



MONTRAN

MONTRAN CSD

Central Securities Depository

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PROVIDES COMMITTED, JOINT TRANSFER OF FUNDS AND SECURITIES IN REAL-TIME AND ELIMINATES RISK TO BUYERS, SELLERS AND THE CENTRAL BANK.

The Montran CSD Solution

The Montran Central Securities Depository (CSD) Solution consists of modules and interfaces designed to offer a complete range of depository functions. More specifically, the CSD fully manages:

- Fixed income securities (bonds, bills, notes, certificates of deposit), equities (common and preferred stocks, cross listed securities), ETFs, open and closed ended mutual funds, commodities, Islamic instruments.
- Financial instruments with multi-currency denomination and settlement.
- Government and private sector issuers (including paying / issuing agent facility).
- Auction master data registration.
- Competitive and non-competitive bidding.
- Award algorithm simulation and execution.
- Registration and execution of auction results on the primary market.
- Direct connected parties (banks, non-banking financial institutions, corporates) and individual investors (holder and beneficial owner records for physical persons and legal entities).
- DvP settlement for over-the-counter (OTC) secondary transactions, as well as trade results coming from the Montran Trading System (TS) or any other external trading platform.
- FoP (Free of Payment) and PwD (Payment without Delivery).
- Registration / substitution / release and execution of pledge contracts.
- Registration and execution of collateral to support settlement of ACH sessions.
- Registration / substitution / margin call operations for repurchase agreements.
- Collateral Management System (CMS), including securities lending and borrowing, as well as intraday, overnight and long term collateralized loans, and Open Market Operations (OMO).
- Settlement optimization techniques (partial settlement, linked instructions, hold and release, auto-collateralization, prioritization, and recycling).
- Automatic calculation of cash dividends, dividends reinvestment, bonus issue, increase / decrease in value, worthless, conversion, stock / reverse stock split, merger, spin-off, rights issue, share capital increase with additional cash, attribution and subscription rights conversion.
- Full management of optional, partial and total securities redemption.
- Securities income (interest, capital gain and secondary market profit) taxation calculation and automatic collecting mechanism based in taxation schemes and threshold values.
- Support for both fungible and non-fungible concepts.
- Automatic billing calculation and collection.
- On-demand reporting facility (PDF, XLS, CSV).
- Alerts and notifications.

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CSD Core Principles and Standards

The Montran CSD fully complies with the following principles and standards:

- Core principles of Payment Systems set out by the Bank for International Settlement (BIS), including DvP Models 1, 2 and 3.
- CAJWG standards for corporate actions on-stock and on-flow.
- Relevant standards of the International Standards Organization (ISO), such as:
 - ISO 17799 – Security
 - ISO 9362 – Bank Identifier Codes
 - ISO 17442 – LEI (Legal Entity Identifier)
 - ISO 6166 – ISIN (International Security Identification Number)
 - ISO 10962 – CFI (Classification of Financial Instruments)
 - ISO 18774 – FISN (Financial Instrument Short Name)
 - ISO 3166 – Codes (Countries)
 - ISO 4217 – Currency Code List
 - ISO 15022 MT and 20022 MX

Access to Information

The Montran CSD system user interface is fully online and entirely web-based. The users access the CSD functionality and control all aspects of the system using a web-browser, login credentials, and by navigating through the system menu and associated screens.

Investor Portal Application

The Investor Portal is an optional complement to the CSD system. The portal provides online access to real-time portfolio management data for individual investors (physical persons and legal entities, identified as clients of CSD participants). The Investor Portal will also be available on iOS / Android mobile platforms. Implementing a real-time interface for push and pull of information to and from the CSD system, the Investor Portal application provides online access to individual investors for retrieving real-time portfolio information, as well as for creating primary market bids and secondary market buy and sell instructions. Benefiting from a state-of-the-art

architecture design, the Investor Portal application sits between the individual investor and the CSD application, addressing all performance requirements of internet exposure to large volumes of users, as well as mitigating all security concerns for protecting the sensitive and secure CSD data from open internet access.

CSD Modules

The below displayed architecture scheme includes the following modules:

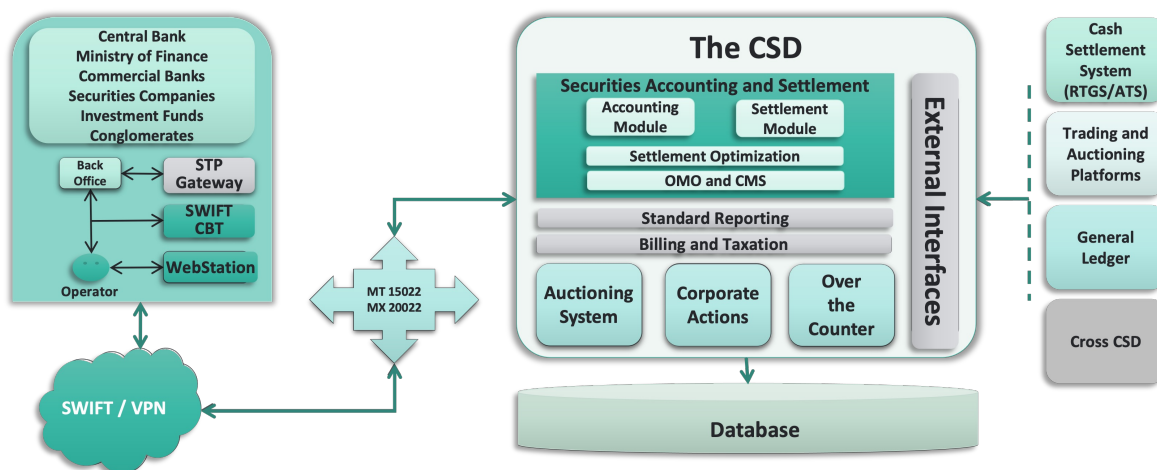
- **Auction Platform:** Facilitates the definition of the auction master data, the competitive and / or non-competitive bidding process, the simulation, execution and authorization of auction results based on the award algorithm implemented, the automatic generation and processing (settlement) of primary market operations together with full primary market on-demand reporting.
- **Instruction Originator:** Facilitates the user-friendly entry of instructions for securities operations, including automatic conversion to ISO SWIFT MT (15022) and MX (20022) securities messages.
- **Access and Routing:** Facilitates the automatic matching based on parameterized matching criteria in order to generate over-the-counter operations.
- **Accounting Space and Settlement:** Facilitates the full management of securities accounts, and final and irrevocable settlement of securities transactions according to DvP Model 1, 2 and 3 principles.
- **Billing:** Facilitates the management of charge rates for all operations performed in CSD with automatic collection facility in RTGS.
- **External Interfaces:** Dedicated RTGS, ATS, TS, ACH, GL interfaces.
- **Taxation:** Securities income taxation calculation and automatic collecting mechanism based in taxation schemes and threshold values.
- **T2S Compliance:** Facilitates the settlement optimization mechanism introduced by T2S (partial settlement, hold instructions, recycling, linked instructions, etc.) as well as MX ISO 20022 based CSD-T2S interface.

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CSD Architecture and Security

- System security based on PKI with smart card or eToken access.
- Absolute control over access and processing flows of payment files.
- Incorporates the highest levels of SWIFT and SWIFTNet security.
- Protects against systemic Risk and Fraud with real-time DvP.
- Communications between CSD and other systems are encrypted using SSL.
- Based on open system architecture.
- A standard browser based "thin client" user interface.
- Server application components written in Java and running in an enterprise environment, Java EE 8.0 application server.
- Interoperability using standardized Java API (JDBC, JMS, JTA, JCA), Interface adapters, and SOA integration.
- Operating systems supporting Java™, including Windows Server, UNIX, Linux, AIX, zOS.
- Uses any JDBC compliant RDBMS, including Microsoft SQL Server, Oracle, and others.



ABOUT MONTRAN

For over 40 years and in more than 80 countries, Montran has provided comprehensive payment, Cash Management and Market Infrastructure solutions and services to many of the world's foremost financial institutions. Montran's products have been SWIFT certified solutions since their program's inception more than 30 years ago. Montran Corporation's head office is located in the U.S. and is represented with offices in Europe, South America and India.