



EB-PB-011 · ENTERPRISE PRODUCT BRIEF

EarthSCM Product Brief

End-to-end provenance for physical goods on Earth Blockchain: digital product passports for items and lots, custody and condition events from an IoT-ready oracle layer, inspector attestations at every checkpoint, and recall tracing in minutes — with commercial data kept private and provable.

DIGITAL PRODUCT PASSPORTS

IOT ORACLE LAYER

EBS-721 · 6551

RECALL IN MINUTES

Version 1.0 · **Status** Public Release · **Date** July 2026**Canonical source** Earth Blockchain Whitepaper v2.0**Audience** manufacturers · exporters · pharma & food chains · brands · customs programs

EarthSCM — Supply Chain Traceability & Intelligence

EVERY ITEM TELLS ITS VERIFIABLE STORY

Supply chains run on documents about goods rather than facts about goods. EarthSCM gives each item or lot a digital product passport — an on-chain identity that accumulates custody transfers, sensor telemetry, and inspector attestations as verifiable events — so a buyer, customs officer, or consumer can read an item's true history in one scan, and a recall traces affected lots in minutes instead of weeks.

At a Glance	
Category	Supply chain traceability and intelligence (Whitepaper §12.3).
Core EBS standards	EBS-721 (serialized items), EBS-1155 (lots/batches), EBS-6551 (token-bound passports), EBS-4671 (inspection attestations).
Primary buyers	Manufacturers and exporters; pharmaceutical and food cold chains; agricultural cooperatives and commodity traders; luxury and electronics brands fighting counterfeits; ports, 3PLs, and customs modernization programs.
Commercial model	Per-item/lot passport fees plus event-volume metering in EARTH; enterprise subscriptions for dashboards, analytics, and ERP connectors; network fees for multi-party consortium deployments.
Canonical reference	Whitepaper v2.0 §12.3; platform interfaces in EB-API-003; contract patterns in EB-SCC-005.

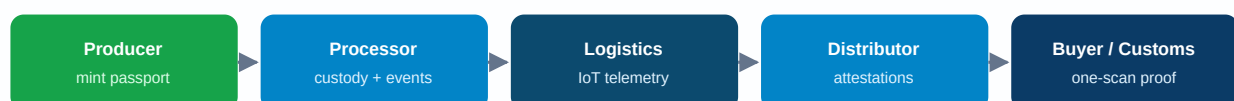
1. The Problem

Provenance today is a chain of PDFs: certificates that travel separately from goods, telemetry trapped in each carrier's silo, and custody records that stop at every organizational boundary. The costs are concrete — counterfeits absorbing brand value, cold-chain excursions discovered at the destination, recalls that sweep entire product lines because lot-level tracing is impossible, and compliance regimes (serialization, deforestation-free sourcing, battery passports, forced-labor rules) demanding item-level evidence that ERP-to-ERP integration cannot produce across competitors (Whitepaper §3, §12.3).

2. Solution Architecture

Items are minted as EBS-721 identities (or EBS-1155 lot classes), each optionally carrying an EBS-6551 token-bound account — a passport that itself holds inspection credentials, certificates, and warranty records. Events enter through an oracle layer: GS1-compatible barcode/Rfid scans, IoT sensor gateways (temperature, humidity, shock, geolocation), and ERP adapters. High-frequency telemetry is Merkle-batched for cost efficiency with full data retained in participant systems and provable on demand; role-based visibility lets competitors share one chain of custody without exposing commercial terms (Whitepaper §12.3).

Fig. 1 — EarthSCM: Provenance Pipeline with Oracle Layer



Custody flows left to right while the oracle layer anchors scans, telemetry, and attestations to each item's passport.

Fig. 1. Custody flows left to right while the oracle layer anchors scans, telemetry, and attestations to each item's passport.

3. Workflow

1. **Register.** Producer mints the item/lot identity and binds initial certificates (origin, quality, sustainability) to its passport.
2. **Track.** Each handler appends custody events; IoT gateways anchor Merkle-batched telemetry commitments automatically.
3. **Certify.** Inspectors and labs attach EBS-4671 attestations at checkpoints — quality, origin, cold-chain integrity.
4. **Prove.** Buyers, customs, and consumers verify the full history by scanning the item; documents cross-link via EarthDoc.
5. **Respond.** Recalls query the passport graph: affected lots, current custodians, and notified parties in minutes.

4. Standards and Platform Integration

Component	Role in EarthSCM
EBS-721 / EBS-1155	Serialized items and batch classes with provenance history and metadata integrity commitments.
EBS-6551	Passports as accounts: the item owns its credentials, certificates, and warranty records.
EBS-4671	Checkpoint attestations from inspectors, labs, and certifiers — revocable, issuer-accountable.
Oracle layer	GS1 scans, IoT gateways with Merkle batching, ERP adapters (EB-ENT-006 §3).
EarthDoc / EarthESG interop	Trade documents bound to shipments; emissions telemetry feeding Scope 3 (Whitepaper §12).

5. Deployment and Integration Path

- **Pilot (weeks).** One product line, one lane: mint passports at production, capture scans at three custody points, attach one inspection attestation, and demonstrate one-scan verification and a simulated recall trace.
- **Integration (months).** Deploy ERP adapters and IoT gateways across sites; onboard first external handlers (3PL, distributor) with role-scoped visibility; wire recall dashboards into quality management.
- **Production (quarters).** Serialization at manufacturing scale; supplier and lane coverage targets; compliance exports (serialization, deforestation-free, battery-passport regimes); consumer-facing scan experiences for brand protection.

6. Business Model and Value

Dimension	EarthSCM
Target customers	Manufacturers and exporters; pharmaceutical and food cold chains; agricultural cooperatives and commodity traders; luxury and electronics brands; ports, 3PLs, and customs modernization programs.
Business model	Per-item/lot passport fees plus event-volume metering in EARTH; enterprise subscriptions for dashboards, analytics, and ERP connectors; network fees for multi-party consortium deployments.
Revenue opportunities	Passport issuance at manufacturing scale, IoT gateway certification, compliance-report exports, recall-management tooling.
Competitive advantage	Item-level identity with token-bound passports that own their own credentials; native hand-off into EarthESG (Scope 3) and EarthDoc (trade documents); low, predictable event costs by design.

7. Enterprise Use Cases

Pharma serialization and cold-chain integrity; food origin and organic certification; conflict-mineral and battery-passport compliance; anti-counterfeit verification for luxury goods; export documentation bound to physical shipments; customs pre-clearance on verifiable histories.

8. Measuring Success

- **Recall performance.** Trace time from alert to affected-lot list and custodian notification (target: minutes).
- **Integrity coverage.** Share of shipments with complete custody chains and in-range telemetry; excursion detection latency.
- **Counterfeit interdiction.** Failed-verification scans at points of sale and entry.
- **Partner adoption.** Handlers and lanes onboarded; percentage of events arriving via automated gateways vs. manual scans.

9. Security and Compliance Notes

- **Commercial confidentiality.** Prices, volumes, and counterparties stay in participant systems; the chain carries commitments and role-scoped events (EB-ENT-006 §5).
- **Oracle integrity.** Gateways are identified signers; telemetry batches are Merkle-proven on demand — spoofing a sensor stream requires compromising an accountable device identity.
- **Custody semantics.** Passport control transfers with the item's custodian by design; disputes resolve against the signed event history.
- **Regulatory posture.** Item-level evidence structured for serialization and sourcing regimes; certification remains program-specific.

Getting started. Pick one lane, request a BaaS project key, and mint your first hundred passports on testnet with the issuance API (EB-API-003 §5.2); the enterprise team provisions gateways and ERP adapters for the pilot.

EB-PB-011 v1.0 (July 2026). This brief expands Whitepaper v2.0 §12.3 with deployment and operational guidance; the Whitepaper governs in any discrepancy. References to reporting or regulatory frameworks describe structural alignment of tooling, not certification or approval. Nothing herein constitutes financial, investment, tax, or legal advice. © 2026 Earth Blockchain Corp. (Wyoming, USA) · Alpha Blockchain Private Limited (India). All rights reserved.