

Notification Service API Documentation

1. Introduction

This API provides endpoints for sending and retrieving notifications via Email, SMS, and In-App channels using asynchronous processing through RabbitMQ.

Scope:

- Send notifications using a RESTful interface.
- Retrieve a user's notification history.
- Decouple processing using RabbitMQ for scalability.
- Persist metadata and support retries with exponential backoff.

2. Overview

System Architecture:

- Producer: REST Controller receives notification requests.
- Consumer: Listens to RabbitMQ queue and processes notifications.
- Broker: RabbitMQ for async decoupling.
- Storage: Metadata persisted with retry support.

Users:

API Clients - Backend services triggering requests

End Users - Recipients of email, SMS, in-app

3. API Endpoints

Send Notification (POST /notifications):

Request:

```
{
```

Notification Service API Documentation

```
"userId": "123",  
  
"type": "EMAIL",  
  
"title": "Welcome!",  
  
"message": "Thanks for signing up."  
  
}
```

Get Notifications by User (GET /users/{id}/notifications):

Response:

```
{  
  "id": "abc123",  
  "type": "EMAIL",  
  "title": "Welcome!",  
  "message": "Thanks for signing up.",  
  "status": "SENT",  
  "retryCount": 0,  
  "createdAt": "2025-05-18T10:30:00Z"  
}
```

4. Retry Logic

Max Attempts: 3

Strategy: Exponential backoff

- Attempt 1: 10s
- Attempt 2: 30s
- Attempt 3: 1 min

Failure: Status set to FAILED.

5. Message Queues (RabbitMQ)

Queues: javatechie_queue, jt_queue

Metrics: Queue state, message counts, rates

Benefits: Monitoring, debugging, scaling.

6. System Configuration

Notification Service API Documentation

distributionUrl: Maven Wrapper URL

wrapperUrl: Maven Wrapper JAR URL

server.port: 9292

7. Database Schema

Notification: id, user_id, type, title, message, status, retry_count, created_at, updated_at

User: id, email, phone_number, name

8. Dependencies

Spring Boot, Spring Web, JavaFX Controls, JavaFX FXML, JUnit Jupiter

9. Postman Collection

Endpoints:

- Send Notification
- Get Notifications by User

Collection file: NotificationService.postman_collection.json

10. Future Enhancements

- API integration tests using Postman/Newman
- Authentication middleware
- Admin dashboard for monitoring