
CAERSYN · TRACE · PILOT EVIDENCE

Caersyn Trace Pilot Proof-of-Record Summary Report

Illustrative Alpha Pilot deliverable using a fictional customer and simulated data.

DATE 22/07/26

VERSION v1.0

CATEGORY Alpha Pilot deliverable (SAMPLE)

STATUS Public Example Document

Pilot Report Details

Field	Value
Customer	Northstar Operations Ltd
Pilot environment	Alpha Pilot / Hosted Trace Node
Report ID	POR-NORTHSTAR-2026-W29-001
Evidence package ID	EVID-NORTHSTAR-20260715-20260721-001
Reporting window	2026-07-15 00:00:00 UTC to 2026-07-21 23:59:59 UTC
Report generated	2026-07-22 09:30:00 UTC
Customer namespace	`customer_northstar_ops`
Trace verification status	PASS

01

Summary Assessment

During the reporting window, Caersyn Trace recorded workflow execution events from Northstar Operations Ltd into a customer-scoped append-only ledger.

The customer ledger passed verification.

1.1 Headline Result

Area	Result
Trace verification status	PASS
Total recorded events	48,720
Total workflow traces	4,872
Average events per workflow	10
Event-ID index entries	48,720
Indexed / sealed segments	49
Active unsealed segment	0
Total observed segments	49
Uncommitted WAL files remaining	0
Recovery checkpoint	Present
Verification errors	0

1.2 Pilot Outcome Summary

Pilot Question	Result
Were events successfully recorded?	Yes
Did the customer ledger verify?	Yes
Did event count match the event-id index?	Yes
Were duplicate event IDs detected?	No
Did workflow ordering pass?	Yes
Did segment verification pass?	Yes
Were uncommitted WAL files left over?	No
Did the customer volume remain inside tested pilot capacity?	Yes

1.3 Customer-Readable Conclusion

Northstar Operations has a verified record of the workflow events submitted into Caersyn Trace during the reporting window.

The ledger passed integrity verification. Event counts matched. Workflow ordering passed. Segment verification passed. No duplicate event IDs were detected. No uncommitted WAL files remained at report generation.

Trace Verification Status: PASS

02

Pilot Objective

The objective of this pilot was to confirm that Northstar Operations Ltd could submit workflow execution events into Caersyn Trace and receive a verifiable record of those events after recording.

The pilot measured:

```
successful event recording
ledger integrity
completeness of recorded workflow traces against the defined event sequence
event-id deduplication
segment verification
recovery state
operating volume against tested pilot capacity
```

03

Source System and Integration

Field	Value
Source system	Northstar Dispatch Platform
Integration method	Host-side Trace emit script / API integration
Submission method	Authenticated API call to Caersyn Trace
Authentication	Customer-scoped API key
Customer namespace	`customer_northstar_ops`

The customer system generated workflow payloads from operational activity and submitted them to Caersyn Trace. Trace recorded those submissions into the customer ledger.

04

Recorded Workflow Activity

Each workflow trace followed a structured 10-event sequence:

```
workflow.started  
workflow.step  
workflow.step  
workflow.step  
workflow.step  
workflow.step  
workflow.step  
workflow.step  
workflow.step  
workflow.completed
```

Example event categories recorded during the pilot:

```
job created  
job assigned  
route confirmed  
operator update received  
vehicle status updated  
customer notification sent  
exception raised  
exception reviewed  
exception resolved  
job completed
```

05

Workflow Outcome Summary

Workflow Outcome	Count
Completed	4,631
Failed / Exception	217
Cancelled	24
Still open at report time	0
Total workflow traces	4,872

Business exceptions, cancellations, and failed workflows are not Trace integrity failures. They are valid recorded workflow outcomes when submitted by the source system.

06

Event Type Breakdown

Event Type	Count
workflow.started	4,872
workflow.step	38,976
workflow.completed	4,631
workflow.failed	217
workflow.cancelled	24
Total	48,720

07

Ledger and Segment Summary

The customer ledger was stored under the isolated customer namespace:

```
trace/customers/customer_northstar_ops/  
  segments/  
    wal/  
      event_ids.jsonl  
      checkpoint.json  
      ledger_index.json
```

Segment policy:

```
1,000 events per sealed segment
```

Segment summary:

Segment Type	Count	Events Covered
Indexed / sealed segments	49	48,720
Active unsealed segment	0	0
Total observed segments	49	48,720

The final partial segment containing 720 events was sealed at reporting-window closure. All 48,720 recorded events therefore fell within the sealed proof scope for this report.

08

Verification Result

Verification was performed against the recorded customer ledger.

```
Verifier: Caersyn workflow ledger verifier  
Verifier Mode: Ledger-derived verification  
Verification Time: 2026-07-22 09:30:00 UTC  
Verifier Result: PASS  
Specification Baseline: TES-1, LVA-1, TNS-3, WAL-3, TAS-3, CTS-3
```

Verifier output summary:

```
{  
  "customer_id": "customer_northstar_ops",  
  "status": "PASS",  
  "total_events": 48720,  
  "trace_count": 4872,  
  "observed_segment_count": 49,  
  "indexed_segment_count": 49,  
  "unsealed_observed_segment_count": 0  
}
```

09

Verification Checks Performed

Verification Check	Result
Customer ledger readable	PASS
Ledger event count verified	PASS
Event-id index count matched ledger count	PASS
Duplicate event IDs detected	None
Hash continuity	PASS
Segment continuity	PASS
Workflow ordering	PASS
Expected workflow sequence	PASS
Terminal workflow events present	PASS
Uncommitted WAL files remaining	0
Recovery checkpoint present	Yes
Customer namespace verified independently	PASS

10

Event-ID Index Consistency

Field	Value
Ledger event count	48,720
Event-ID index count	48,720
Difference	0
Result	PASS

11

WAL and Recovery State

Trace uses a write-ahead log during ingestion so accepted events can be recovered if processing is interrupted before ledger commit.

At report generation:

Field	Value
Uncommitted WAL files remaining	0
Recovery checkpoint	Present
Result	PASS

12

Throughput and Operating Profile

During the pilot reporting window, Northstar Operations' volume stayed within the tested operating envelope.

Metric	Value
Total events	48,720
Full-window average rate	0.081 events/sec
Highest 1-minute burst	4,920 events
Peak 1-minute submission rate	82 events/sec
Highest 10-minute burst	11,840 events
Peak 10-minute average	19.73 events/sec

Reference scale tests for the pilot environment:

Scale Test	Result
Single namespace 100k	155.8 events/sec, verifier PASS
Single namespace 1M	126.16 events/sec, verifier PASS
10-customer breadth test	192.06 aggregate events/sec, all verifiers PASS

13

Submission and Integrity Exceptions

13.1 Submission Exceptions

Submission Exception	Count
Authentication failures	0
Schema validation failures	0
Malformed requests	0
Duplicate submissions rejected	0
Rate-limit events	0
Total rejected submissions	0

13.2 Ledger Integrity Exceptions

Integrity Check	Result
Duplicate event IDs	None detected
Hash continuity errors	None detected
Ledger continuity gaps	None detected
Event-id index mismatch	None detected
Segment verification errors	None detected
Workflow ordering errors	None detected
Uncommitted WAL files remaining	None
Verification status	PASS

14

Customer Reconciliation

The customer may reconcile this report against its own source system using the following values.

Reconciliation Field	Trace Value
Reporting start	2026-07-15 00:00:00 UTC
Reporting end	2026-07-21 23:59:59 UTC
Source system	Northstar Dispatch Platform
Customer namespace	`customer_northstar_ops`
Total workflow traces	4,872
Total recorded events	48,720
Completed workflows	4,631
Failed / exception workflows	217
Cancelled workflows	24

Customer Reconciliation Status: Pending / Not supplied

15

Evidence Package References

Evidence Package ID: EVID-NORTHSTAR-20260715-20260721-001
Verification Summary File: customer_northstar_ops_20260715_20260721_summary.json
Ledger Export ID: LEDGER-NORTHSTAR-20260715-20260721-001
Report Hash: Referenced in bundle_manifest.json after report finalisation
Verification Summary Hash: Referenced in bundle_manifest.json
Segment Manifest Hash: Referenced in bundle_manifest.json
Public Sample Note: Cryptographic values are omitted from this illustrative report

16

Recommendations

Based on this reporting window:

1. Continue pilot recording for the next reporting period.
2. Reconcile Trace totals against the Northstar Dispatch Platform export.
3. Confirm whether failed, cancelled, and exception workflows should be included in regular management reporting.
4. Confirm whether the customer wants weekly or daily Proof-of-Record reports.
5. Confirm whether evidence packages should be exported automatically at the end of each reporting window.

17

Proof Boundary

This report verifies the integrity of the event history recorded into Caersyn Trace.

Trace proves that the recorded event sequence existed in the customer ledger, remained ordered, deduplicated, hash-linked, segmented, and verifiable after recording.

Payload accuracy remains dependent on the connected source system and the customer's operational controls.

18

Sign-Off

Prepared by: Caersyn Trace Pilot System
Report Type: Proof-of-Record Summary Report
Customer: Northstar Operations Ltd
Namespace: customer_northstar_ops
Reporting Window: 2026-07-15 to 2026-07-21
Trace Verification Status: PASS
Customer Reconciliation Status: Pending / Not supplied
Generated At: 2026-07-22 09:30:00 UTC