Axioma Portfolio Optimizer API

AUTOMATE YOUR PORTFOLIO OPTIMIZATION AND ANALYSIS PROCESSES

The Axioma Portfolio Optimizer APIs enable you to integrate Axioma's analytical engines into your existing systems. Like the Axioma Portfolio Optimizer GUI, the API is an open platform, allowing you to combine content from Axioma, internal resources, and/or third-party vendors. All the strategy-building flexibility of Axioma Portfolio Optimizer is at your disposal for automating your optimization and backtesting processes.

ACCESS THE API USING THE PROGRAMMING LANGUAGE OF YOUR CHOICE

The Axioma Portfolio API is available as an API for the C++, Java, Python, MATLAB®, and R environments.

AXIOMA

Flexible is better.®

MULTIPLE OPTIONS FOR INTEGRATING INTO YOUR ENVIRONMENT

In addition to our native language interfaces, Axioma also offers a RESTful Web service interface and XML command-line utilities.

The Web service offers concurrency that enables users to interact with and rebalance several optimization cases simultaneously. You can share optimization cases across the enterprise by leveraging the web service repository. The repository maintains both a set of live cases that are instantly accessible and an archive that can read workspace templates and write workspaces to save or backup.

The XML utilities use files in Axioma-defined XML formats to communicate optimization, backtesting, and reporting preferences. The point-in-time utility optimizes all rebalancings present in the workspace and writes the resulting trades and final holdings to XML. The utility produces standard risk reports on the starting portfolio, optimized portfolio, and optimized trade list in .csv format. The backtesting utility solves a single backtest or frontier backtest. The utility produces time series risk reports, constraint attribution reports, and the time series of optimized portfolios.

INTERACT WITH YOUR API RESULTS IN THE AXIOMA PORTFOLIO OPTIMIZER GUI

Analyses created with any of the Optimizer APIs can be automatically written to Axioma workspace files that can be opened in the Axioma Portfolio Optimizer GUI for fur-ther interactive analysis. For example, if an automated rebalancing is flagged as "exceptional", you can open the analysis in the Axioma Portfolio GUI to investigate "what-if" scenarios interactively.

SEAMLESSLY SHARE DATA FROM PYTHON, R, OR MATLAB WITH AXIOMA PORTFOLIO

Axioma Portfolio incorporates data transformation routines that translate data from native Python, R or MATLAB structures into Axioma's data structures and back again. Users can transfer proprietary alpha models for use by Axioma's optimizer. Users can also extract data entities like risk models from an Axioma workspace into native Python, R, or MATLAB data structures.

CUSTOMIZE YOUR REPORTS USING PROPRIETARY ANALYTICS

Create customized reports that provide insight into your portfolio management process using the extensive library of standard and proprietary analytics. Proprietary analytics features include:

- Custom focused risk decompositions that allow you to choose market, country, or industry focus for our global and regional fundamental factor risk models.

- Risk decompositions based on user-provided factors that provide fundamental insights into risk computed using statistical risk models.

- Constraint Attribution that provides a dashboard view of the impact that constraints have on your portfolio.

STANDARD REPORTING FEATURES TO EASE REPORT PRODUCTION

In addition to creating customized reports using the extensive analytics library in Axioma Portfolio, the APIs offer access to a set of standard reports that can be generated automatically for any portfolio. Reports on common portfolio summary analytics, risk decompositions, and asset-level holding and trading details can be generated with minimal development effort. These reports cover a comprehensive list of commonly-requested analytics.

STREAMLINE DATA PROCESSES USING AXIOMA'S STANDARD DATA LOADERS

With Axioma's data loaders, you can eliminate the need to create and maintain customized data import routines. Packaged with the API are standard data loaders for content from Axioma as well as proprietary data. Proprietary data is managed using simple flat file formats.

MINIMUM SYSTEM REQUIREMENTS

Axioma Portfolio Optimizer API runs on Windows 7, Windows 8.x, and Windows 10, most mainstream Linux distributions, and Solaris. An Intel i3 or better processor is recommended. For best performance, 1GB or more of RAM is recommended.

Major Features by Interface

	GUI	C++	JAVA	WEB SERVICES	PYTHON	R	MATLAB
INPUT FEATURES							
Data Loading Tools (flat files)	✓		✓	✓	✓	✓	✓
Data Loading from Axioma Application Format	✓		✓	✓	✓	✓	✓
Data Loading from Axioma Portfolio Analytics Database	✓		✓	✓	✓	✓	✓
Workspace Loading from XML*	✓		✓	✓	✓	✓	✓
Strategy Loading from XML	✓		✓	✓	✓	✓	✓
MODELING FEATURES							
Constraint Hierarchy	✓	✓	✓	✓	✓	✓	✓
Soft Constraints	✓	✓	✓	✓	✓	✓	✓
Robust	✓	✓	✓	✓	✓	✓	✓
Alpha Factor	✓	✓	✓	✓	✓	✓	✓
Black-Litterman		✓	✓			✓	✓
Robust Options Constraints and Objective		✓					
ANALYTICS FEATURES							
Constraint Attribution	✓	✓	✓			✓	✓
Portfolio-Level Analytics Library	✓	✓	✓	✓	✓	✓	✓
Factor-Level Analytics Library	✓	✓	✓	✓	✓	✓	✓
Asset-Level Analytics Library	✓	✓	✓	✓	✓	✓	✓
OUTPUT FEATURES							
Write Workspaces to XML	✓	✓	✓	✓	✓	✓	✓
Write Strategies to XML	✓	✓	✓	✓	✓	✓	✓
Standard CSV Reports	✓		✓	✓	✓	✓	✓
XML COMMAND LINE FEATURES							
Command Line Optimization Utility		✓	✓	✓	✓		
Command Line Backtesting			✓				
Command Line Batch Optimization			✓	✓	✓		
Command Line Batch Reporting			✓				
ADVANCED OPTIMIZATION FEATURES							
Frontier Analysis	✓	✓	✓			✓	✓
Multi-Portfolio Optimization			✓			✓	✓
Multi-Period Optimization			✓				

*Refers to the ability to load XML programmatically. This capability is referred to as an XML Command Line Feature.

Contact us to learn more about how Axioma can help you better manage risk and enhance your investment process.

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