

Purchase Requisition System - Complete Workflow Guide

Version 2.2.0

Date: October 23, 2025

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Overview

The Purchase Requisition System follows a multi-stage approval workflow:



Key Features:

- **Draft & Submit:** Requisitioners can save drafts and submit when ready
- **HOD Approval/Rejection:** HOD must provide comments for their decision
- **Admin Redirection:** Admin can redirect requisitions to different approvers
- **Procurement Processing:** Add vendor selection and pricing
- **Multiple Items:** Add multiple items with "+Add Item" functionality
- **PDF Generation:** Generate professional PDF documents for approved requisitions
- **Automatic Calculations:** System calculates total prices automatically

User Roles

Role	Permissions	Description
Initiator	Create, Edit Draft, Submit	Employees who create requisitions
HOD	Approve, Reject, Comment	Head of Department - Reviews requisitions
Procurement	Add Vendors, Pricing, Items	Handles vendor selection and pricing
Admin	All + Redirect	Full system access + redirect requisitions
Finance	View, Approve (future)	Financial approval (if needed)
MD	View, Final Approve (future)	Managing Director approval (if needed)

Workflow Stages

1. Draft Stage (Status: draft)

Who: Initiator/Requisitioner

Actions:

- Create requisition with basic details
- Add items (multiple items supported)
- Save as draft (can edit later)
- Submit for HOD review

API Endpoints:

```
POST /api/requisitions  
PUT /api/requisitions/:id/items/:item_id  
POST /api/requisitions/:id/submit
```

Example Request (Create):

```

POST /api/requisitions
{
  "description": "Office supplies for IT Department",
  "delivery_location": "IT Office, 3rd Floor",
  "urgency": "High",
  "required_date": "2025-11-01",
  "account_code": "IT-2025-001",
  "created_by": 1,
  "items": [
    {
      "item_name": "Laptops - Dell Latitude 5520",
      "quantity": 5,
      "specifications": "i7, 16GB RAM, 512GB SSD"
    },
    {
      "item_name": "Wireless Mouse",
      "quantity": 5,
      "specifications": "Logitech M330"
    }
  ]
}

```

Response:

```
{
  "success": true,
  "requisition_id": 1,
  "req_number": "KSB-IT-JB-20251023134500"
}
```

2. Submitted Stage (Status: pending_hod)

Who: Initiator

Actions:

- Submit draft requisition for HOD review
- No more edits allowed after submission

API Endpoint:

```
PUT /api/requisitions/:id/submit
```

Example Request:

```

PUT /api/requisitions/1/submit
{
  "user_id": 1
}
```

3. HOD Review Stage (Status: pending_hod)

Who: HOD (Head of Department)

Actions:

- Review requisition details
- **Approve** (moves to `hod_approved`) OR
- **Reject** (moves to `rejected` with mandatory reason)

API Endpoint:

```
PUT /api/requisitions/:id/hod-approve
```

Example Request (Approval):

```

PUT /api/requisitions/1/hod-approve
{
  "user_id": 2,
  "approved": true,
  "comments": "Approved. Required for new project team."
}
```

Example Request (Rejection):

```

PUT /api/requisitions/1/hod-approve
{
  "user_id": 2,
  "approved": false,
  "comments": "Budget not available for this quarter. Please resubmit in Q2."
}
```

Response (Approval):

```
{
  "success": true,
  "message": "Requisition approved successfully",
  "status": "hod_approved"
}
```

Response (Rejection):

```
{
  "success": true,
  "message": "Requisition rejected",
  "status": "rejected"
}
```

Note: Comments are **mandatory** for rejection!

4. Admin Redirection (Any Stage)

Who: Admin Only

When: HOD is absent or needs to reassign

Actions:

- Redirect requisition to another approver
- Must provide reason for redirection
- Specify stage (hod_approval, procurement, etc.)

API Endpoint:

```
POST /api/requisitions/:id/redirect
```

Example Request:

```
POST /api/requisitions/1/redirect
{
  "from_user_id": 2,
  "to_user_id": 4,
  "reason": "Original HOD on leave. Redirecting to Acting HOD.",
  "stage": "hod_approval"
}
```

Response:

```
{
  "success": true,
  "message": "Requisition redirected to Sarah Banda",
  "redirection_id": 1
}
```

5. Procurement Stage (Status: hod_approved)

Who: Procurement Officer

Actions:

- Add/update items with vendor information
- Set unit prices (auto-calculates total)
- Select preferred vendors from dropdown
- Add multiple items with "+Add Item"
- Complete procurement process

API Endpoints:

```
POST /api/requisitions/:id/items
PUT /api/requisitions/:id/items/:item_id
PUT /api/requisitions/:id/procurement
```

Example: Add New Item

```
POST /api/requisitions/1/items
{
  "item_name": "USB-C Cables",
  "quantity": 10,
  "unit_price": 25.00,
  "vendor_id": 1,
  "specifications": "1.5m length, fast charging"
}
```

Response:

```
{
  "success": true,
  "message": "Item added successfully",
  "item_id": 3
}
```

Example: Update Item with Pricing

```
PUT /api/requisitions/1/items/1
{
  "unit_price": 5500.00,
  "vendor_id": 1
}
```

Automatic Calculation:

- Unit Price: K5,500.00
- Quantity: 5
- **Total Price: K27,500.00** (calculated automatically)
- **Grand Total: Sum of all item totals** (updated automatically)

Example: Complete Procurement

```
PUT /api/requisitions/1/procurement
{
  "user_id": 3,
  "comments": "All vendors confirmed. Delivery in 2 weeks."
}
```

Response:

```
{
  "success": true,
  "message": "Procurement completed successfully"
}
```

6. PDF Generation (Status: hod_approved or procurement_completed)

Who: Any authenticated user

Actions:

- Generate professional PDF document
- Download or share requisition
- PDF includes all details, items, pricing, approvals

API Endpoint:

```
GET /api/requisitions/:id/pdf
```

Example Request:

```
curl -X GET http://localhost:3001/api/requisitions/1/pdf \
-H "Authorization: Bearer YOUR_JWT_TOKEN" \
--output requisition.pdf
```

PDF Contents:

- Company header
- Requisition number and details
- Requestor information
- Items table with pricing
- Grand total
- Approval information
- Procurement details(if completed)
- Generated timestamp

Response:

- Content-Type: application/pdf
- File download: Requisition_KSB-IT-JB-20251023134500.pdf

API Endpoints Summary

Requisition Management

Method	Endpoint	Auth	Roles	Description
GET	/api/requisitions	<input checked="" type="checkbox"/>	All	List all requisitions
GET	/api/requisitions/:id	<input checked="" type="checkbox"/>	All	Get single requisition
POST	/api/requisitions	<input checked="" type="checkbox"/>	Initiator, Admin	Create new requisition
PUT	/api/requisitions/:id/submit	<input checked="" type="checkbox"/>	Initiator, Admin	Submit for approval
PUT	/api/requisitions/:id/hod-approve	<input checked="" type="checkbox"/>	HOD, Admin	Approve/Reject

Item Management

Method	Endpoint	Auth	Roles	Description
POST	/api/requisitions/:id/items	<input checked="" type="checkbox"/>	Initiator, Admin, Procurement	Add item
PUT	/api/requisitions/:id/items/:item_id	<input checked="" type="checkbox"/>	Initiator, Admin, Procurement	Update item

Procurement

Method	Endpoint	Auth	Roles	Description
PUT	/api/requisitions/:id/procurement	<input checked="" type="checkbox"/>	Procurement, Admin	Complete procurement
GET	/api/vendors	<input checked="" type="checkbox"/>	All	List vendors

Admin Functions

Method	Endpoint	Auth Roles	Description
POST	/api/requisitions/:id/redirect	<input checked="" type="checkbox"/> Admin	Redirect requisition

PDF Generation

Method	Endpoint	Auth Roles	Description
GET	/api/requisitions/:id/pdf	<input checked="" type="checkbox"/> All	Generate PDF

Workflow Examples

Example 1: Complete Happy Path

```
// 1. Initiator creates requisition
POST /api/requisitions
{
  "description": "New laptops for developers",
  "created_by": 1,
  "items": [...]
}
// Response: requisition_id = 1

// 2. Initiator submits
PUT /api/requisitions/1/submit
{
  "user_id": 1
}
// Status: draft → pending_hod

// 3. HOD approves
PUT /api/requisitions/1/hod-approve
{
  "user_id": 2,
  "approved": true,
  "comments": "Approved for Q4 budget"
}
// Status: pending_hod → hod_approved

// 4. Procurement adds vendor and pricing
PUT /api/requisitions/1/items/1
{
  "unit_price": 5500.00,
  "vendor_id": 1
}

PUT /api/requisitions/1/procurement
{
  "user_id": 3,
  "comments": "All items priced and vendors selected"
}
// Status: hod_approved → procurement_completed

// 5. Generate PDF
GET /api/requisitions/1/pdf
// Downloads PDF document
```

Example 2: Rejection Scenario

```
// 1. HOD rejects with reason
PUT /api/requisitions/1/hod-approve
{
  "user_id": 2,
  "approved": false,
  "comments": "Specification too expensive. Please find alternatives."
}
// Status: pending_hod → rejected

// Requisition cannot proceed further
// Initiator must create new requisition with updated specs
```

Example 3: Admin Redirection

```

// 1. Admin redirects to acting HOD
POST /api/requisitions/1/redirect
{
  "from_user_id": 2,
  "to_user_id": 4,
  "reason": "Original HOD unavailable",
  "stage": "hod_approval"
}

// 2. Acting HOD now approves
PUT /api/requisitions/1/hod-approve
{
  "user_id": 4,
  "approved": true,
  "comments": "Approved"
}

```

Example 4: Adding Multiple Items

```

// Add first item
POST /api/requisitions/1/items
{
  "item_name": "Laptop",
  "quantity": 3,
  "specifications": "Dell i7"
}

// Add second item (using "+Add Item" button)
POST /api/requisitions/1/items
{
  "item_name": "Mouse",
  "quantity": 3
}

// Add third item
POST /api/requisitions/1/items
{
  "item_name": "Keyboard",
  "quantity": 3
}

// Later: Procurement adds pricing
PUT /api/requisitions/1/items/1
{
  "unit_price": 5500.00,
  "vendor_id": 1
}

PUT /api/requisitions/1/items/2
{
  "unit_price": 150.00,
  "vendor_id": 2
}

PUT /api/requisitions/1/items/3
{
  "unit_price": 250.00,
  "vendor_id": 2
}

// Grand Total automatically calculated:
// (3 x 5500) + (3 x 150) + (3 x 250) = 16,500 + 450 + 750 = K17,700.00

```

Status Transitions

Valid Status Flow

```

draft
  ↓ (submit)
pending_hod
  ↓ (HOD approve)    ↓ (HOD reject)
hod_approved      rejected
  ↓ (procurement complete)
procurement_completed

```

Status Descriptions

Status	Description	Next Possible Status
draft	Initial creation	pending_hod
pending_hod	Awaiting HOD review	hod_approved, rejected
hod_approved	HOD approved	procurement_completed
rejected	HOD rejected	<i>Terminal state</i>
procurement_completed	All done	<i>Terminal state</i>

Database Schema (Enhanced)

Requisitions Table (New Columns)

```
-- Rejection tracking
rejection_reason TEXT
rejected_by INTEGER
rejected_at DATETIME

-- Procurement tracking
procurement_status TEXT DEFAULT 'pending'
procurement_assigned_to INTEGER
procurement_completed_at DATETIME
procurement_comments TEXT

-- Redirection tracking
current_approver_id INTEGER
is_redirected BOOLEAN DEFAULT 0
```

New Table: Requisition Redirections

```
CREATE TABLE requisition_redirections (
    id INTEGER PRIMARY KEY,
    requisition_id INTEGER NOT NULL,
    from_user_id INTEGER NOT NULL,
    to_user_id INTEGER NOT NULL,
    redirected_by INTEGER NOT NULL,
    reason TEXT NOT NULL,
    stage TEXT NOT NULL,
    created_at DATETIME DEFAULT CURRENT_TIMESTAMP
)
```

Error Handling

Common Errors

Error	Status Code	Reason	Solution
Comments required when rejecting	400	No comments provided	Add comments field
PDF can only be generated for approved requisitions	400	Wrong status	Wait for HOD approval
Item name and quantity are required	400	Missing fields	Provide all required fields
Requisition not found	404	Invalid ID	Check requisition ID
Access denied	401/403	Wrong role	Use correct user role

Best Practices

For Initiators:

1. Always save as draft first
2. Review all details before submitting
3. Add clear item descriptions and specifications
4. Set realistic required dates

For HOD:

1. Always provide meaningful comments
2. Comments are mandatory for rejections
3. Be specific about rejection reasons
4. Review all items before approving

For Procurement:

1. Get quotes from multiple vendors
2. Always select vendor from dropdown
3. Double-check unit prices before saving
4. Verify grand total is correct
5. Add procurement comments when completing

For Admin:

1. Only redirect when necessary
2. Always provide clear reason for redirection
3. Verify target user has appropriate role
4. Document redirection in comments

Testing Checklist

- [] Create draft requisition
- [] Add multiple items
- [] Submit for approval
- [] HOD approve with comments
- [] HOD reject with comments (test mandatory validation)

- Admin redirect requisition
 - Procurement add vendor and pricing
 - Verify grand total calculation
 - Complete procurement
 - Generate PDF (should work)
 - Try PDF on draft (should fail with error)
-

Security Features

- Authentication Required:** All endpoints require JWT token
 - Role-Based Access:** Each endpoint checks user role
 - Audit Logging:** All actions logged to audit_log table
 - Security Logging:** Critical actions logged to security.log
 - Input Validation:** All inputs validated
 - SQL Injection Prevention:** Parameterized queries only
-

Next Steps / Future Enhancements

- Email notifications on status changes
 - Budget checking before approval
 - Multiple approval levels (Finance, MD)
 - Requisition cancellation workflow
 - Bulk item upload (CSV/Excel)
 - Requisition templates
 - Vendor rating system
 - Purchase order generation
-

Version: 2.2.0

Last Updated: October 23, 2025

Status: Complete and Ready for Use

For technical implementation details, see: NEW_FEATURES_V2.1.md

For security information, see: SECURITY.md