

Interunit Transfers - System Flow & API Payloads

Candor Retail | Standalone FastAPI App | Prefix: /interunit & /transfer

1. Architecture Overview

The Interunit Transfers module is a STANDALONE FastAPI application located at `Interunit_transfers/app/main.py`. It is NOT mounted inside the main Backend app (`main.py`). It connects to the same PostgreSQL (AWS RDS) database but uses its own set of tables prefixed with `'interunit_transfer_*`.

Two overlapping router implementations exist:

- /interunit router (`interunit.py`) - Newer, raw SQL, primary implementation
- /transfer router (`transfer.py`) - Older, ORM-based, legacy implementation

Status Flow for Requests: Pending -> Transferred / Rejected

Status Flow for Transfers: Pending -> Partial -> Completed -> Received

2. End-to-End Flow (Primary /interunit router)

Phase A: Transfer Request

1. User fills form: `from_warehouse`, `to_warehouse`, `request_date`, `reason`, and adds article lines (`material_type`, `item_category`, `sub_category`, `item_description`, `quantity`, `uom`, `pack_size`, `package_size`).
2. Frontend POSTs to `/interunit/requests`. Backend generates `REQ{YYYYMMDDHHmm}` `request_no`, inserts header into `interunit_transfer_requests` and lines into `interunit_transfer_request_lines`. Net weight auto-calculated: `pack_size * packaging_type * quantity`.
3. Request appears in list (GET `/interunit/requests`) with `status='Pending'`.
4. Approver can Accept (PATCH `status='Accepted'`) or Reject (PATCH `status='Rejected'` + `reject_reason`).

Phase B: Transfer OUT (Challan / Dispatch)

5. User creates transfer from an accepted request. POSTs to `/interunit/transfers` with header (`challan_no`, `stock_trf_date`, `vehicle_no`, `driver_name`, `approved_by`, `remark`, `reason_code`), lines (same fields as request lines), and optionally scanned boxes.
6. Backend generates `TRANS{YYYYMMDDHHMMSS}` `challan_no`, inserts header into `interunit_transfers_header`, lines into `interunit_transfers_lines`, boxes into `interunit_transfer_boxes`.
7. If boxes are scanned: compares expected qty (sum of line quantities) vs actual scanned boxes. Sets `status='Partial'` if boxes pending, 'Completed' if all scanned.
8. If transfer was created from a request, the request status is updated to 'Transferred'.

Phase C: Transfer IN (GRN / Receipt)

9. Receiving warehouse creates Transfer IN by POSTing to `/interunit/transfer-in` with `transfer_out_id`, `grn_number`, `receiving_warehouse`, `received_by`, `box_condition`, and array of `scanned_boxes`.
10. Backend inserts header into `interunit_transfer_in_header` and boxes into `interunit_transfer_in_boxes`. Updates Transfer OUT status to 'Received'.
11. Transfer IN can be listed (GET `/interunit/transfer-in`) and viewed in detail (GET `/interunit/transfer-in/{id}`).

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3. API Endpoints (/interunit router)

Dropdown Endpoints

GET	/interunit/dropdowns/warehouse-sites	List warehouse sites
GET	/interunit/dropdowns/material-types	List material types
GET	/interunit/dropdowns/units-of-measurement	List UOMs
GET	/interunit/dropdowns/approval-authorities	List approval authorities
GET	/interunit/dropdowns/approval-authorities/warehouse/{warehouse_id}	Approval authorities by warehouse

Request Endpoints

POST	/interunit/requests	Create transfer request
GET	/interunit/requests	List requests (filters: status, from/to warehouse, created_by)
GET	/interunit/requests/{request_id}	Get request detail with lines
PATCH	/interunit/requests/{request_id}	Update request status (Accept/Reject)
DELETE	/interunit/requests/{request_id}	Delete request (cascade deletes lines)

Transfer OUT Endpoints

POST	/interunit/transfers	Create transfer with lines + boxes
GET	/interunit/transfers	List transfers (paginated, filters: status, site, date, challan)
GET	/interunit/transfers/{transfer_id}	Get transfer detail (header + lines + boxes)
DELETE	/interunit/transfers/{transfer_id}	Delete transfer (only if not Received/Completed)
PUT	/interunit/transfers/{transfer_id}/confirm	Confirm receipt -> status='Received'

Transfer IN (GRN) Endpoints

POST	/interunit/transfer-in	Create Transfer IN with scanned boxes
GET	/interunit/transfer-in	List Transfer INs
GET	/interunit/transfer-in/{transfer_in_id}	Get Transfer IN detail

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4. Request Payloads

POST /interunit/requests - Create Request

```
{
  "form_data": {
    "request_date": "18-02-2026",          // DD-MM-YYYY
    "from_warehouse": "W202",             // Literal: W202|A185|A101|A68|F53|Savla|Rishi
    "to_warehouse": "A185",
    "reason_description": "MONTHLY STOCK TRANSFER"
  },
  "article_data": [
    {
      "material_type": "RM",               // Literal: RM|PM|FG|RTV
      "item_category": "CHEMICALS",
      "sub_category": "SOLVENTS",
      "item_description": "ACETONE 99%",
      "quantity": "10",
      "uom": "KG",                        // Literal: KG|PCS|BOX|CARTON
      "pack_size": "25.00",
      "package_size": "0",                // Required only for FG
      "batch_number": "B2026-001",
      "lot_number": "LOT-2026-FEB"
    }
  ],
  "computed_fields": {
    "request_no": "REQ202602181430"       // Optional, auto-generated if null
  },
  "validation_rules": null                // Optional, frontend-only
}
```

PATCH /interunit/requests/{id} - Update Status

```
{
  "status": "Accepted",                  // or "Rejected"
  "reject_reason": "INSUFFICIENT STOCK", // Required if rejecting
  "rejected_ts": "2026-02-18T14:30:00"   // Optional
}
```

POST /interunit/transfers - Create Transfer OUT

```
{
  "header": {
    "challan_no": null,                  // Auto-generated TRANS{YYYYMMDDHHMMSS}
    "stock_trf_date": "2026-02-18",     // YYYY-MM-DD (date type)
    "from_warehouse": "W202",
    "to_warehouse": "A185",
    "vehicle_no": "MH12AB1234",
    "driver_name": "RAMESH KUMAR",
    "approved_by": "MANAGER A",
    "remark": "DISPATCHING AS PER REQUEST",
    "reason_code": "MONTHLY TRANSFER"
  },
  "lines": [
    {
      "material_type": "RM",
      "item_category": "CHEMICALS",
      "sub_category": "SOLVENTS",
      "item_description": "ACETONE 99%",
      "quantity": "10",
      "uom": "KG",
      "pack_size": "25.00",
      "package_size": "0",
      "batch_number": "B2026-001",
      "lot_number": "LOT-2026-FEB"
    }
  ]
},
```

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```
"boxes": [  
  {  
    "box_number": 1,  
    "article": "ACETONE 99%",  
    "lot_number": "LOT-2026-FEB",  
    "batch_number": "B2026-001",  
    "transaction_no": "TR-202602181430",  
    "net_weight": 25.0,  
    "gross_weight": 26.5  
  }  
],  
"request_id": 42                                     // Links to original request  
}
```

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POST /interunit/transfer-in - Create Transfer IN (GRN)

```
{
  "transfer_out_id": 15,                      // ID of the Transfer OUT header
  "grn_number": "GRN-2026-0218-001",
  "receiving_warehouse": "A185",
  "received_by": "WAREHOUSE SUPERVISOR",
  "box_condition": "Good",                   // Good | Damaged | Partial
  "condition_remarks": null,
  "scanned_boxes": [
    {
      "box_number": "1",
      "article": "ACETONE 99%",
      "batch_number": "B2026-001",
      "lot_number": "LOT-2026-FEB",
      "transaction_no": "TR-202602181430",
      "net_weight": 25.0,
      "gross_weight": 26.5,
      "is_matched": true
    }
  ]
}
```

5. Key Response Structures

Request Response (RequestWithLines)

```
{
  "id": 1, "request_no": "REQ202602181430",
  "request_date": "18-02-2026",
  "from_warehouse": "W202", "to_warehouse": "A185",
  "reason_description": "MONTHLY STOCK TRANSFER",
  "status": "Pending",
  "reject_reason": null, "created_by": "user@example.com",
  "created_ts": "2026-02-18T14:30:00", "rejected_ts": null, "updated_at": null,
  "lines": [
    {
      "id": 1, "request_id": 1, "material_type": "RM",
      "item_category": "CHEMICALS", "sub_category": "SOLVENTS",
      "item_description": "ACETONE 99%", "quantity": "10", "uom": "KG",
      "pack_size": "25.00", "package_size": "1", "net_weight": "250.00",
      "batch_number": "B2026-001", "lot_number": "LOT-2026-FEB",
      "created_at": "...", "updated_at": "..."
    }
  ]
}
```

Transfer List Item (GET /interunit/transfers)

```
{
  "id": 15, "challan_no": "TRANS20260218143055",
  "transfer_no": "TRANS20260218143055",           // alias
  "request_no": "REQ202602181430",
  "stock_trf_date": "18-02-2026",
  "from_site": "W202", "to_site": "A185",
  "vehicle_no": "MH12AB1234", "driver_name": "RAMESH KUMAR",
  "approval_authority": "MANAGER A",
  "status": "Completed",
  "items_count": 1, "boxes_count": 10, "pending_items": 0,
  "has_variance": false
}
```

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6. Status Flow Summary

Transfer Request Status Flow

```
Pending --> Accepted --> Transferred (when Transfer OUT is created)
|
+----> Rejected (with reject_reason)
```

Transfer OUT Status Flow

```
Pending --> Partial (some boxes scanned, not all)
|
|           +----> Completed (all expected boxes scanned)
|           |
+----> Completed -----> Received (Transfer IN / GRN created)
```

Transfer IN Status

Created as 'Received' immediately on POST /interunit/transfer-in

Net Weight Calculation

For RM/PM/RTV: $\text{net_weight} = \text{pack_size} * \text{packaging_type} * \text{quantity}$

For FG: $\text{net_weight} = (\text{package_size} * \text{pack_size}) * \text{quantity}$

Total weight = $\text{net_weight} * 1.1$ (10% packaging overhead) for requests; same as net_weight for transfers.

Business Rules

- from_warehouse and to_warehouse must be different.
- package_size is required only when material_type is 'FG'.
- All text fields (reason, article names, warehouse codes) are uppercased.
- Dates: requests use DD-MM-YYYY format, transfers use YYYY-MM-DD (date type).
- Transfers with status 'Received' or 'Completed' cannot be deleted.
- GRN number must be unique across all Transfer INs.
- When a Transfer IN is created, the parent Transfer OUT status -> 'Received'.