

**MINTED**

ASSOCIATES CORP

# 5N Sandbox Validation Report

Canton Network · Five North DevNet · March 2026

**VERDICT: GO**

Metric	Result
Total phases completed	27
Successful lifecycles	116+
DvP settlement cycles proven	13 (full Allocate → Settle)
DAML coverage	39/39 — 100%
Solidity coverage	86/86 — 100%
Ops coverage	22/23 — 95.7%
Overall test coverage	99.3%
6-hour stability soak	72/72 samples PASS
OOM events	0
Containers healthy	6/6
Memory baseline	43.8%–48.1% (stable)
Orphaned contracts	0
Operator hardening checks	11/12 resolved (1 deferred to mainnet)
Ledger offset range	960,250 → 989,719

This report documents the complete sandbox validation of Minted's protocol infrastructure on the Canton Network, conducted under Five North's (5N) shared DevNet environment. All phases were executed against the 5N shared sandbox validator (**5nsandbox-devnet-2**) with Minted's local validator process (**minted-validator-1**).

## Phase Summary

Phase	Name	Result	Summary
Phase 7	Continuity Canary	PASS	Contract lifecycle create/archive verified. Offset: 961108→961113.
Phase 8	Drift Guard + Operational Readiness	PASS	Dual contract lifecycle verified. Zero drift detected.
Phase 9	Stability Soak + Recovery Drill	PASS	30-min soak: 15/15 samples clean. Recovery drill: nginx restart, readyz recovered in 5s. Zero OOM.
Phase 10	Operationalize and Lock Baseline	PASS	Operator scripts created and tested: preflight, canary roundtrip, SSE parser, runbook.
Phase 11	Automated Daily Readiness Pack	PASS	Daily readiness automation (preflight + canary in one command).
Phase 12	Product Flow Delivery	PASS	OTC trade proposal lifecycle: create → query → withdraw. Transient sequencer clock skew on first attempt — retry succeeded.
Phase 13	Multi-Party OTC Flow	PASS	Accept/Reject flows proven. transferLegs schema validated. Multi-party signing confirmed.
Phase 14	Documentation Cleanup	PASS	Auth policy corrected. Isolation notes added. Cross-doc consistency verified.
Phase 15	Final Operator Cleanup	PASS	Token hygiene section added. JWT decode one-liner and freshness gate in runbook.
Phase 16	JWT Padding Hardening	PASS	Replaced vulnerable base64 padding expression across all operator docs (6 occurrences).
Phase 17	Token Refresh + Final Green Check	PASS	Fresh token, preflight PASS, canary PASS. End-to-end operator path proven post-hardening.
Phase 18	Handoff Packet Generation	PASS	3 independent audits, 5 issues found and resolved, ALL CLEAR.
Phase 19	Documentation Alignment	PASS	Handoff aligned to shared sandbox model per 5N feedback. All docs checksum-verified.
Phase 20	Shared Sandbox Deployment	PASS	Full contract lifecycle on shared sandbox validator confirmed.
Phase 21	Product Flow Regression Suite	PASS	Automated regression: Accept 3/3, Reject 3/3, Cleanup 3/3. 9 contracts exercised.
Phase 22	Product Completion Sprint	PASS	Full DvP lifecycle script. Regression stress 10/10, Settlement stress 10/10. 70 contracts exercised.
Phase 22.1	Hotfix (Audit-Only)	PASS	Exit code hardening, set -eou pipefail on all scripts.
Phase 23	Full DvP Settlement Path	PASS	First complete DvP settlement on Canton: Create → Accept → InitiateSettlement → Allocate → Settle. AllocationFactory and OTCTrade_Settle both PASS.
Phase 24	Reliability + Consistency Gate	PASS	5 DvP stress cycles PASS. Negative tests (fake allocation, wrong party) correctly rejected. 0 orphaned contracts.

Phase 24A	Full Function Coverage	<b>PASS</b>	148 functions inventoried. DAML 100%, Solidity 74.4% (admin functions remaining), Ops 95.7%.
Phase 24B	Emergency/Admin Gap Closure	<b>PASS</b>	55 Hardhat tests passing. Solidity coverage raised to 100%. 0 critical gaps.
Phase 24C	Direct Lending Admin Execution	<b>PASS</b>	CollateralVault + LiquidationEngine pause/unpause executed directly. 10/10 tests passing. PASS_BY_PATTERN reduced to 0.
Phase 25	6-Hour Stability Soak	<b>PASS</b>	72/72 samples over 6 hours. 6 hourly DvP canaries all PASS. Memory stable 43.8%–48.1%. 0 OOM. 0 orphaned contracts.
Phase 27	Operator Preflight Hardening	<b>11/12</b>	12 controls audited against 5N operator checklist. 8 PASS + 3 CLOSED. 1 deferred (hs-256-unsafe — shared DevNet, fix at private validator). Backup, monitoring, upgrade procedures all verified.

## What Is Product-Ready

### Venue-side OTC Trading

Create proposals, query state, withdraw — fully operational.

### Multi-Party OTC Trading (Accept/Reject)

Fully operational with transferLegs populated. Accept adds approver to multi-step approval pattern. Reject destroys the proposal outright.

### Full DvP Settlement (Allocate + Settle)

End-to-end proven. AllocationFactory\_Allocate creates AmuletAllocation with locked Amulet. OTCTrade\_Settle consumes allocation and transfers Amulet to counterparty. Requires 3 disclosed contracts (ExternalPartyAmuletRules + AmuletRules + OpenMiningRound) plus full ChoiceContext.

### Daily Readiness Automation

Single command runs full health check + canary verification.

### Operator Hardening

11/12 controls verified against 5N operator checklist. Backup, monitoring, upgrade, and security procedures all documented and tested.

## Cumulative Multi-Party Flows Exercised

Flow Type	Count
Accept	37
Reject	14
InitiateSettlement	23
OTCTrade Cancel	12
Allocate + Settle (DvP)	13
Total successful lifecycles	<b>116+</b>

## Sandbox Environment

Shared sandbox validator: **5nsandbox-devnet-2** (Five North shared DevNet validator)

Local validator process: **minted-validator-1** (integration validation against DevNet)

Sponsored by: **Five North (5N)** — Canton Super Validator

Operator checklist audited against: **Vasilis Dialinos (5N)**

Documentation aligned per: **Rainer @ interjektio.fi (5N feedback)**