

# Project Use Case Specification

## Application ETL

### Use Case #1: Application Interface

<b>Document State :</b>	<input type="text" value="Draft"/>
<b>Version :</b>	<0.1>
<b>Last Modified Date :</b>	December 15, 2008
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## Document History

### Reviewed or Contributed By (other than signers)

Organization	Project Role	Person	Date/Phase

### Revision Record

Version	Author	Date and Sections	Description
0.1	Mark Freeman	December 15, 2008	First Draft Started

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## Introduction

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### 1.1 Scope of Use Case

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**This use case describes the usage of the Application Interface:**

- (1) Configure the Application process that sources application data for loading the Application Enterprise database.
- (2) Initiate and control the daily (business day) production process
- (3) Group and provide user specified portfolio output data for Application
- (4) Create a secure application interface with logging of activity and configuration changes

***This use case covers the following requirements in the Application ETL Requirements document:***

- (1) **Requirement 2.1.1.0 – Import and Export Information**  
 “Provide the business user the ability to bring data into and send out from the designed solution through an automated process that includes user options to designate input source, Account Type, Balance Sheet Account, Sub-Account 1, Sub-Account 2, Date, output content and destination. Provide user ability to start, monitor, stop and re-start process with user action and error logging and concurrency control.”
- (2) **Requirement 4.1.1 – Portfolio Security Positions**  
 “Provide all portfolio position holding data.”
- (3) **Requirement 4.3 – Security Spread Values**  
 “Provide option-adjusted spread values which need to be expanded in a use case.”
- (4) **Requirement 4.2 – 3<sup>rd</sup> Party Prices**  
 “Provide 3<sup>rd</sup> party market prices which need to be expanded in a use case.”
- (5) **Requirement 4.1.5.0 – Configure Data Sourcing**  
 “Allow for users to configure data sourcing for portfolio positions by Data Date and Security Type, Balance Sheet Account, Sub-Account 1 and Sub-Account 2 classifications. Allow for inclusion of user defined field selection.”
- (6) **Requirement 5.1 – Portfolio Security Group Output**  
 “Provide daily output files that conform to the business group’s fixed definition of portfolio security group which need to be expanded in a use case for input to Application Enterprise DB.”
- (7) **Requirement 13.1 – User Interfaces**  
 “User interface to provide ability to include user options to configure input source, Security Type, Balance Sheet Account, Sub-Account 1, Sub-Account 2, Data Date, output data file contents and destination. Provide user ability to start, monitor, stop and re-start process with user action and error logging and concurrency control.”

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## 1.2 Special conditions for solution

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***There are special needs that need to be met which include the following configuration, process control and monitoring capabilities:***

**The Application Interface needs to configure:**

- (1) Query logic for obtaining data from internal and external sources
- (2) Data for transforming source information into Application compatible format
- (3) Inclusion and exclusion lists to control and filter data sourcing processes
- (4) Selection of source data fields to be included in output data for Application
- (5) Grouping / merging of data from multiple data sourcing queries into output portfolios
- (6) Specification of input and output locations
- (7) Validation queries and quality assurance reporting

**The Application Interface needs to control processing:**

- (1) Daily (business day) data sourcing production for Application Enterprise database

**The Application Interface needs the capabilities to:**

- (1) Visual monitoring of daily production completion status and related activity
- (2) Access security to distinguish between Administrator and Operator roles

## 1.3 Definitions, Acronyms and Abbreviations

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ETL – Extract, Transform, Load – acronym referring to data sourcing / output process

## Chapter 1. Actors / Databases

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The Application Interface / Application ETL application interacts with source data systems to generate output data files for the Application Enterprise Application database.

### 2.1 Primary Actors

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The Primary Actors are the following users:

- 2.1.1 Application Interface / Application ETL Administrator(s)
- 2.1.2 Application Interface / Application ETL Operator(s)

Application Interface / Application ETL Power User(s) and Operator(s) are members of the user's department, the business owner and primary users of the Application Interface, as well as other employees that are granted access as needed, including Production Operations, Security Administration and Financial Information Systems Development.

All users are distinguished by their Windows Authentication logins and the application login process.

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## 2.2 Secondary Actors

Supporting Actors include various supporting internal and external systems, data sources and destination(s), including the following:

- 2.2.1 **Data Warehouse (DW)** – the Daily DW is accessed to provide security instrument and position data for the investment portfolios
- 2.2.2 **Finance Database** – the Finance Database is accessed to provide security instrument and position data not provided by the DW
- 2.2.3 **Loan Database** – the Loan Database is accessed to provide security instrument and position data for loans
- 2.2.4 **Hedge System** – the Hedge System database is accessed to provide security instrument and position data for derivatives
- 2.2.5 **3<sup>rd</sup> Party Market Prices** – an external (3<sup>rd</sup> party) vendor provides published prices and is used as a source for pricing publicly traded securities
- 2.2.6 **Configuration Data** – the user department maintains configuration data used in the process of sourcing and creating output data for the Application Enterprise database.

### Configuration data includes:

- (1) Journal Codes
  - (2) Special Journal Codes
  - (3) Balance Sheet Codes
  - (4) Derivatives Codes
  - (5) GL Types
  - (6) Spread Amounts
  - (7) Payments
  - (8) Other Debt
  - (9) Security ID's
  - (10) Input / Output File Path Specifications
- 2.2.7 **Application Enterprise Database** – the destination database for Application Enterprise. Application Enterprise defines data loading jobs to import the data prepared using the Application Interface and Application ETL data sourcing and transformation application.

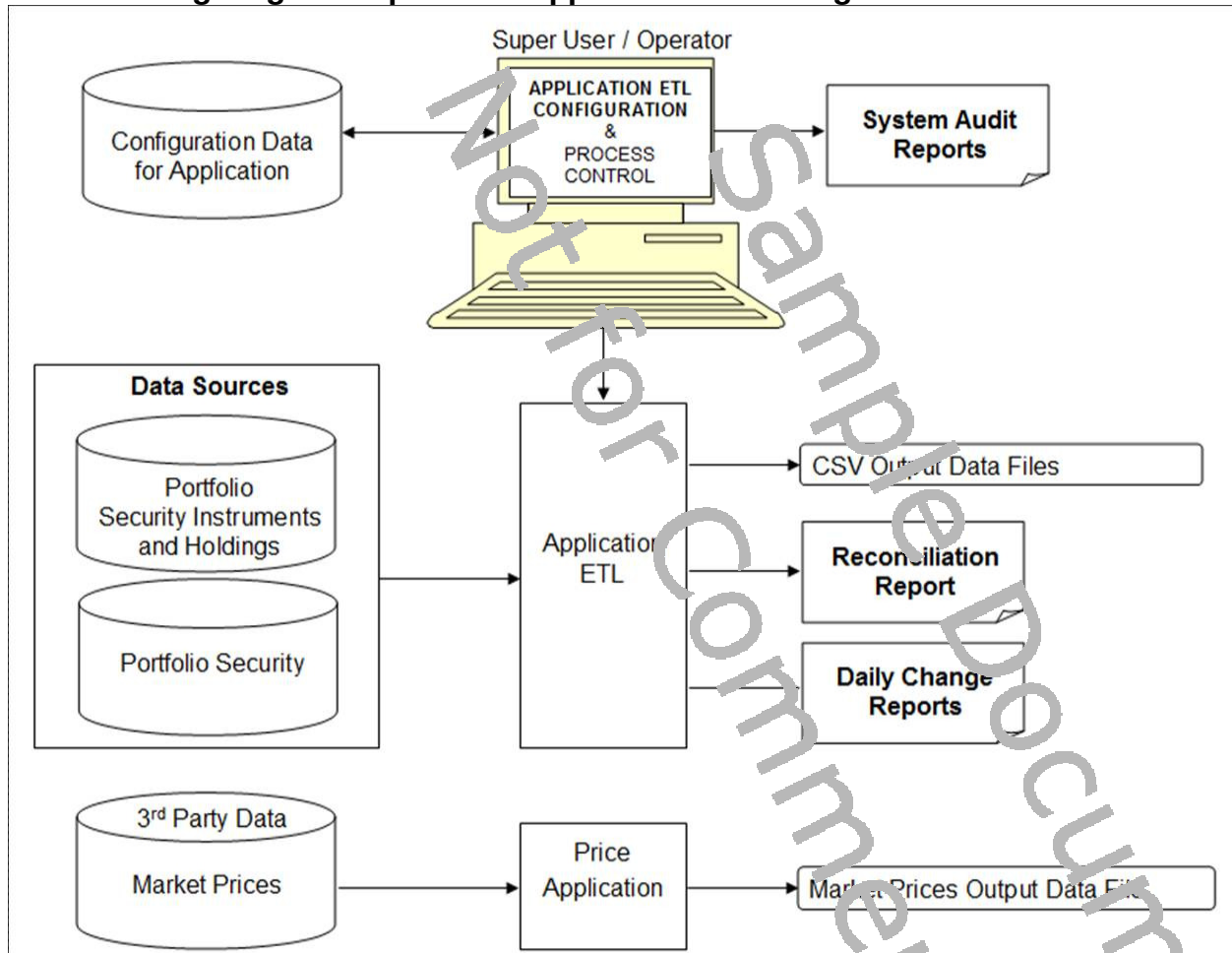
***The secondary actors are important non-user components that interact with the Application ETL application which is required to successfully prepare data for the Application Enterprise application.***

***Changes to the Secondary Actors, data systems and sources, will require modifications to be made to the Application ETL application.***

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## Chapter 2. Usage Patterns / Platform

The following diagram depicts the Application ETL Usage Pattern:



As shown above, the Application ETL application is the integration of:

- (1) **Application Power User / Operator** – user of the PC based application
- (2) **Data Sources** – categorized into Configuration, Portfolio, and 3<sup>rd</sup> party
- (3) **Application** – programming scripts and structured query language (SQL) that perform the functions to source data and create output data and reports

**Basic Usage Pattern** - The Application ETL application is used on a daily (business day) basis to maintain the production of data for the Application Enterprise application.

The daily production process is required to be started at the end of a business day once all data sources are updated and current. Users are notified when data is ready for processing.

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**Alternate / Exception Usage Pattern:** The daily production process should be able to run again (re-run) to incorporate late entry or correction(s) to data, or to retry the process due to a run time error. Also, an exception pattern may occur when a production run using historical (prior day) data is performed.

## **Chapter 3. Basic Flow – Daily (Business Day) Production**

### **Pre-Condition(s)**

For the Application ETL application to operate certain conditions must exist.

**The following pre-condition(s) include:**

- (1) **Source and configuration data is updated and current** prior to daily (business day) data sourcing process in order to Application ETL to prepare valid data for Application Enterprise Database. When source data is current a Power User or Operator is notified and can start the data sourcing process.
- (2) **Application authorized user is available and can successfully login** to the Application ETL application to initiate / monitor daily Application ETL data processing.
- (3) **The Application ETL application can execute and connect** to all data sources in order to successfully query the data sources and prepare output data. This includes external 3<sup>rd</sup> party market data prices.

### **Flow 1: Application ETL Daily Production**

**The following steps occur during the normal Application ETL and pricing daily (business day) production:**

- 4.1.1 Application Power user or Administrator Logs into application.
- 4.1.2 Application Power user or Administrator starts Application ETL data sourcing job. Once the data sourcing job starts it runs until completion
- 4.1.3 Application ETL job runs 18 queries to source portfolio security instrument and position data and saves the results to 7 portfolio CSV files for the Application Enterprise database.<sup>1</sup>
- 4.1.4 Application ETL job also runs 2 queries to source spread values and saves the results to 1 CSV file for the Application Enterprise database.<sup>2</sup>
- 4.1.5 Application Power user or Administrator starts 3<sup>rd</sup> party market data pricing job to request and download prices per specifications provided by vendor.
- 4.1.6 Price job Converts price data to format for loading to Application Enterprise database.

<sup>1</sup> See Application ETL Use Case #2 – Use Case #8

<sup>2</sup> See Application ETL Use Case #9

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- 4.1.7 Application Power user or Administrator confirms message that Application ETL processing is complete. Output data files can also be manually verified.
- 4.1.8 Application Power user or Administrator runs reconciliation report and checks for processing activity (record counts and totals) and errors.
- 4.1.9 Application Power user or Administrator runs daily change reports.

## Flow 2: Application ETL Configuration

The Application ETL application uses configuration data which is maintained by a Power User.<sup>3</sup> The Power User may also access programming script and structured query language (SQL) to adjust query logic and source data transformation to output data for Application, as well as specify the location of source data and grouping and location of output data.

The Application ETL application configuration flow is only needed when changes are required to the configuration, not necessarily on a daily (business day) basis.

If configuration changes are needed, they should be completed and tested prior to being used by Flow 1: Application ETL Daily Production.

### The following steps occur during Application ETL configuration steps:

- 4.1.10 Application Power user Logs into Application.
- 4.1.11 The Power user can modify / configure any of the following:
  - (1) Query logic for obtaining data from internal and external sources
  - (2) Data for transforming source information into Application compatible format
  - (3) Inclusion and exclusion lists to control and filter data sourcing processes
  - (4) Selection of source data fields to be included in output data for Application
  - (5) Grouping / merging of data from multiple data sourcing queries into output portfolios
  - (6) Specification of input and output locations
- 4.1.12 The Power user Logs Out of the application.

If a development and/or a test environment is available and configuration changes are first made in the development or test environment, then an additional step would be the migration / copying of the new configuration to the production environment for the Application ETL application.

<sup>3</sup> See 2.2.6 – Secondary Actors – User Configuration Data

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### Post-Condition(s)

Once the Application ETL application has run, certain conditions must exist for the resulting output data to be used by Application or any other subsequent data user(s).

Also, as a post condition, any configuration changes and production results must comply with standards for security and access controls.

#### The post-condition(s) include:

- (1) Application ETL CSV output data files are saved and closed in a location configured for loading into Application Enterprise.
- (2) Other authorized downstream users of Application ETL CSV output data files can access the resulting output data.
- (3) Report output is saved and accessed by authorized users.
- (4) Changes to configuration data are logged for change control / auditing.

## Chapter 5. Alternate Flow – Re-Run Daily Production

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An Alternate Flow can occur when the daily (business day) Application ETL production job needs to be re-run.

#### The production job may need to be re-run in the following cases

- (1) Additional data becomes available (late data entries)
- (2) A processing error occurs, such as a locked source data table

***The alternate flow for re-running the daily (business day) production is to repeat the steps in Chapter 4 – Basic Flow.***

## Chapter 6. Exception Flow – Re-Run With Historical Data (NOT IN SCOPE)

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An Exception Flow can occur when the need arises to re-produce historical (prior day) data.

If a production run is executed with historical data instead of current data, then the output should be directed to a location that does not overwrite the normal daily production.

***To run the production job with historical data requires access to a historical data archive, which is a future requirement (not a current requirement).***

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## Chapter 7. Business Rules / Objectives

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The Application ETL application must meet the following business rules / objectives:

- (1) Source all portfolio security information and holdings for the Application Enterprise Application.<sup>4</sup> Also provide applicable spread values and prices.<sup>5</sup>
- (2) Provide security type and balance sheet account portfolio assignments consistent with usage in Application Enterprise.<sup>6</sup>

*The capability for the Application ETL application to deliver daily (business day) reconciliation and change reports is a future requirement (not a current requirement).*

A significant part of the business rules are contained in the data transformation logic applied to source data to create the output data used with the Application Enterprise database.

***The data transformation / business rules are defined in terms of data sources and field level data mapping logic specified in Application ETL Use Case #2 – Use Case #9.***

## Chapter 8. Data Elements / Additional Use Cases

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### 8.1 Data Table

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The Application ETL application is used for sourcing organization and 3<sup>rd</sup> party data for preparation for loading into Application Enterprise Database.

Due to the extensive nature of the data sourcing and mapping to destination output fields, separate Use Cases provide the requirement details.

***Refer to Use Case #2 – Use Case #9 for Application ETL data sourcing process and mapping of data to output for Application Enterprise Database.***

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<sup>4</sup> Requirement 4.1.1

<sup>5</sup> Requirements 4.3 and 4.2

<sup>6</sup> Requirement 4.1.3

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## Chapter 9. Approval Signatures

### Approval Information

By acknowledging below with my signature, I am agreeing to the content of this document and that I have read and understand the information contained within and all subsequent related documentation. I also understand that I have the ability and responsibility to contribute to this document where appropriate.

Once approved, this document authorizes the team to move forward with the project in accordance with the SDLC.

Since the remaining use cases are a direct subset of this use case, the approval process will encompass those as well. Listed below are the 8 remaining uses cases and their review dates.

UC#	Description	Reviewed	
		(Y/N)	Date
2	Use Case #2		
3	Use Case #3		
4	Use Case #4		
5	Use Case #5		
6	Use Case #6		
7	Use Case #7		
8	Use Case #8		
9	Use Case #9		

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## **Appendix A. Other Reference or Related Documents**

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**Related documents include:**

- (1) Application ETL Requirements
- (2) Application ETL Use Cases #2 - #9.