

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/approvalAuthorities	List approval authorities
GET	/interunit/dropdowns/approvalAuthorities/warehouse/{warehouse_id}	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: net_weight = pack_size * packaging_type * quantity

For FG: net_weight = (package_size * pack_size) * quantity

Total weight = 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'.