SafeShipping API

## 🚢📦 SafeShipping’s API needs a robust set of fields to handle diverse transport modes and IoT-driven shipment tracking.

Here’s a **comprehensive list** of fields for **Smart-Contract Blockchain records**, covering **shipping, transport, delivery, and IoT integration**:

**🚀 Core Shipment Details**

* **Shipment ID** (Unique blockchain identifier)
* **Sender & Receiver Details** (Name, address, contact info)
* **Carrier Type** (Cargo ship, airplane, semi-truck, courier, drone)
* **Transport Mode** (Air, sea, land, rail)
* **Origin & Destination** (Geolocation, country, port/airport codes)
* **Estimated Delivery Date** (Expected arrival timestamp)
* **Actual Delivery Date** (Confirmed arrival timestamp)
* **Shipping Status** (Pending, In Transit, Delivered, Delayed, Lost)
* **Smart Contract Hash** (Immutable reference to contract terms)

**📦 Cargo & Packaging Details**

* **Item Description** (Product type, category, HS code)
* **Weight & Dimensions** (kg/lbs, cubic meters)
* **Packaging Type** (Pallet, container, box, envelope)
* **Fragility Indicator** (Yes/No)
* **Hazardous Material Flag** (Yes/No, UN classification)
* **Temperature Requirements** (Min/Max °C)
* **Security Seals & Tamper Evidence** (Seal ID, verification hash)

**📡 IoT-Driven Shipment Tracking**

* **GPS Location Updates** (Real-time geolocation)
* **Temperature & Humidity Sensors** (Live environmental data)
* **Shock & Vibration Sensors** (Impact detection)
* **Seal Integrity Status** (Tamper-proof verification)
* **Container Door Open/Close Events** (Unauthorized access detection)
* **Battery Level of IoT Devices** (Power monitoring)
* **Network Connectivity Status** (Cellular, satellite, Wi-Fi)

**⚖️ Compliance & Legal Fields**

* **Customs Clearance Status** (Approved, Pending, Denied)
* **Tax & Duty Payments** (Amount, transaction hash)
* **Insurance Coverage Details** (Policy ID, claim eligibility)
* **Regulatory Compliance Flags** (GDPR, FDA, ISO, IMO)
* **Dispute Resolution Mechanism** (Arbitration terms, jurisdiction)

**💰 Payment & Incentives**

* **Freight Cost** (Tokenized payment amount)
* **Stablecoin Payment Transaction** (Cross-border settlement)
* **Delivery Confirmation Signature** (Blockchain-verified proof)
* **Late Delivery Penalty Clause** (Smart contract enforcement)
* **Performance-Based Incentives** (Staking/slashing for timely delivery)

**🌐 Interoperability & Multi-Chain Support**

* **Cross-Chain Shipment Tracking ID** (LayerZero, Polkadot, Cosmos)
* **Blockchain Network Used** (Ethereum, Polygon, Solana, Hyperledger)
* **Interoperability Protocols** (Bridges, sidechains, rollups)

## 🔥 This setup ensures SafeShipping’s API can handle real-time tracking, compliance, payments, and IoT-driven automation.