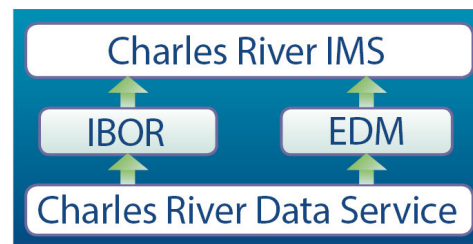


Charles River Enterprise Data Management

Ensure Accurate and Complete Securities Data

Ensuring complete and accurate security and position data is one of the biggest challenges facing buy-side firms. As the largest consumer of data in the front and middle office, the Charles River Investment Management Solution (Charles River IMS) addresses this challenge with a comprehensive set of **foundational data** delivered via the Charles River Data Service, along with centralized enterprise data management (EDM) that ensures high quality **security data**, and an Investment Book of Record (IBOR) that provides real-time **positions** and **cash** data.

Together, these capabilities streamline the processes required to create complete and accurate data sets that can be utilized across all front and middle office operations. By eliminating conflicting, erroneous and redundant data, firms benefit from improved decision support and greater efficiency.



Flexible Rule Based Security Data Validation

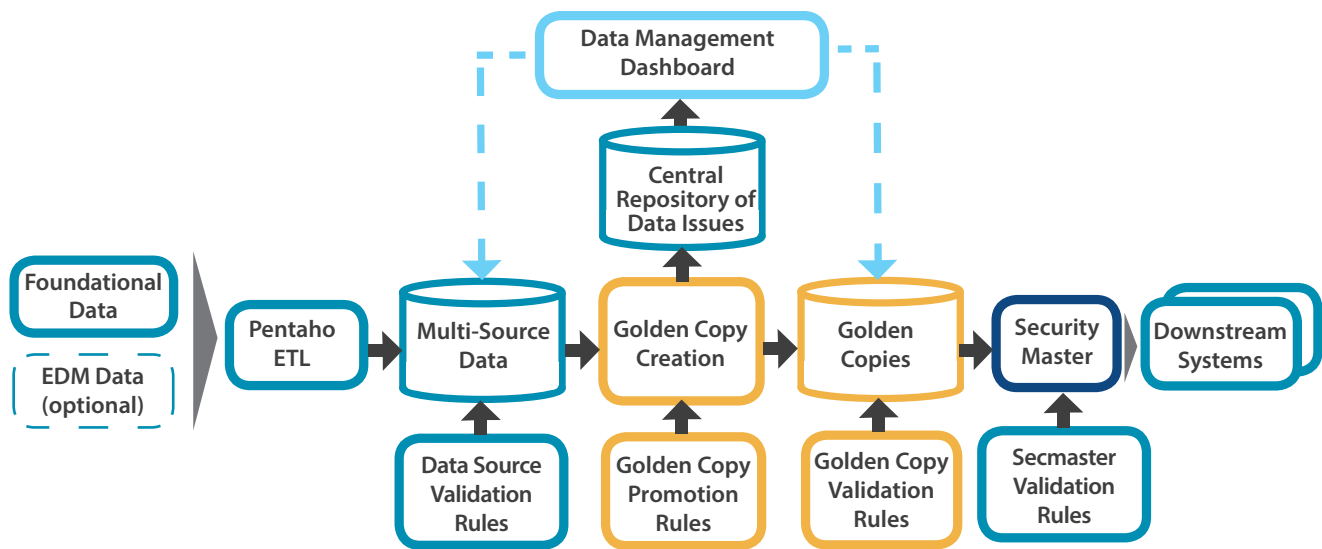
Security data validation is a recommended best practice, even if validation occurs elsewhere in the data supply chain. Charles River provides a set of pre-defined data validation rules which clients can customize. These rules generate actionable warnings and alerts based on data validation checks such 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

Golden Copy Creation and Promotion

Clients 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 multiple gold copies that serve a diverse range of front and middle office end users.

Sophisticated security resolution 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.



Security Data Management in the Charles River IMS

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 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 ensure that accrued interest and critical analytics are calculated correctly.

The security master manages core security reference data for over 300 security types, 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 client-defined data columns and metadata.

Working with an Existing EDM System

Conventional EDM systems are typically sufficient for sourcing equity data, but fail to provide the needed breadth, analytical detail and standardization required for supporting complex fixed income, derivative and structured products. This is because data elements often get “lost in translation” when they are mapped from foundational data sources into an EDM system incapable of managing the data detail required by complex securities.

Firms can continue using their existing EDM system for equities and leverage Charles River's data management capabilities for fixed income securities and derivatives. Charles River's powerful data validation capabilities provide clients with an independent validation of their EDM-sourced data, which can identify hidden data quality issues in their existing EDM system. Some firms may wish to back feed the data in Charles River IMS to their existing 3rd party EDM to ensure data consistency.

Feeding External Systems

Once the Charles River IMS security master has been populated with valid data, it is possible to feed that data to external systems, subject to vendor licensing. This ensures that all front- and middle-office systems are sharing "a single version of the truth".

The data management capabilities available "out of box" in the Charles River IMS are also available as a standalone EDM solution for firms with more complex needs. Contact your relationship manager to learn more.

About Charles River

Charles River provides an end-to-end solution to automate front and middle office investment management functions across asset classes on a single platform. Delivered as a hosted service, the solution offers a simplified operating model that improves data quality and investment professional productivity, controls risk and lowers technology costs. Charles River serves more than 350 investment firms in over 44 countries in the institutional asset and fund management, private wealth, alternative investments, insurance, banking, and pension markets.

www.crd.com