

# Microservice POC

## Services

1. Server Registry
2. Api Gateway(Jwt implementation)
3. Product-Service
4. Order-Service
5. IAM-Service

### 1. Server Registry

#### Overview

The Server Registry is responsible for maintaining a registry of all microservices instances within the system using Eureka Discovery Server.

#### Functionality

Registers microservice instances with the Eureka Discovery Server.

Provides a central registry for service discovery.

Monitors the health of microservice instances and handles service registration and deregistration dynamically.

### 2. API Gateway (with JWT Implementation)

#### Overview

The API Gateway acts as a central entry point for all incoming requests and provides authentication, route validation, and JWT token management for secure access to the system's microservices.

#### Components

Authentication Filter: Validates user credentials and issues JWT tokens upon successful authentication.

Route Validator: Ensures that incoming requests are valid and authorized based on configured routing rules and access policies.

JWT Service: Handles JWT token generation, validation, and management for authentication and authorization purposes.

### **Functionality**

Intercept incoming requests before they are forwarded to microservices.

Extract JWT token from the Authorization header.

Validate the JWT token's integrity, signature, and expiration.

Allow access to protected resources if the token is valid.

Deny access and return an error response if the token is missing or invalid.

### **API Endpoints**

{HOSTNAME}:8080/

entry point for all incoming requests

## **3. Product-Service**

### **Overview**

The Product-Service manages product-related functionalities within the system.

### **API Endpoints**

GET /products: Retrieve a list of all products.

GET /products/getProduct: Retrieve details of a specific product by its Name

POST /products/addProduct: Create a new product.

PUT /products/updateProduct: Update an existing product.

DELETE /products/deleteProduct: Delete a product.

### **Authentication**

All endpoints require a valid JWT token issued by the API Gateway for authentication.

## 4. Order-Service

### Overview

The Order-Service handles order-related operations such as creating, updating, and deleting orders.

### API Endpoints

POST /order/create: Create a new order.

GET /order/confirm/{orderid}: Confirm the order

PUT /order/update: Update an existing order.

DELETE /orders/{id}: Delete an order.

Authentication

All endpoints require a valid JWT token issued by the API Gateway for authentication.

## 5. IAM-Service

### Overview

The IAM (Identity and Access Management) Service is responsible for managing user identities, authentication, authorization, and access control within the system. It provides functionalities to create users, assign roles, authenticate users, and generate access tokens for accessing protected resources.

### API Endpoints

POST /users/register: Create a new user.

POST /user/addRole: Create a new role.

POST /users/{userId}/roles: Assign a role to a user.

POST /user/token: Generate an authentication token (JWT) for a user.

**Authentication**

The POST /user/token endpoint is used to authenticate users and generate access tokens (JWT tokens).

Clients send user credentials (username and password) to this endpoint to obtain an access token.

The access token is then included in the Authorization header of subsequent requests to access protected resources.

**Authorization**

Users are assigned roles that define their permissions within the system.

Roles specify the actions and resources that users are allowed to access.