

Charles River Enterprise Data Management

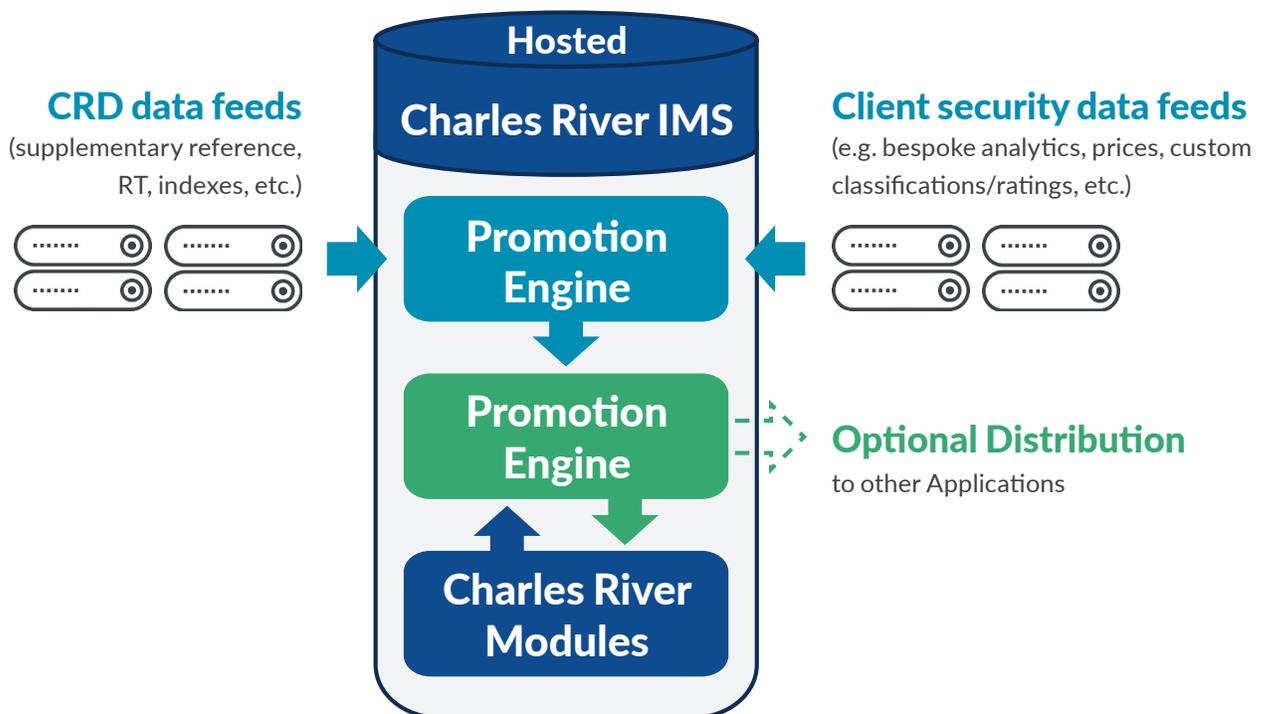
Enable Accurate and Complete Securities Data

Managing complex fixed income, derivative, and multi-asset strategies requires access to accurate data. Asset managers struggle with rising data costs, licensing restrictions, and ongoing technology challenges as they strive to provide accurate data feeds and formats. Charles River’s Enterprise Data Management (EDM) solution provides the breadth and accuracy of data required to properly support investment decision making while mitigating portfolio and enterprise risk. Firms can more easily manage complex data from multiple sources, tailor data sets, and lower operational risk.

Purpose-Built for Asset Managers

Charles River’s EDM solution is equipped to translate, validate, and promote data to enable necessary completeness and meet the requirements for each instrument type. This provides front and middle office systems with the requisite data to support even the most challenging fixed income and derivatives instruments.

The Charles River Investment Management Solution (IMS) offers a well-defined data model and comprehensive, standardized interfaces. By leveraging these capabilities, Charles River’s EDM solution eliminates the high degree of customization required to implement conventional data warehouses and EDM offerings, so it can be deployed faster and help lower operating costs.



SaaS Streamlines Deployment

Charles River’s SaaS-based delivery model offers two levels of EDM deployment to give firms a simple and scalable migration path to enterprise-level data management. Firms with moderate requirements can leverage Charles River IMS’s built-in data management capabilities. For managers with larger and more complex needs, the standalone Charles River EDM provides integration capabilities for interfacing with systems firm-wide, including Charles River IMS.

Flexible Rule-Based Security Data Validation

Security data validation is a recommended best practice, even if validation occurs prior to the transmission of data to Charles River, such as clients who use a proprietary EDM and validate in-house. Charles River provides a set of pre-defined data validation rules that managers can customize. These rules generate actionable warnings and alerts based on data validation checks such as:

- Detecting missing or stale prices
- Identifying price and value threshold violations
- Detecting missing required fields
- Flagging changes in security identifiers, issuer, country, currency, ratings and classifications

Gold Copy Creation and Promotion

Managers use data from multiple sources, including accounting, prime brokers, custodians, Bloomberg, and the Charles River Data Service. Security records can be stored independently by data source and blended to generate the gold copy to serve both the front and middle offices. Sophisticated security resolution help ensures that security records from different sources are aligned based on CUSIP, SEDOL, ISIN, or other relevant identifiers and supporting fields, such as exchange and country. Both the incoming data sources and the resulting gold copy can be validated to highlight real or potential data issues that may require attention. The gold copy is then promoted to the Charles River IMS security master.

Robust Security Master

Charles River has invested significant time and resources building a robust security master that supports a broad range of asset classes across multiple geographies and jurisdictions, and is based on a pre-defined standard schema. To support the full depth and breadth of data required by complex fixed income and derivative instruments, Charles River maintains mappings for 1000+ data elements. For example, the Charles River security master supports over 120 types of bonds globally. Each bond type requires proper mapping of hundreds of fields for accurate calculation of accrued interest, analytics and risk metrics. While some of these fields are consistent across bond types (i.e., coupon rate), others vary (day basis, calculation model) and need to be mapped individually. Charles River performs extensive and continuous validation to help ensure that accrued interest and critical analytics are calculated correctly.

The security master manages core security reference data for over 300 security types, including OTC derivatives, and supports storage and comparison of multiple reference, analytics, and pricing suppliers and sources. All data management activities and workflows are controlled from a dashboard, including real time security reference and analytic setup and adding manager-defined data columns and metadata.

Working with an Existing EDM System

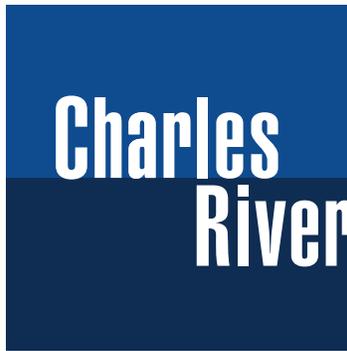
Investment firms that choose to utilize an existing data management system can blend their data with a foundational source in Charles River's EDM. This enables them to view their data in a familiar format while Charles River helps ensure data accuracy, resulting in proper calculations and full workflow support.

Charles River's powerful data validation capabilities provide managers with an independent validation of the gold copy security master in CRD as well as their EDM-sourced data. Some firms may wish to back feed the data in Charles River IMS to their existing 3rd party EDM to assist data consistency.

Charles River provides a cost-effective alternative to data warehouses, conventional EDM solutions, and data hubs by balancing turnkey functionality and flexibility. Charles River EDM's open architecture helps firms address their data management needs.

Key Capabilities and Benefits

- Delivers the right set of data management features based on firm size and asset complexity
- Helps asset managers realize significant cost savings, reduce operational risk and complexity, and ensure enterprise-wide data integrity
- Supports all asset classes with complete and accurate data
- Provides a variety of data management capabilities, including auditing
- Eliminates system fragmentation and data silos by centralizing data management on a single, scalable platform



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Charles River enables sound and efficient investing across all asset classes. Investment firms in more than 30 countries use Charles River IMS to manage more than US\$25 Trillion in assets as of April 2019 in the institutional investment, wealth management and hedge fund industries. Our Software as a Service-based solution (SaaS) is designed to automate and simplify investment management on a single platform – from portfolio management and risk analytics through trading and post-trade settlement, with integrated compliance and managed data throughout. Headquartered in Burlington, Massachusetts, we support clients globally with more than 925 employees in 11 regional offices.

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