WHITE PAPER

Batch, Serial & Recall-Ready: Traceability in ERPNext for Pharma, Food & Electronics

How ERPNext tracks lots and individual units — batches with expiry, serial numbers, and the Serial and Batch Bundle that links every receipt, transfer and delivery — so a recall or audit takes minutes, not weeks.

For quality & supply-chain leaders (pharma, food, electronics) · **8 min read**

Acube Innovations · Official ERPNext Partner · acubeinnovations.com · +91 62358 66111

EXECUTIVE SUMMARY

When a regulator, a customer or a hospital asks "which units came from this lot, and where did they all go?", the answer has to arrive in minutes — not after a week of digging through spreadsheets and delivery challans. This paper explains how ERPNext delivers that traceability at two levels: batches, for material made or received together and often carrying an expiry date, and serial numbers, for individually identifiable units. It then goes under the hood to the mechanism that makes it work — the Serial and Batch Bundle, the document ERPNext attaches to every stock movement so each receipt, transfer and delivery records exactly which lots and units moved, at what quantity and value. From there it covers expiry and FEFO picking, the recall and audit trail you can run in both directions, and the setup discipline that separates a system that answers instantly from one that only looks like it does. The focus is pharma, food and electronics — the industries where traceability isn't a nice-to-have but a legal and safety obligation.

Why traceability is non-negotiable in pharma, food and electronics

In most industries, losing track of a specific lot is an inconvenience. In pharma, food and electronics, it's a liability. A contaminated food batch, an out-of-spec drug lot, or a component with a known defect all share the same demand: identify every affected unit, know exactly where each one went, and pull it back — fast, completely, and provably. Do it well and a recall is a contained, documented event. Do it badly and it becomes a blanket recall of good stock, a regulatory finding, and a hit to trust you don't get back.

The pressure isn't only reactive. Pharma manufacturers answer to drug-regulator inspections and expect batch genealogy on demand. Food producers work to FSSAI expectations and the universal rule that expired stock must never ship. Electronics makers live and die by warranty and RMA handling — which means knowing, per serial number, what shipped to whom and when. In each case the question is the same one an auditor or an angry customer asks: show me this lot's full history, and show me every place it ended up. A system that can't answer that on demand isn't really traceable.

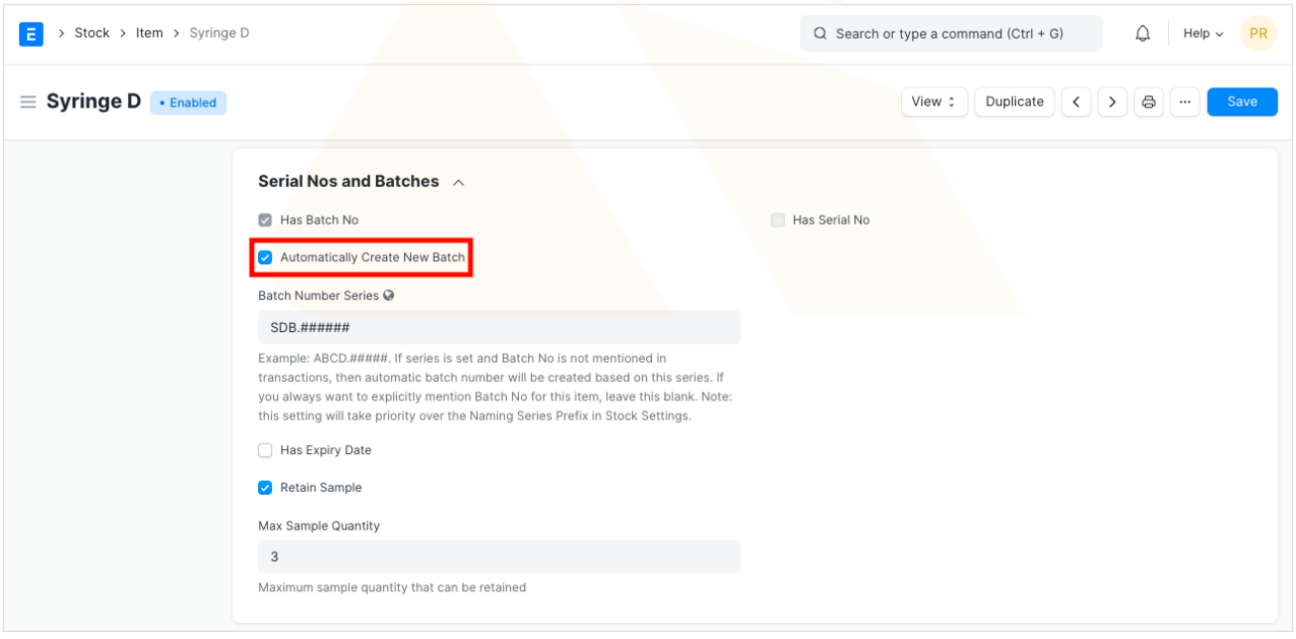
- Pharma — batch genealogy and expiry control for drug-regulator inspections; recall a specific lot without touching the rest.
- Food & beverage — FSSAI-style traceability, mandatory expiry/best-before control, and first-expiry-first-out dispatch.
- Electronics — per-unit serial history for warranty, AMC and RMA; isolate a defective component batch precisely.
- The universal test: produce a lot's complete history — and every downstream destination — on demand.

Batches vs serial numbers: two levels of the same idea

ERPNext gives you two distinct traceability tools, and choosing correctly per item is the foundation everything else rests on. A batch (a lot) represents a quantity of material produced or received together — a mixing batch of syrup, a production lot of tablets, a reel of components. In ERPNext the Batch is a real master record: it carries the item, a manufacturing date and, crucially, an expiry date, and it always knows its source — the document that created it and, for purchased stock, the supplier. Many units share one batch number.

A serial number identifies a single, distinct unit — one device, one instrument, one machine. ERPNext's Serial No is described in the product itself as a "distinct unit of an Item", and each carries its own life story: its current status (Active, Delivered, Consumed, Expired), the customer it went to, its warranty and AMC expiry dates, and the source document that created it. A serialised item can also belong to a batch, so the two levels nest naturally — this exact unit, from that lot. The practical rule: batch-track anything made or expiring in lots (most pharma and food), serial-track anything you must follow as an individual unit (most electronics and equipment), and use both where a single unit's lineage and its lot both matter.

- Batch (lot) — a master record with item, manufacturing date, expiry date and its source document/ supplier; many units share it.
- Serial No — a "distinct unit of an Item", each with its own status, customer, warranty/AMC dates and source document.
- They nest — a serialised unit can also carry a batch number, giving you both the individual and the lot in one query.
- Choose per item: batch for lot-made/expiring goods, serial for individually-tracked units, both where each matters.



Turning on batch tracking for an item in ERPNext — batch number series, automatic batch creation and expiry-date control.

How ERPNext actually tracks them: the Serial and Batch Bundle

The reason ERPNext can answer traceability questions isn't the batch and serial records on their own — it's what links them to every movement. That mechanism is the Serial and Batch Bundle, the modern document ERPNext attaches to each stock transaction that touches a batched or serialised item. When you receive, transfer, manufacture or deliver such an item, ERPNext creates a Bundle recording exactly which serial numbers and which batches moved, in what quantity, and at what valuation — tied back to the specific voucher (the Purchase Receipt, Stock Entry, Delivery Note and so on) that caused the movement.

Inside each Bundle is a table of Serial and Batch Entries — one row per serial number or batch line, carrying its quantity, warehouse, valuation rate and the resulting change in stock value. The Bundle knows its direction of travel — its type of transaction is Inward or Outward — so every batch and every serial has a complete, timestamped ledger of movements in and out, each pinned to a source document. This is the spine of traceability: because every receipt and every dispatch writes a Bundle, ERPNext can walk a batch or a serial forwards to where it went, or backwards to where it came from, without anyone reconstructing history by hand. It also means valuation and traceability come from the same records, so the numbers and the genealogy never disagree.

- One Bundle per movement — receipts, transfers, manufacture and deliveries of batched/serialised items each generate a Serial and Batch Bundle.
- Linked to the source voucher — each Bundle records its voucher type and number, so every movement ties to a real document.
- Serial and Batch Entries — the line rows inside a Bundle: serial/batch, quantity, warehouse, valuation rate and stock-value change.
- Directional — each Bundle is Inward or Outward, giving every lot and unit a complete, timestamped in/out ledger.

How a lot or unit stays traceable, movement by movement

1. **Item master**
   flag the item as batch-tracked, serial-tracked or both; set batch numbering, expiry and serial generation.

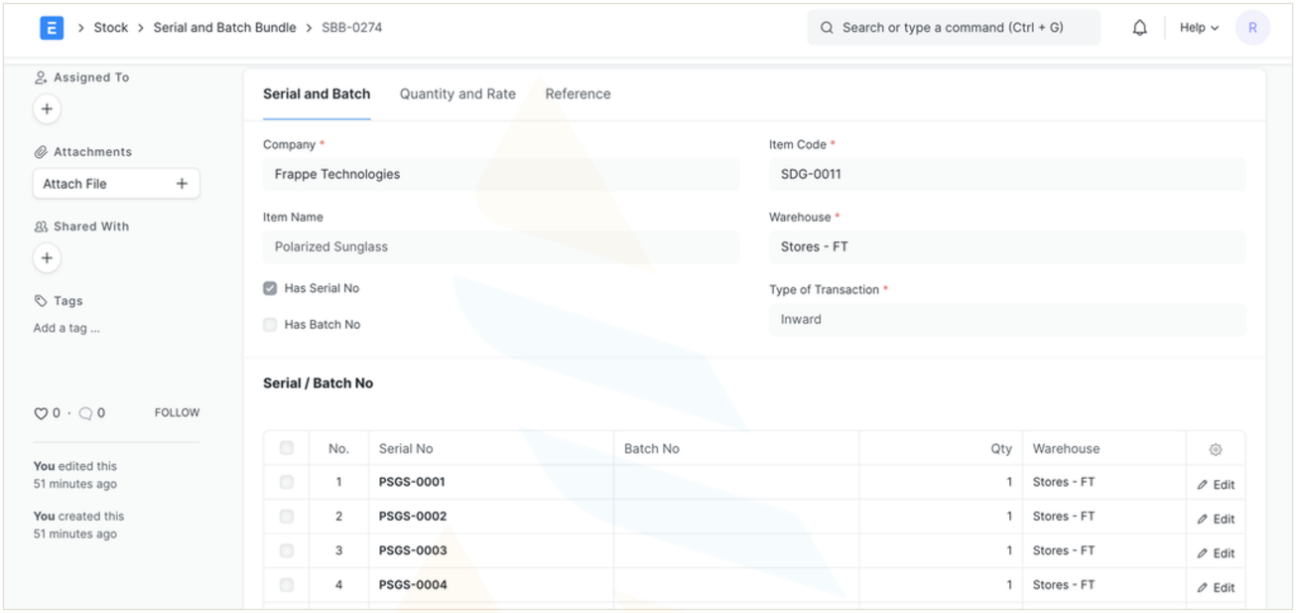
2. **Batch / Serial No created**
   a Batch carries item, manufacturing and expiry dates and its source; a Serial No is a distinct unit with its own status and history.

3. **Serial and Batch Bundle**
   every receipt, transfer, manufacture and delivery writes a Bundle recording which lots/units moved, in what quantity and at what value.

4 **Serial and Batch Entries**
the line rows inside each Bundle, tying serial/batch to warehouse, quantity, valuation and stock-value change.

5 **FEFO on dispatch**
batches auto-fetched by Expiry (or FIFO/LIFO) so the earliest-expiring usable lot ships first.

6 **Two-way trace**
walk any batch or serial forward to every customer, or backward to its origin and sibling units, for recall and audit.



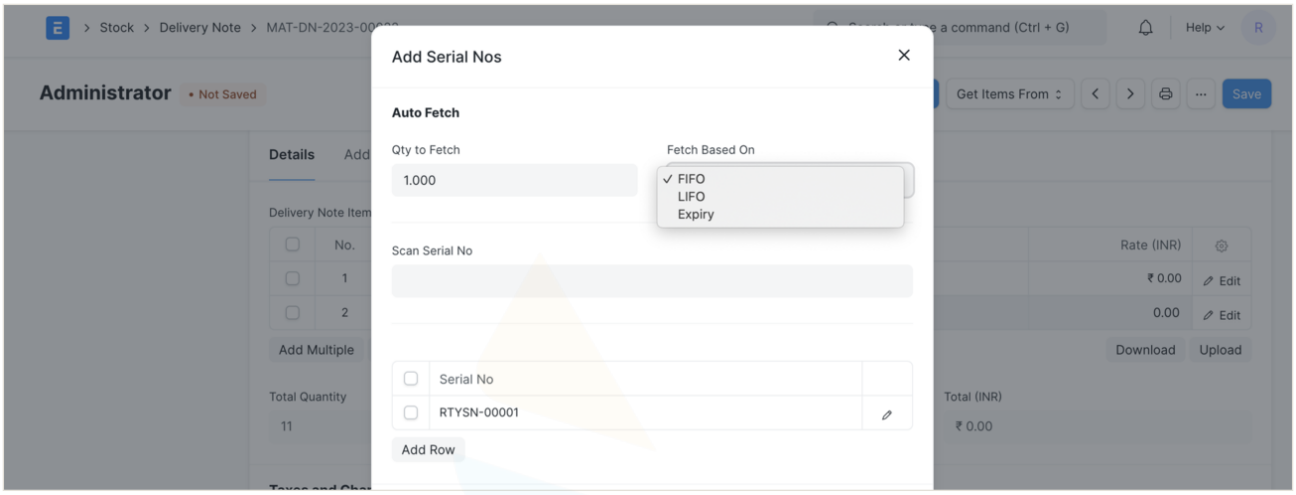
A Serial and Batch Bundle — the document ERPNext writes for each movement, here recording individual serial numbers received inward.

Expiry dates and FEFO: shipping the right lot, never the expired one

For pharma and food, the single most valuable field on the Batch record is the expiry date. Because it lives on the batch master, ERPNext knows the shelf life of every lot in stock and can act on it — surfacing what's approaching expiry and keeping expired stock out of dispatch. The Serial No record carries the same idea for individual units through its status, which includes an Expired state.

The operational pay-off is FEFO — First-Expiry-First-Out picking. When you dispatch a batched item, ERPNext can auto-fetch the batches to ship based on a chosen strategy, and Expiry is one of the built-in options alongside FIFO and LIFO. That means the system proposes the earliest-expiring stock first, so the oldest usable lot leaves before newer ones — the behaviour any food or pharma operation needs by default, and one that's painful to enforce reliably by hand. Combined with expiry-aware reporting, this turns "don't ship expired or near-expired stock" from a promise into a rule the software applies at the point of picking.

- Expiry lives on the batch — every lot knows its shelf life, so near-expiry and expired stock are visible, not buried.
- FEFO picking — on dispatch, ERPNext can auto-fetch batches by Expiry (as well as FIFO or LIFO), proposing earliest-expiry-first.
- Serial status includes Expired — individual units carry their own lifecycle state, not just batches.
- The result: the oldest usable lot ships first, and expired stock is kept out of the pick by design.



Dispatch-time picking in ERPNext — fetching stock by Expiry (FEFO), alongside FIFO and LIFO, so the earliest-expiring lot ships first.

Recall-ready: the two-way audit trail

A recall is a search problem, and traceability is what makes the search instant. Because every movement of a batched or serialised item is written as a Serial and Batch Bundle tied to its source document, ERPNext lets you trace in both directions from any point. Forward: given a suspect batch or serial number, follow its Outward Bundles to every Delivery Note and customer it reached — the exact scope of a recall, no wider and no narrower than it needs to be. Backward: given a customer complaint or a failed unit, read its batch and source document to find the lot, the supplier or work order behind it, and every sibling unit from the same lot that may share the defect.

That same trail is what an audit runs on. Each batch knows its manufacturing and expiry dates and its origin; each serial number knows its customer, its warranty and AMC status, and the document that created it; each Bundle knows which voucher moved it and what it was worth. Put together, that's batch genealogy and per-unit history an inspector can be walked through directly from the system, rather than assembled after the fact. The point isn't only speed — it's confidence: because valuation, movement and identity are recorded together on the same records, the story the system tells is internally consistent and defensible.

- Trace forward — from a suspect lot/serial to every Delivery Note and customer that received it: the precise recall scope.
- Trace backward — from a failed unit to its batch, supplier or work order, and every sibling unit from the same lot.
- Audit-ready records — manufacturing/expiry dates, source documents, customer, warranty/AMC status and per-movement valuation.

- Consistent by construction — identity, movement and value share the same records, so the genealogy is defensible.

Getting it right: setup discipline that makes traceability real

The capability is in the box; the reliability is in the setup. Traceability starts at the Item master: each item has to be correctly flagged as batch-tracked, serial-tracked, or both, before any stock moves — retro-fitting this after transactions exist is painful. For batched items you decide how batch numbers are created (a naming series for automatic batches, or manual entry per lot) and whether the item has an expiry date, so shelf-life control switches on from day one. For serialised items, you set how serial numbers are generated so every unit gets a unique identity at receipt or manufacture.

From there, discipline is mostly about not leaving gaps. Every receipt, transfer and dispatch of a tracked item must go through the proper stock transaction so a Bundle is written — side-door adjustments that skip it are exactly where a trail breaks. Warehouses should reflect where stock actually is, so a batch's location is trustworthy. And expiry dates must be captured accurately at the batch level, because FEFO and expiry reporting are only as good as that one date. None of this is exotic, but it rewards being configured correctly once, at implementation, rather than discovered lot-by-lot during a recall.

- Flag items correctly up front — batch-tracked, serial-tracked or both — before any stock transactions exist.
- Decide batch creation and expiry — automatic naming series or manual, and enable expiry dates for shelf-life goods.
- Set serial generation — so every individual unit gets a unique identity at receipt or manufacture.
- No side doors — route every movement through proper stock transactions so a Serial and Batch Bundle is always written.
- Capture expiry accurately — FEFO and expiry reporting are only as reliable as the date on the batch.

When to get help

Batch and serial tracking is well within a capable team's reach, and many run it themselves. Where an experienced partner earns their fee is in the decisions that are hard to reverse: which items to batch versus serialise versus both, how to structure batch numbering and expiry so FEFO behaves the way your regulator expects, and how to map your real receipt-to-dispatch flow so no movement escapes a Bundle. In regulated pharma and food, or high-volume serialised electronics, getting that design right at implementation is far cheaper than discovering a broken trail during an inspection or a recall.

As an official ERPNext partner working with Indian manufacturers and distributors, we set up batch and serial traceability against how your goods actually move — item flags, batch and expiry rules, serial generation, warehouse structure and the reporting your quality team needs — so that when the difficult question comes, the answer is one query away. If traceability is a legal or safety obligation in your business, that's the difference between ERPNext being a system of record and a source of anxiety.

KEY TAKEAWAYS

1. ERPNext traces at two levels: batches (lots made or received together, usually carrying an expiry date) and serial numbers (individually identifiable units, each with its own status and history).
2. The Serial and Batch Bundle is the mechanism — every receipt, transfer, manufacture and delivery writes one, recording exactly which lots and units moved, at what quantity and value, tied to a source document.
3. Expiry lives on the batch, so ERPNext can pick First-Expiry-First-Out (FEFO) — auto-fetching stock by Expiry, alongside FIFO and LIFO, so expired or near-expired stock stays out of dispatch.
4. Because every movement is recorded, you can trace forward from a suspect lot to every customer (precise recall scope) or backward from a failed unit to its origin and sibling units (root cause and audit).
5. Reliability comes from setup discipline: flag items correctly up front, decide batch/expiry and serial rules, and route every movement through proper stock transactions so no trail ever breaks.

FAQ

When should I use a batch versus a serial number in ERPNext?
Use a batch (lot) for material made or received together and tracked as a quantity — a production lot of tablets, a mixing batch of food, a reel of components — especially when it carries an expiry date. Use a serial number for units you must follow individually, like a device, instrument or machine, each needing its own warranty, AMC or RMA history. They also nest: a serialised unit can carry a batch number, so you get both the individual unit and its lot. The choice is made per item on the Item master and should be set before any stock moves.

Does ERPNext support expiry dates and FEFO (First-Expiry-First-Out) picking?
Yes. The expiry date sits on the Batch master, so ERPNext knows the shelf life of every lot in stock. On dispatch it can auto-fetch batches to ship based on a chosen strategy, and Expiry is a built-in option alongside FIFO and LIFO — that's FEFO, proposing the earliest-expiring usable lot first. Serial numbers also carry an Expired status. This is essential for food and pharma, where expired or near-expired stock must be kept out of dispatch by rule, not by memory.

How does ERPNext make a product recall faster?
Every movement of a batched or serialised item is written as a Serial and Batch Bundle tied to its source document, so you can trace in both directions. Forward: from a suspect batch or serial number to every Delivery Note and customer that received it — the exact recall scope, no wider than needed. Backward: from a customer complaint or failed unit to its lot, supplier or work order, and every sibling unit from the same lot. Instead of reconstructing history from spreadsheets and challans, you run a query — which is what turns a recall from a week's work into minutes.

Is this enough for pharma and food regulatory requirements in India?
ERPNext gives you the core traceability foundation Indian pharma and food operations need — batch genealogy, expiry and FEFO control, per-unit serial history, and a complete two-way audit trail from records that also drive valuation, so the numbers and the genealogy always agree. Sector-specific statutory formats and returns, and any GST paperwork, are handled through India-specific configuration and the India Compliance app rather than assumed by default. The right approach is to design the batch, expiry and serial setup around your regulator's expectations at implementation — which is exactly where an experienced ERPNext partner adds the most value.

Talk to a real ERPNext expert.
Call or WhatsApp +91 62358 66111 · info@acube.co · acubeinnovations.com