**PRD-22 — Packaging & Logistics Attributes**

**Intent**  
Add transport-critical attributes (dims/weight/UoM, UN numbers, lithium-battery flags, packing group), validate against **dangerous goods** rules, and surface requirements to OMS/WMS and gate checks.

**Preconditions**

* Attribute catalog: dimensions/weight UoM, UN numbers, DG classes, packing groups, lithium battery types.
* Rule evaluator for transport overlays (IATA/IMDG analogs) — advisory mapping.

**Flow (happy path)**

1. **Capture & Validate**: on product (or variant), record dims/weight/UoM, DG flags, UN number, packing group, battery type; validate combos.
2. **Overlay Evaluation**: compute transport overlays → **Transport Badge** (e.g., “DG Class 9 — Lithium Ion”).
3. **Kits/Bundles**: aggregate packaging attributes (volumetrics, DG) from components.
4. **Downstream Surface**: expose attributes + badges in picklists, packing instructions, labels; export to OMS/WMS.
5. **Gate Hooks**: orders with transport-restricted items check that **packing rules** are present; otherwise HOLD with WHY+FIX.

**Edge cases**

* Missing or conflicting UoM → block save with specific hint.
* Country-specific transport rules → show jurisdiction override badge.

**Done when**

* Shipments of flagged items always require the correct packing/labels; missing data produces deterministic HOLDs.
* Exports include packaging attributes and badges.

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