FINOS CDM · COLLATERAL MANAGEMENT

CDM collateral workflows on a shared ledger

A runnable prototype: CDM 7.7.0, Hyperledger Besu and smart contracts

[Presenter name] · [Event] · November 2026

CONTEXT

The industry is preparing to tokenize collateral

GDF and ISDA sandbox

Margin calls generated from CDM-based analytics settled on-chain in under two minutes, with tokenized money market funds as collateral (July 2026).

Eligibility under the CSA

ISDA assessed tokenized money market funds as eligible collateral under the ISDA Credit Support Annex (October 2026).

Smart contracts in CDM

ISDA and Tokenovate run a taskforce on a technology-agnostic smart contract framework within the CDM (from October 2025).

Sources: GDF/ISDA sandbox report (Jul 2026); ISDA tokenized MMF assessment (Oct 2026); ISDA press release (21 Oct 2025)

CONTEXT

FINOS and DTCC are looking at CDM and blockchain

FINOS CDM

The industry data standard for trade and collateral processes. For collateral, CDM 7.7.0 models agreement terms and eligibility, but no function or event moves collateral.

DTCC tokenization service

Live on Canton and on DTCC's private Besu network (ERC-20). Settlement and collateral, including on-chain netting, are on its 2027-and-beyond roadmap.

Missing piece: an open, standards-based margin-call lifecycle that connects CDM agreement terms to collateral settlement on tokenized rails.

Sources: DTCC Tokenization Service fact sheet (Oct 2026); docs/analysis/business-case.md §1

WHAT WE BUILT

A prototype on Hyperledger Besu

5

Besu nodes: 4 QBFT validators with deterministic finality, and the CCP’s node

11

Solidity contracts: margin call, collateral control, repo, securities loan, triparty, CCP clearing, reconciliation, oracle feed, tokens, record keeper register, provenance anchors

ERC-20

Tokenized collateral and cash, the token model of DTCC’s Besu network

CDM

Every on-chain step anchored to a CDM 7.7.0 event by content hash

CDM computes off-chain; the ledger records call state, escrow and settlement that both parties share.

Repository: github.com/finos-hack/cdm-collateral · besu/, contracts/

WHAT WE BUILT

Agreement types and flows covered

Agreement	Flows
ISDA CSA: margin cycle	IM call, proposal and pledge · VM call and title transfer · return of excess IM · default and enforcement · oracle price update · revaluation and top-up · two-way IM
ISDA CSA: extensions	close-out netting · substitution · interest on cash · amendment · call cancellation and replacement · settlement netting · allocation · reconciliation
Repo (GMRA)	terms and amendment · purchase and repurchase DvP · margin maintenance · reprice · adjustment · substitution · income · roll · pair-off · buy/sell-back · default and close-out
Securities lending (GMSLA)	terms and amendment · loan delivery and return · marking · recall · substitution · rebate · lending fee · default and close-out
Triparty	terms and collateral profile · trade start with the agent’s allocation · daily revaluation · substitution · trade end · the agent’s report
CCP (cleared repo)	membership and default fund · clearing by novation · daily VM and IM · member default and waterfall · porting

Source: docs/analysis/cdm-workflow-task-map.md

WHAT WE BUILT

CDM gaps closed in a Rune extension

29

of the 41 gaps in the register closed or partly closed

30

CDM defects found and documented, 16 of them fixed in cdm-ext

332

unit tests in cdm-ext (Java, CDM 7.7.0)

Status	Gaps
Closed (21): margin call lifecycle, valuation, concentration, exposure netting, enforcement, recall, GMRA and GMSLA terms, repo and lending exposure, triparty, CCP, tokens and ledger anchors	G1–G10, G12, G14, G18–G20, G22–G25, G29, G39
Partial (8): close-out, substitution, interest and income, GMSLA clauses, lending workflows, allocation, reconciliation, document provenance	G15–G17, G21, G33–G35, G41
Open (9): rating eligibility, taxonomy and regulatory references, CDM sample and naming defects, transfer type and roles, physical assets	G11, G27, G28, G30–G32, G37, G38, G40
Deferred: mapping to ISO 20022 and FpML messages	G26

Out of scope: SIMM (G13), regulatory reporting (G36). Sources: docs/gap-register.html, docs/analysis/defects.md

WHAT WE BUILT

A runnable application: UI driving smart contracts

Console

React UI per participant: pledgor, secured party, triparty agent, CCP, market data operator

→

Gateway

One per participant; signs and submits transactions, polls receipts

→

Smart contracts

Call state, escrow and settlement on the Besu network

CDM services (Java)

services/collateral computes amounts, eligibility and events with cdm-ext; services/oracle publishes prices and default notices

Run it

scripts/live-e2e.sh build | up | check: local, Codespaces or dev container; Playwright live specs assert on-chain state

Runbook: docs/setup/runbook-e2e.md · Architecture: architecture/prototype.architecture.json (FINOS CALM)

WHAT IS OPEN

Open questions for collateral SMEs

229

questions in 40 topics, each with the interim rule the prototype uses

IM enforcement and two-way IM

What is an Enforcement Event? When can the pledgor reclaim its IM on the secured party’s default?

Tokenized assets

Is a pledge of a registered token complete on-chain or at the register? Which prevails when they disagree? Who keeps each document behind a token, and what counts as evidence?

Call lifecycle, allocation, reconciliation

Cancellation rules, settlement netting, ranking and concentration, matching tolerances

Repo, securities lending, triparty and CCP

GMRA margin, reprice, roll and default; GMSLA marking, recall and fees; the triparty agent’s allocation; CCP margin, default and porting

All questions: docs/sme-questions.html · ledger: docs/analysis/sme-question-ledger.md · all open

JOIN US

We invite collateral SMEs and partners to join

Collateral SMEs

Answer the open questions and review the modelled rules against your agreements and operations

Firms and infrastructures

Run the prototype with your own agreement terms, tokens or ledger, for example Canton

FINOS CDM community

Take the extension and defect reports into CDM through the Collateral Working Group

github.com/finos-hack/cdm-collateral · [contact]