

ACCESS & NETWORK

i2i Trace

Log management for CGNAT and syslog records, to support traceability and compliance

OVERVIEW

i2i Trace is a log management platform for ISPs and carriers, built for IP logs. It captures NAT flow records and router syslog, stores them for the retention period your regulator sets and lets an authorised operator search and export them. The core question it answers is which public IP address and port was in use at a given time, to support traceability and compliance.

Records are preserved and served in their raw form, and your own subscriber or RADIUS data links an address to a subscriber. Retention, residency and audit behaviour come from a compliance profile that you can version and activate per tenant, rather than from code changes.

THE CHALLENGE

Carrier-grade NAT puts many subscribers behind one public address, so a request from an authority cannot be answered without a per-translation record. Those records arrive in several formats at high rate, must be kept for years under rules that differ by country and must be shown to be complete and untampered. Operators need log management with one store, one lookup and an audit trail that can be verified, to support traceability and compliance.

AT A GLANCE

- ✓ NAT and syslog records kept under a compliance profile
- ✓ Lookup by public IP, port and time
- ✓ Evidence exported as CSV, Parquet or NDJSON
- ✓ Tamper-evident audit of every search

Capabilities

NetFlow and IPFIX collection

A collector receives NetFlow and IPFIX with full NAT44 decoding and passes records to Kafka. Ingest consumers scale out and a lag-driven autoscaler adds instances as the backlog grows.

- Collector on UDP 2055
- Kafka as the buffer
- Consumer instances managed by systemd

Syslog decoders

Vendor syslog is turned into the same NAT structure as flow records. Decoders ship for MikroTik, VyOS, Cisco ASR CGN, conntrack-based gateways and iPACT CGN. The original line is also kept as raw evidence.

Ingest Sentinel and Feed Reconciler

The Sentinel validates each record against the active profile and quarantines failures with a sliding quality score. The Reconciler applies detection rules to find sources that go silent or drop records, and raises findings that operators acknowledge.

Compliance profiles

A profile sets retention floors and ceilings, residency, time-source drift handling and audit behaviour. Profiles are versioned, activated per tenant and reloaded without a restart. Profiles ship for India, an EU baseline and a generic US setting.

Retention and legal holds

A retention controller enforces profile limits, records purges in a way that can be verified and honours legal holds. Purge runs in dry-run mode by default. Storage moves through hot, warm and cold tiers by age.

Lookup, search and export

A lookup by public IP, port and time returns the matching NAT record. Record browsers filter NAT and syslog data, and exports are written as CSV, Parquet or NDJSON.

Tamper-evident audit

Every access is written to a hash-chained audit table. A command-line tool verifies the chain, and the audit log exports with a manifest. Roles and permissions are defined by the customer and stored as data.

Capacity and backup

A forecaster estimates days until storage is full and can drive disk-full automation and a drain mode. ClickHouse backup timers and an encrypted offsite copy are included.

Technical summary

INPUTS	NetFlow and IPFIX on UDP 2055; syslog through a Vector socket source; HTTP push for NAT records
DECODERS	MikroTik, VyOS, Cisco ASR CGN, conntrack-based gateway and iPACT CGN syslog into a common NAT table
DATA TIER	Kafka, ClickHouse with hot, warm and cold tiering, PostgreSQL control plane
OUTPUTS	CSV, Parquet and NDJSON export; REST API; web console
COMPLIANCE PROFILES	India, EU baseline, US generic and a minimal test profile; versioned and activated per tenant
ACCESS CONTROL	Customer-defined roles, multi-tenant model, API keys, SSO route
DEPLOYMENT	Native systemd services on Debian 12, installed by a provisioning script; no container runtime
SCALING	Add ingest consumers and ClickHouse shards; default data tier is a single node

Standards and interfaces

Ingest protocols

- NetFlow
- IPFIX
- Syslog (RFC 5424 for Cisco ASR CGN)

Export formats

- CSV
- Apache Parquet
- NDJSON

Related modules

Modules operators often run alongside i2i Trace. Each is a separate module; the integrations that exist are listed in the technical summary above.



Where it is used

Answering an authority request

An authority asks who held a public address and port at a stated time. The compliance officer enters the address, port and time in the Lookup page and gets the matching NAT record. The operator then matches the private address against its own subscriber data and exports the evidence.

Keeping CGNAT logs for the retention period

An ISP runs carrier-grade NAT on more than one vendor platform. Trace takes NetFlow, IPFIX and syslog from each into one store, applies the active compliance profile and holds records until the floor has passed, with legal holds to stop deletion.

Finding a silent log source

A router stops exporting flows after a change window and nobody notices. The Feed Reconciler flags the quiet source and the console lists it as a finding to acknowledge, so the gap is found while the records can still be recovered from the device.

See i2i Trace on your network

Talk to our team about your operator type, your network and where to start. We will show you the module and answer the technical questions.

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