resolve untranslated securities (securities with no symbol information available from WebPortfolio): Create a security translation in the Security Translation configuration tab
- 3) Export: format and deliver the data to the output folder
- 4) Review the output files
- 5) Accept the Exported data. For trade-date based installations, this step tells CI that you are satisfied with the downloaded data and in the future do not want to re-download that same information. This step is relevant primarily for transaction download. For settlement-date based installations, this step tells CI to revise the 'tx date' for accounts forward to the current business day. If you fail to complete the Accept step you will receive the same transactions plus any new transactions the next time you download.

Import

The CI main view will initially appear as in the following picture:

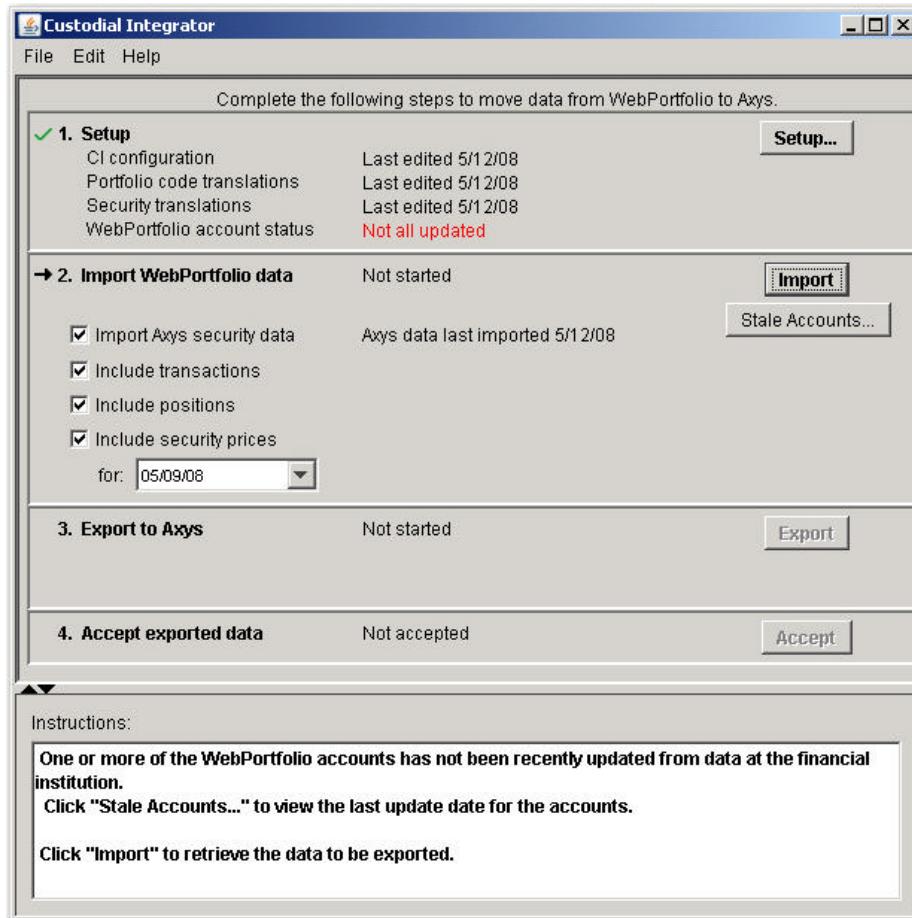


Figure 18 - Main View

The main view shows the four main steps in the data translation process. Each step has several parts: the step number, the step name, any status information for that step, and buttons to initiate action related to that step. Various indicators are used to draw attention to steps. The green check mark is used to indicate a completed step. The right arrow is used to indicate the current step. Finally, a red X is used to indicate errors have occurred in a step and must be corrected before the step can be completed.

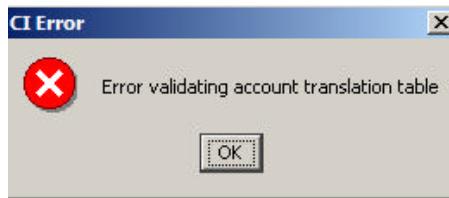
As in the picture above, your main view should show that **Setup** is complete. Note that in the example above, the WebPortfolio Account Status is "Not all updated". Additionally, the **Stale Accounts...** button is shown to indicate that not all translated accounts contain data as of prior close. Accounts that have not updated today are those that you have configured for download but have not been updated in WebPortfolio's most recent data gathering cycle. This can occur if the Financial Institution is unavailable or has changed in such a way that WebPortfolio is unable to gather data, or the accounts have been scheduled for update but the update has not yet completed. The latter case can occur for institutions that are scheduled at a relatively late time (such as 7 A.M. Eastern or later) where the update might not be complete at the time you attempt to do your download. Stale accounts can occur even if an account updated today but the Financial Institution had not yet posted prior close information. CI will also detect stale accounts after Import is performed and it has a chance to examine the status of positions in the accounts.

The **Import** step is the next to be performed, and this is indicated with an arrow to the right of the step number. The import options are shown, and you may change them for any given Import. First, you should resolve the accounts that failed to update. You can examine the account update status in CI by clicking the **Setup...** button, then going to the Account Translation tab and clicking the **Update** button. Once you have resolved the failed account updates, you may proceed by clicking **Import**.

CI now performs the following steps that make up the Import:

1. Validate Account translations

CI checks for the existence of each WebPortfolio account referenced by an Account translation. If the account is not found in WebPortfolio then the Account translation is considered to be in error. If this error occurs CI will show the following dialog:

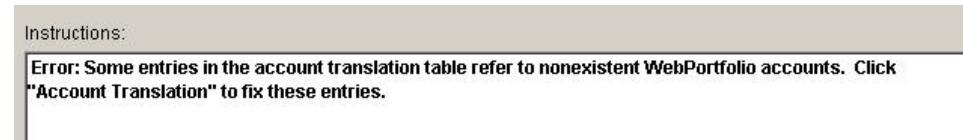


Click OK and the Import step in the main view will show the error as follows:



The red X and 'Error validating account translation table' appears accompanied by the Account Translation... button.

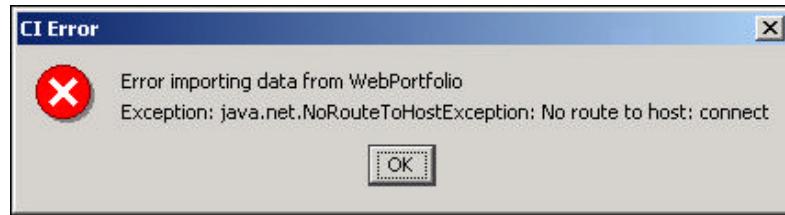
The Instructions window at the bottom of the main view will provide information on the error:



To resolve this error, click **Account Translation**. The Account translations that are erroneous will be shown in blue. Confirm that the account has been removed from WebPortfolio and, if so, delete the account translation and redo the Import.

2. Download data from WebPortfolio

CI uses your CI credentials to contact the WebPortfolio service and download the requested data into the CI data store. In the event of a network connectivity error CI would show a message similar to the following:



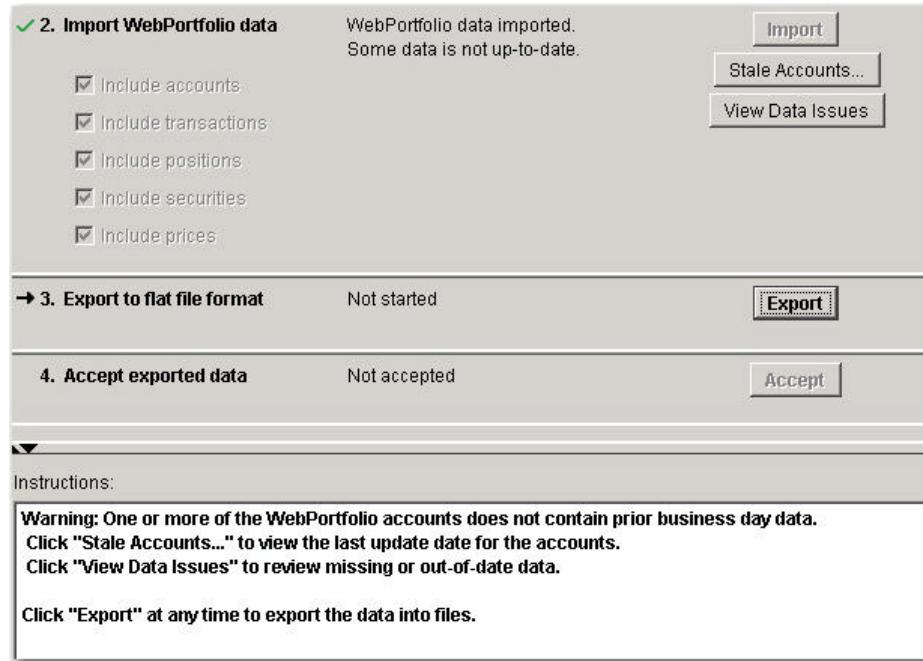
The Import step and instruction window change in appearance to show the error.

Wait for Internet connectivity to be re-established and try the Import again.

3. Check for stale account data (positions and prices)

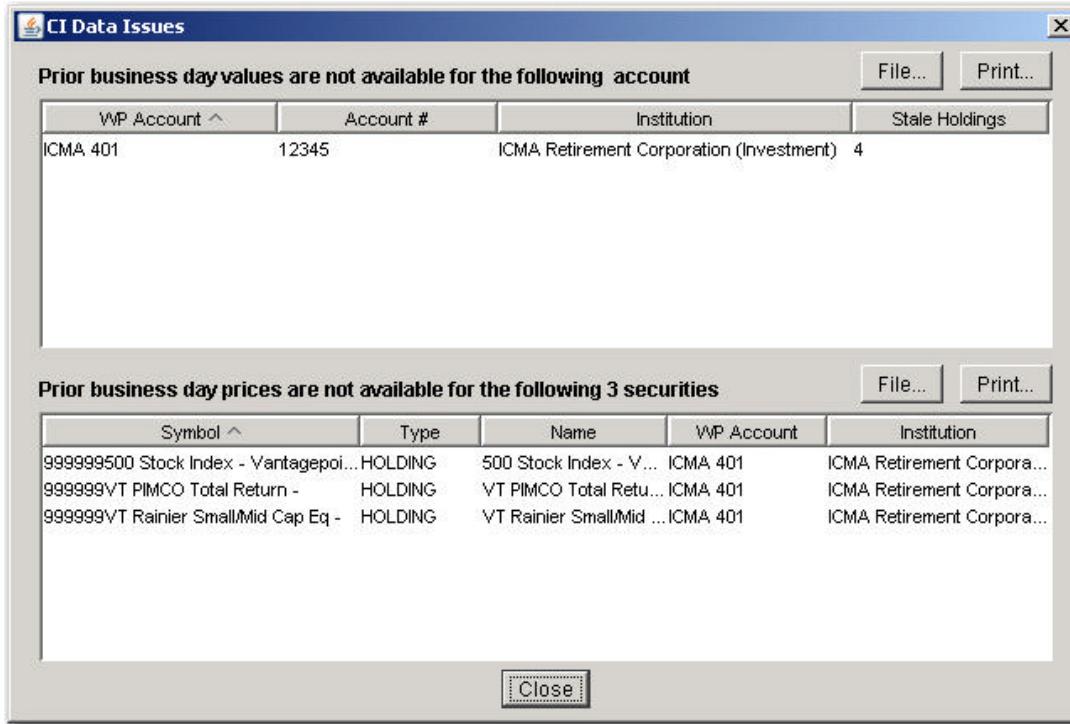
CI checks the available "as of" date on positions within accounts to determine if data in the account is stale. CI assesses an account as stale if more than 50% of its positions have an "as of" date that is earlier than prior business day. If a financial institution does not provide an "as of" date for the position then CI uses the position's last updated date (when WP last updated the position from the FI) to make this determination.

If CI detects stale accounts it displays a **Stale Accounts...** button in the Import section, adds the text 'Some data is not up-to-date' in the Import summary, and includes "Click Stale Accounts... to view the last update date for the accounts" in the Instructions window as shown here:



To see which accounts are stale, click the **Stale Accounts...** button. Accounts shown in the Account translation table in bold are stale. This may be true even if the account has a last updated date of today (indicating that the data from the custodian was stale when WebPortfolio gathered it today). Within the Account Translation tab, use the **Update** button to perform a manual update of stale accounts. The accounts may remain stale even after this update if there is a problem with the data posted by the custodian. You may still opt to proceed with the export and the stale account will be included as is.

Stale accounts will almost always be accompanied by stale prices and this is called out using the **View Data Issues** button. You may also have accounts that updated successfully and are not stale but that contain holdings that do not price daily and so some of the prices are stale. Press this button to see more detail on how many holdings in each account are stale and which prices are stale and will not be included in the price file.

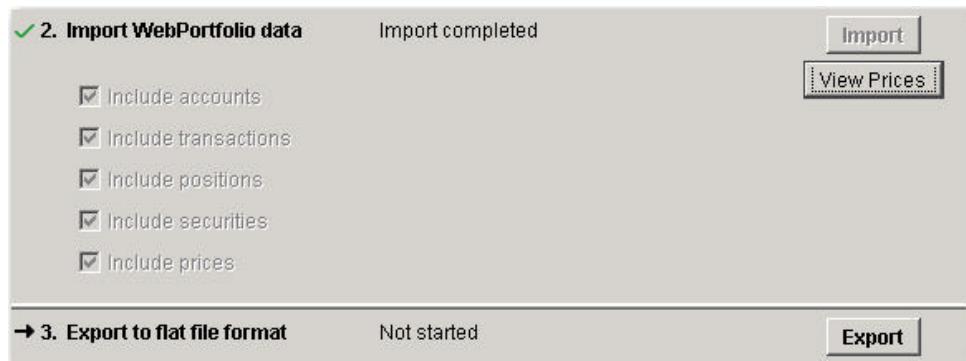


The top table shows those accounts where at least 50% of the holdings do not contain prior day business values. The lower table shows securities for which there are no prior day business prices and for which, using your CI Configuration for prices, CI was unable to determine a price for these securities. No entry will be included in the price file for the securities listed in the lower table in this view. In the above example, the ICMA 401 account has four holdings that do not contain prior day business values. Also for this account, there are three securities for which a prior day price could not be determined.

You can print the information in this view using the Print... button. You can also save the information to a .CSV file using the File... button.

4. Preview prices to be delivered to files

If CI has any prices to be delivered, the 'View Prices' button will appear in the main view after the Import button is pressed:



Press the View Prices button to see a preview of your price data:

The screenshot shows a Windows dialog box titled "Security Prices". At the top, it displays the message "11 Prices will be output to BAAPRI_20080212.csv". On the right side of the header are "File..." and "Print..." buttons. Below the header is a table with the following columns: Symbol, Type, Name, Ins..., Source ^, Price, and Price as of Date. The table contains 11 rows of data, each representing a mutual fund with its symbol, type, name, source, price, and date.

Symbol	Type	Name	Ins...	Source ^	Price	Price as of Date
02368A406	MUTUALFUND	AMERICAN BEACON INTL EQUITY FUND...		third party	\$20.38	20080212
04314H204	MUTUALFUND	ARTISAN INTERNATIONAL FUND		third party	\$26.13	20080212
19765H586	MUTUALFUND	COLUMBIA FDS SRS TR. COLUMBIA IN...		third party	\$19.12	20080212
233203819	MUTUALFUND	DFA U.S. SMALL CAP VALUE PORTF		third party	\$22.74	20080212
315911206	MUTUALFUND	SPARTAN U.S. EQUITY INDEX FUND INV...		third party	\$47.77	20080212
31617R506	MUTUALFUND	FIDELITY FREEDOM 2010 FUND		third party	\$14.18	20080212
411511504	MUTUALFUND	HARBOR CAPITAL APPRECIATION FUN...		third party	\$33.39	20080212
693390726	MUTUALFUND	PIMCO FUNDS TOTAL RETURN FUND A...		third party	\$10.99	20080212
779556109	MUTUALFUND	T. ROWE PRICE MID-CAP GROWTH FUN...		third party	\$52.72	20080212
816221204	MUTUALFUND	SELECTED AMERICAN SHARES INC CLA...		third party	\$44.07	20080212
922040100	MUTUALFUND	VANGUARD INSTITUTIONAL INDEX		third party	\$123.47	20080212

The Security Prices view shown above lists the information to be written to the price file (symbol and price) as well as supporting information, including the source of the price and the date of the price. The Source column identifies where the price came from and it can contain one of the following values:

- Third party – the price comes from ByAllAccounts third party pricing provider. As of February 2008 this provider is Interactive Data Corporation (IDC).
- Institution – the price comes from the financial institution where the security is held.
- Calculated – no price was available from the third party pricing provider or from the institution so one was calculated. You configured in the CI Advanced Prices section that prices should be calculated if they were not available from one of these sources.
- Override – one or more other advanced price configuration settings is in effect (from CI.ini file as well as from CI Advanced Prices section) and these settings caused the price to be set as it is shown. This source value will be less common than the three listed above.

If you opted to utilize prices from a business day that is earlier than the prior business day (when no better price is available) then these prices will be shown in this view but the 'Price as of Date' value will identify when the price is 'as of'. Prices that are not as of prior business day are also shown in bold.

You can print the information in this view using the Print... button. You can also save the information to a .CSV file using the File... button.

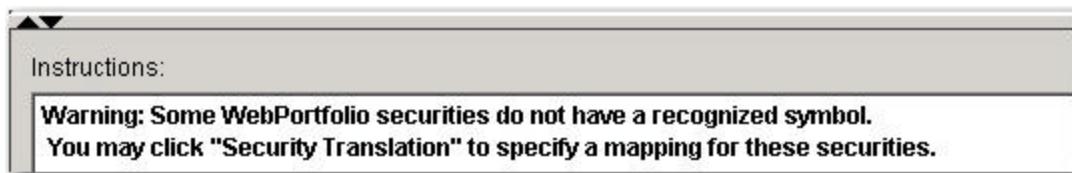
5. Translate data

Applies the Security Translations you have established previously to convert WebPortfolio security symbols. CI reports a warning during the Import process if one or more WebPortfolio securities do not have a symbol and also have no Security Translation. These securities are referred to as *untranslated securities*. When untranslated securities are encountered, the Import step will change in appearance as shown in this picture:



The Import is considered a success (indicated by the enabling of the Export button and the disabling of the Import button) and you can proceed to the Export step even if untranslated securities or stale accounts exist. If you want to resolve the untranslated securities prior to Export click on the **Security Translation** button. This will bring up the Configuration dialog positioned to the Security Translation tab.

The Instructions window at the bottom of the main view will provide information on the error:



Untranslated Securities exist when a WebPortfolio security does not include a Ticker or CUSIP. This can occur when the Financial Institution does not provide a security identifier and WebPortfolio is unable to determine a corresponding security through name evaluation. CI will have only a name and Financial Institution for the security (e.g. BLUE CHIP GROWTH held at My 401(k)). You can resolve this untranslated security by creating a CI Security Translation.

Export

The Export step is enabled once the Import step completes without error. Stale accounts and untranslated securities are considered to be only warnings and will not prevent you from Exporting. The main view will appear as in the following picture:

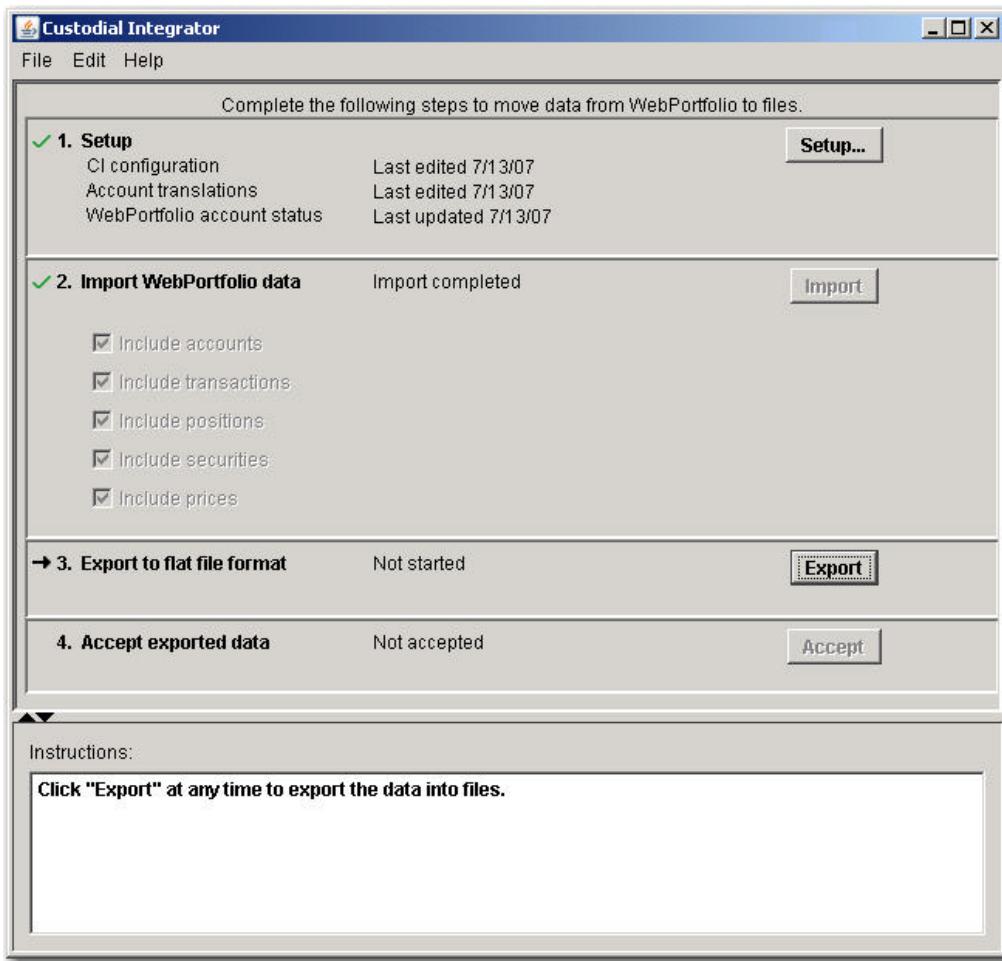
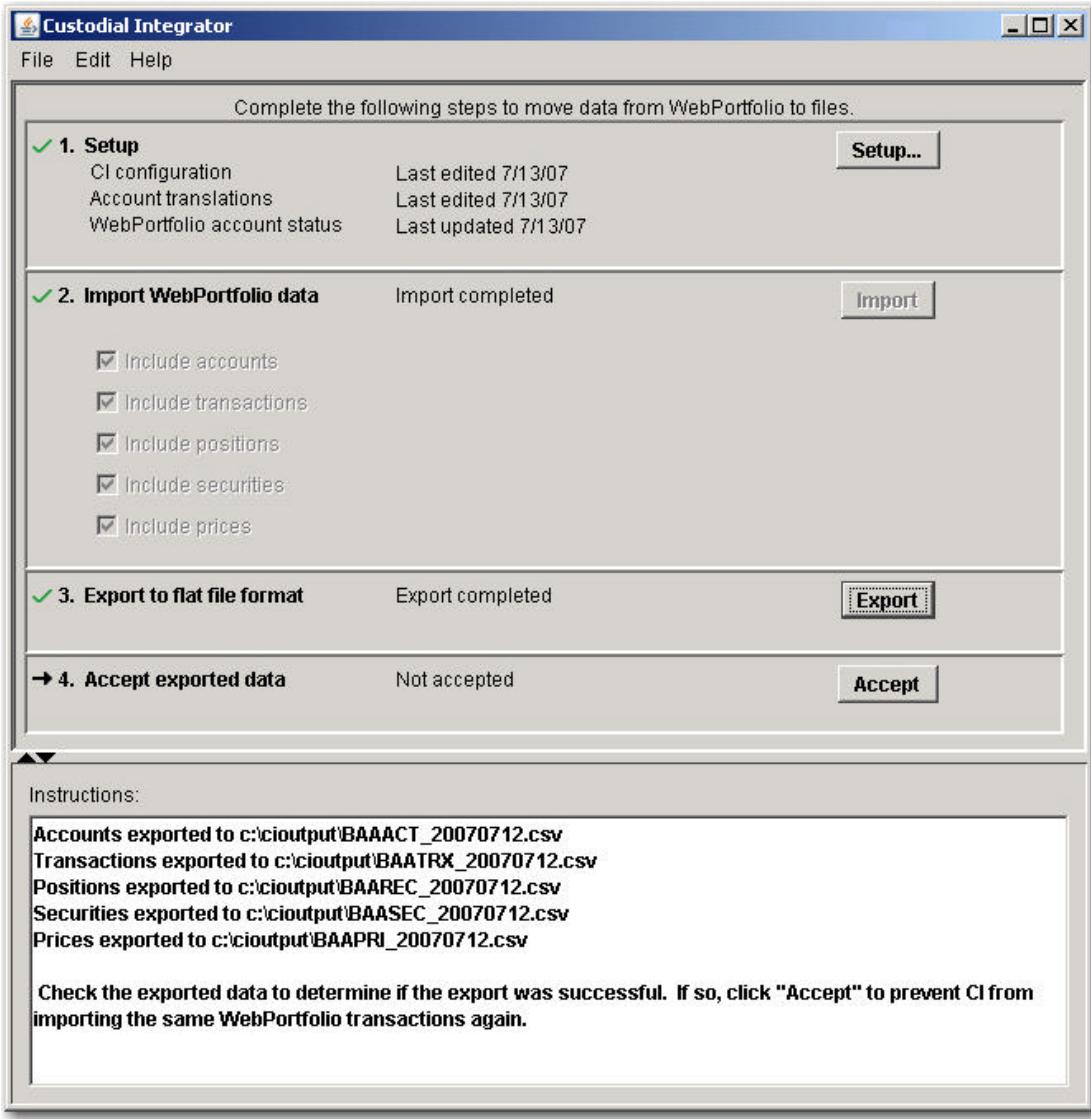


Figure 19 - Export

To perform the Export step, simply click **Export** in the main view. The Export is now performed and the main view changes as follows:

**Figure 20 - Export complete**

The Export step takes data from the CI database and produces files in delimited file format according to the type of data: Account, Transaction, Position, Security, and Price. CI only generates files for the types of data you selected in the Import step. Each file is then delivered into your specified Output folder. The Instruction window lists the folder and filename for the files that were written (see Figure above). The Instructions window will also notify you of any errors that occurred during the Export.

Accept Exported Data

This step allows you to confirm to CI that you have completed processing the data that CI just delivered to the output files. The main purpose of the Accept step is to update CI's internal transaction 'counter' so that the next time CI is run it will only download transactions that have not yet been downloaded.

Click **Accept** to perform this step. CI confirms that the accept was completed:



The main view transitions back to its initial state and CI is now ready to perform another data translation cycle.

If you attempt to exit CI without doing the Accept, CI will warn you with the following:



To complete the Accept, press Yes. To exit without Accepting, press No. To return to CI without Accepting or Exiting, press Cancel.

Additional Translation Information

This section documents additional considerations for CI data translation activities.

Financial Institution Support

The WebPortfolio service provides support for over 2,600 financial institutions as of June 2007. Data from these services is used primarily for the WebPortfolio Application by Registered Investment Advisors for client reporting and investment management. BAA has recently been enhancing support for select financial institutions to enable the data to be used for import into an accounting or reconciliation system. Financial institutions with this enhanced support are termed validated. Financial institutions are validated on a per-customer basis. Your FI validation status is visible to you from within the Account Translation tab in CI. BAA automatically queues for validation any accounts you enter in WebPortfolio at an institution that had not been previously validated for you. CI will show such institutions with a validation status of 'in process'. When BAA completes the validation, you will receive an email notifying you of this event and the accounts will now appear in CI with their new validation status, typically *validated* indicating they are acceptable for use with CI.

Data Retrieval Scheduling

WebPortfolio gathers data from Financial Institutions each day starting at 1 A.M. Eastern. Some Financial Institutions may be scheduled for gathering at a later time for data availability reasons. In general, data from the Financial Institution for day n is available on day n+1 after 8 A.M. Eastern. If WebPortfolio encounters errors gathering data for an account then CI will show that the account was not updated. Check the Setup section in the CI main view and the Account Status tab of the CI Configuration dialog for more information.

APPENDIX A - ADMINISTERING CUSTODIAL INTEGRATOR

The following is a list of important administrative information regarding your Custodial Integrator installation:

1. Internet connectivity

CI retrieves data from WebPortfolio over the Internet. It is important to have a reliable Internet connection on the computer where you will run CI. You must also properly configure your proxy login and password in runCI.bat or ensure that your firewall will not prevent CI from contacting the WebPortfolio service over https. Changes to your Internet proxy access or firewall configuration could require configuration changes in CI. Please refer to the Custodial Integrator Installation Guide for more information on this topic.

2. Disk space

CI requires free disk space on the drive where it is installed for temporary file storage. For the typical CI installation, the daily disk space requirements will be very small. We recommend that you maintain at least 50 MB of free space on the CI drive to provide sufficient space for these files with a healthy safety margin.

3. CI logs

CI maintains a log of activities and errors in the <installation folder>\log folder (ex: C:\Program Files\Custodial Integrator\log). If CI appears to be malfunctioning, please check the most recent log file for errors. CI automatically removes all logs that are older than 14 calendar days.

4. Database backup

CI's database is used primarily for temporary storage. There is some data that is persistent and that should be protected from loss so that it will not need to be recreated. This data consists of Account translations, Security translations, and some of CI's internal state information. Please refer to your SQL Server documentation for information on how to back up and restore a SQL Server database.

APPENDIX B – MULTIPLE CI USERS

There are two main ways that multiple users within a single firm use Custodial Integrator:

- **Job Sharing** - All users will process the same set of accounts. This includes the case where a single individual has primary responsibility for the accounts and one or more individuals have backup responsibility in the event that the primary user is unavailable to process the accounts.
- **Independent** - Each user will process a distinct set of accounts.

The following sections describe how to install and configure CI for each of these usage types.

Job Sharing Configuration

Multiple users have access to the Custodial Integrator application but will never use the application simultaneously. Install Custodial Integrator on each user machine.

Independent User Configuration

Multiple users will process separate sets of accounts and there is no overlap of account responsibility. This usage type requires a separate and complete Custodial Integration installation for each user where each installation has its own CI database. Complete a standard CI installation for each user but select an alternate database name during each install.