**Developer Documentation: Reactive Ship Proxy & Offshore Proxy APIs**

**1. Overview**

The Reactive Ship Proxy and Offshore Proxy system is designed to forward HTTP requests from clients onboard a ship through a single persistent WebFlux-based connection to an offshore proxy server. The offshore proxy then forwards the requests to the actual destination and relays the responses back to the ship.

This implementation uses **Spring WebFlux** for fully asynchronous, non-blocking request processing.

**2. API Endpoints**

**2.1 Ship Proxy API (Port: 7000)**

The Ship Proxy receives HTTP requests from clients (browsers, curl, applications) and forwards them to the Offshore Proxy.

**POST /proxy**

**Description:** Forwards an HTTP request to the offshore proxy asynchronously.

**Request:**

{

"url": "http://httpforever.com/",

"method": "GET",

"headers": {}

}

**Response:**

{

"responseBody": "<HTML content from httpforever.com>",

"statusCode": 200

}

**2.2 Offshore Proxy API (Port: 8000)**

The Offshore Proxy receives HTTP requests from the Ship Proxy, forwards them to the actual destination, and returns the response.

**POST /proxy**

**Description:** Forwards the request to the destination URL and returns the response.

**Request:**

{

"url": "http://httpforever.com/",

"method": "GET",

"headers": {},

"body": ""

}

**Response:**

{

"responseBody": "<HTML content from httpforever.com>",

"statusCode": 200

}

**3. Usage Examples**

**3.1 Testing with cURL**

**Test a GET Request**

curl -X POST http://localhost:8080/proxy \

-H "Content-Type: application/json" \

-d '{"url": "http://httpforever.com/", "method": "GET", "headers": {}}'

**Test a POST Request with JSON Body**

curl -X POST http://localhost:8080/proxy \

-H "Content-Type: application/json" \

-d '{

"url": "https://jsonplaceholder.typicode.com/posts",

"method": "POST",

"headers": {"Content-Type": "application/json"},

"body": "{\"title\": \"foo\", \"body\": \"bar\", \"userId\": 1}"

}'

**3.2 Testing with Postman**

1. Open Postman.
2. Select **POST** method.
3. Set **Request URL** as http://localhost:7000/proxy.
4. Go to **Headers** and set Content-Type: application/json.
5. Go to **Body**, select **raw**, and enter:

{

"url": "http://httpforever.com/",

"method": "GET",

"headers": {}

}

1. Click **Send**.

**4. Expected Responses**

| **Scenario** | **Status Code** | **Response Body** |
| --- | --- | --- |
| **Successful GET** | 200 OK | Website HTML |
| **Successful POST** | 201 Created | JSON Data |
| **Invalid URL** | 500 Internal Server Error | Error Message |
| **Custom Headers** | 200 OK | Website HTML |
| **Timeout Error** | 504 Gateway Timeout | Timeout Message |

**5. Error Handling**

| **Error Type** | **Cause** | **Resolution** |
| --- | --- | --- |
| 500 Internal Server Error | Invalid URL or server is down | Check the target URL and try again |
| 504 Gateway Timeout | Destination server is slow/unreachable | Retry after some time |
| 400 Bad Request | Missing or incorrect parameters | Ensure JSON structure is correct |

**7. Conclusion**

This API documentation provides details on how to use the Reactive Ship Proxy and Offshore Proxy system for handling sequential HTTP requests over a non-blocking WebFlux-based framework. The APIs are designed for scalability and efficiency, ensuring minimal TCP connections while processing multiple client requests asynchronously.