

# API Testing Project

REST API Automation & Performance Testing

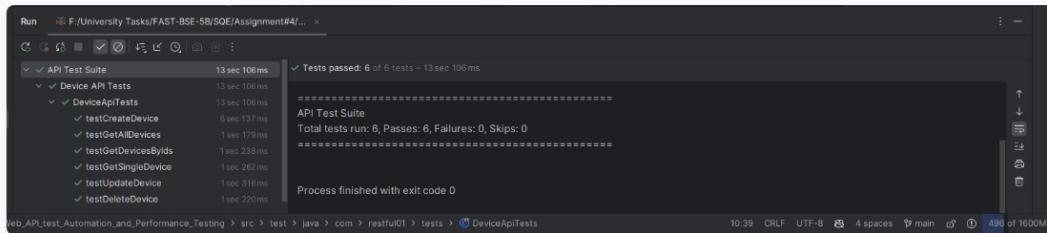
## Functional Testing

- REST Assured Framework
- TestNG Integration
- CRUD Operations Testing
- JSON Response Validation

## Performance Testing

- Apache JMeter Implementation
- Load Testing Scenarios
- Performance Metrics
- HTML Reports Generation

## Test Results



### Apache JMeter Dashboard

#### Dashboard

#### Charts

#### Over Time

#### Throughput

#### Response Times

#### Response Time Percentiles

#### Response Time Overview

#### Time Vs Threads

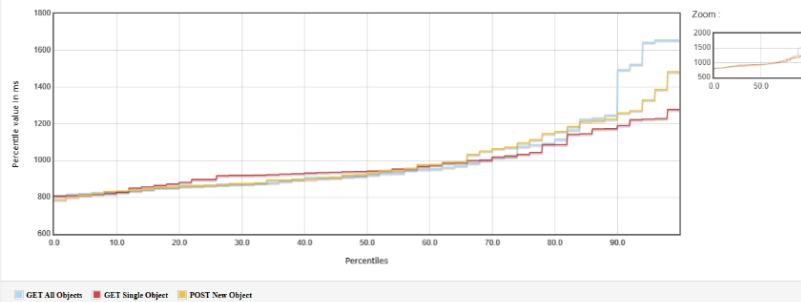
#### Response Time Distribution

#### Customs Graphs

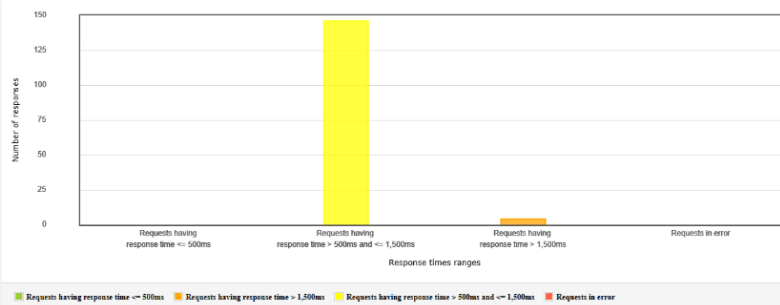
#### Test and Report information

File:	"results.jm"
Start Time:	"11/24/24, 9:33 PM"
End Time:	"11/24/24, 9:34 PM"
Filter for display:	""

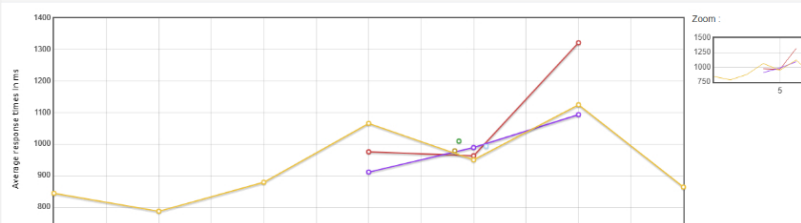
#### Response Time Percentiles

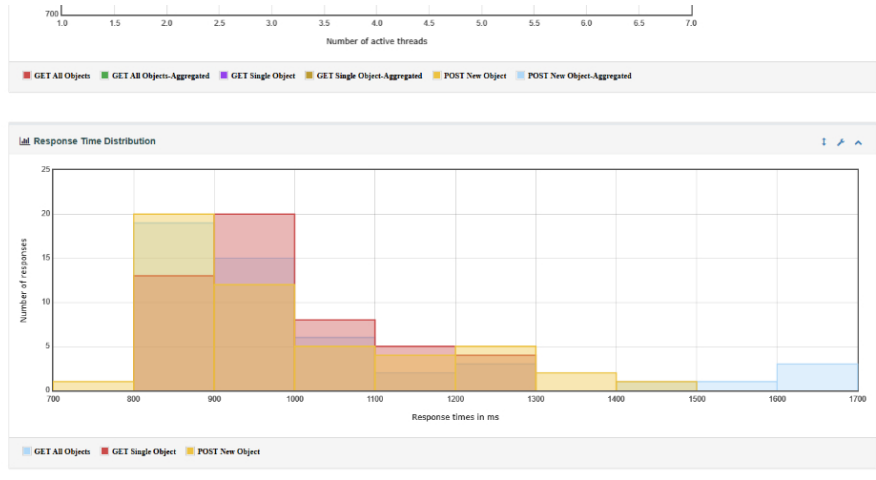


#### Response Time Overview



#### Time Vs Threads





#### Apache JMeter Dashboard

Dashboard

Charts

Customs Graphs

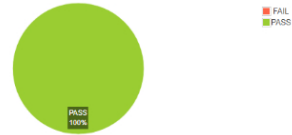
#### Test and Report information

Source file	"results.jfr"
Start Time	"11/24/24, 9:33 PM"
End Time	"11/24/24, 9:34 PM"
Filter for display	""

#### APDEX (Application Performance Index)

Apdex	T (Toleration threshold)	F (Frustration threshold)	Label
0.487	500 ms	1 sec 500 ms	Total
0.460	500 ms	1 sec 500 ms	GET All Objects
0.500	500 ms	1 sec 500 ms	POST New Object
0.500	500 ms	1 sec 500 ms	GET Single Object

#### Requests Summary



#### Statistics

Requests		Executions				Response Times (ms)							Throughput		Network (KB/sec)	
Label	#Samples	FAIL	Error %	Average	Min	Max	Median	90th pct	95th pct	99th pct	Transactions/s	Received	Sent			
Total	150	0	0.00%	993.91	787	1657	934.00	1226.00	1356.65	1657.00	4.68	6.24	1.04			
GET All Objects	50	0	0.00%	1009.62	811	1657	919.00	1470.30	1649.85	1657.00	1.65	3.39	0.25			
GET Single Object	50	0	0.00%	979.02	807	1278	941.50	1189.20	1227.35	1278.00	1.69	1.63	0.26			
POST New Object	50	0	0.00%	993.10	787	1484	927.00	1256.60	1356.65	1484.00	1.70	1.67	0.61			

#### Errors

Type of error	Number of errors	% in errors	% in all samples
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#### Top 5 Errors by sampler

Sample	#Samples	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors	Error	#Errors
Total	150	0										

#### Apache JMeter Dashboard

Dashboard

Charts

Over Time

Response Times Over Time

Response Time Percentiles Over Time (successful responses)

Active Threads Over Time

Bytes Throughput Over Time

Latencies Over Time

Connect Time Over Time

Throughput

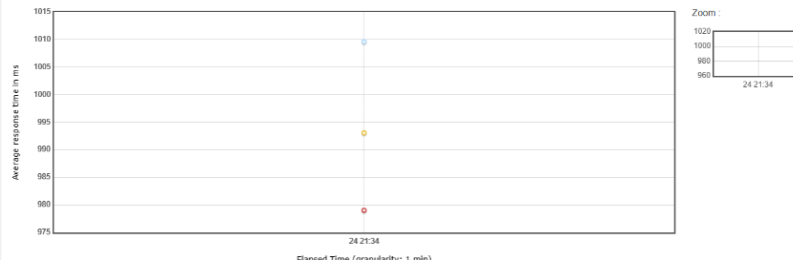
Response Times

Customs Graphs

#### Test and Report information

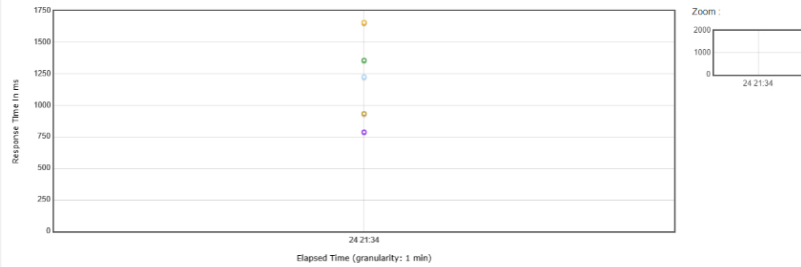
File:	"results.jfr"
Start Time:	"11/24/24, 9:33 PM"
End Time:	"11/24/24, 9:34 PM"
Filter for display:	""

#### Response Times Over Time



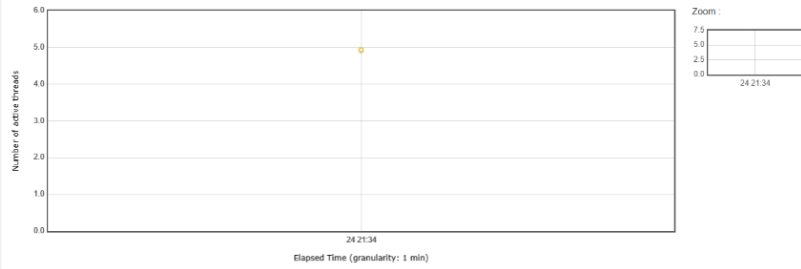
GET All Objects GET Single Object POST New Object

Response Time Percentiles Over Time (successful responses)



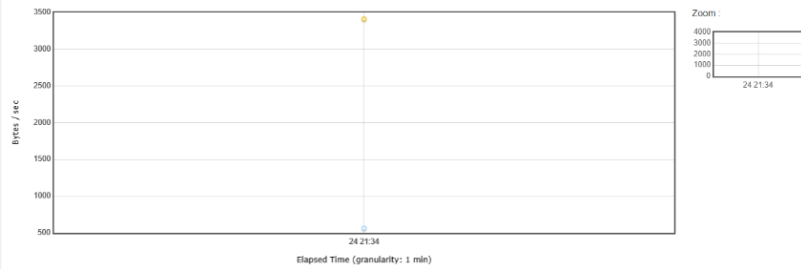
90th percentile 95th percentile 99th percentile Max Median Min

Active Threads Over Time



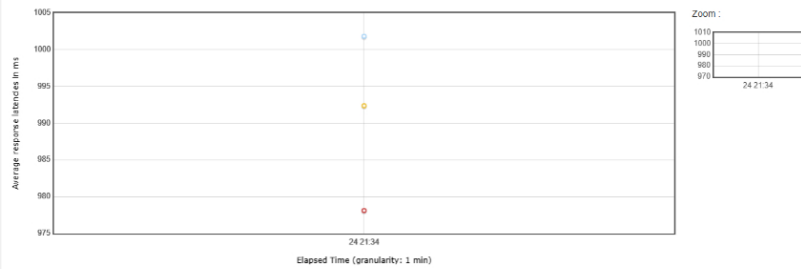
Normal Load Test

Bytes Throughput Over Time



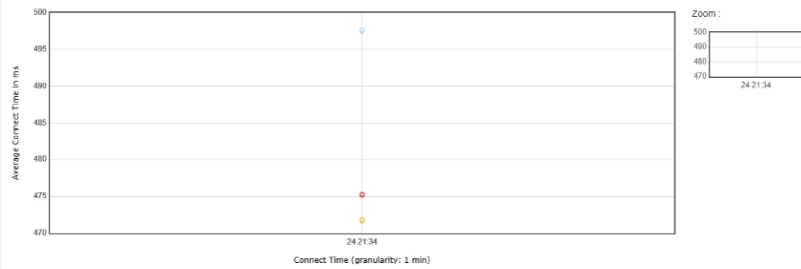
Bytes received per second Bytes sent per second

Latencies Over Time



GET All Objects GET Single Object POST New Object

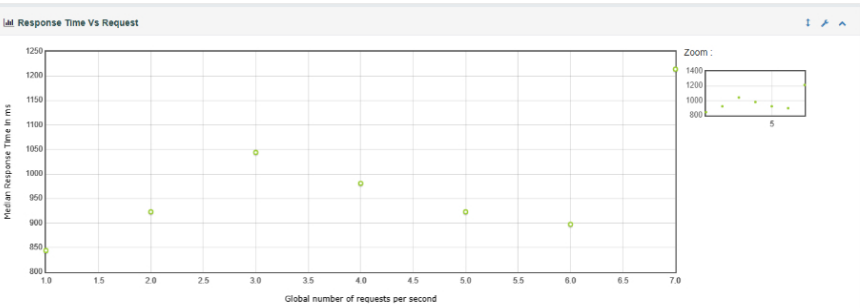
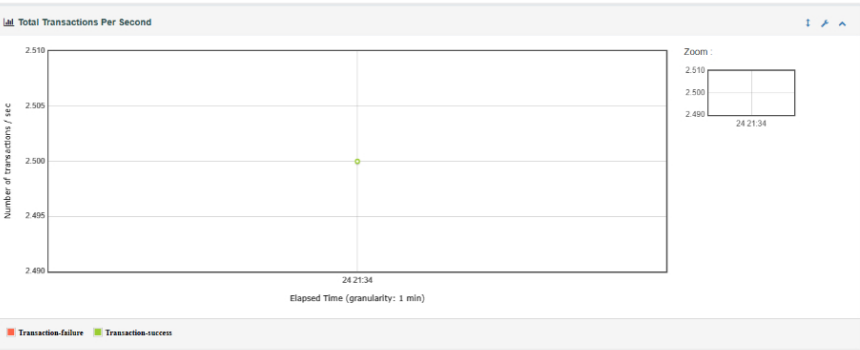
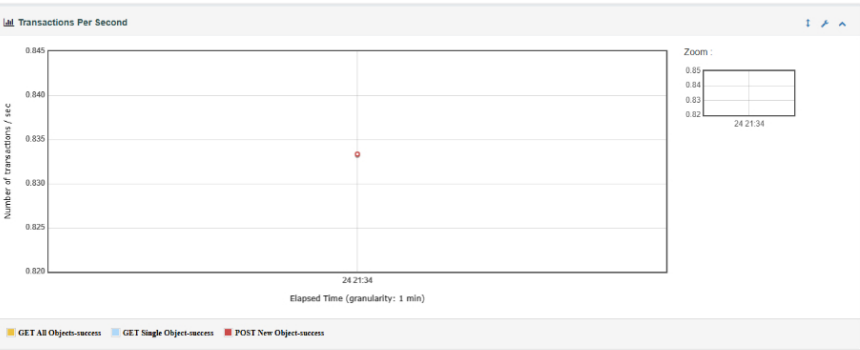
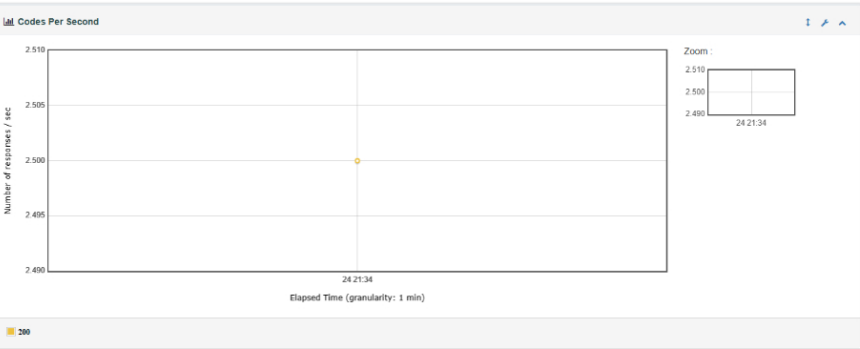
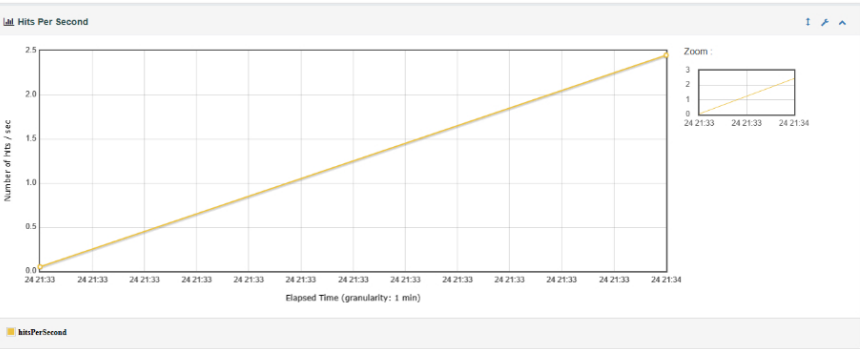
Connect Time Over Time



GET All Objects GET Single Object POST New Object

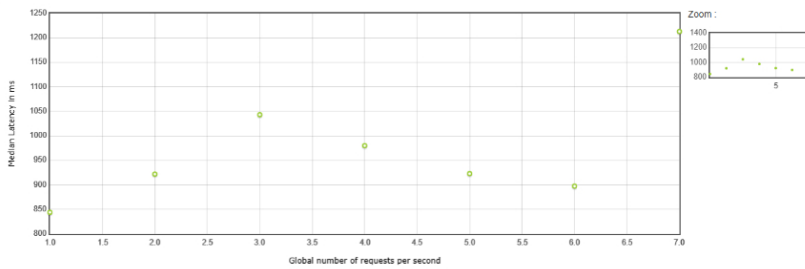
- Dashboard
- Charts
- Over Time
- Throughput
- Hits Per Second
- Codes Per Second
- Transactions Per Second
- Total Transactions Per Second
- Response Time Vs Request
- Latency Vs Request
- Response Times
- Customs Graphs

Test and Report information	
File:	"results.json"
Start Time:	"11/24/24, 9:33 PM"
End Time:	"11/24/24, 9:34 PM"
Filter for display:	""



Successes

Latency Vs Request



Successes

## Technology Stack



Java



TestNG



REST Assured



JMeter

## Project Structure

```
project/
├── src/
│   ├── test/
│   │   ├── java/
│   │   │   └── com.restful01/
│   │   │       ├── models/
│   │   │       ├── tests/
│   │   │       └── utils/
│   └── load-testing/
│       ├── scripts/
│       ├── results/
│       └── reports/
└── README.html
```

## Running Load Tests

### Prerequisites

- Apache JMeter installed
- Java 8 or higher
- Project structure set up

### Command Execution

```
cd "your-project-path\load-testing"

jmeter -n ^
-t scripts/RestfulAPI_TestPlan.jmx ^
-l results/raw/results.jtl ^
-e -o results/reports/HTMLReport ^
-Jjmeter.save.saveservice.output_format=xml ^
-Jjmeter.save.saveservice.response_data=true ^
-Jjmeter.save.saveservice.samplerData=true
```

### Key Parameters

- n : Non-GUI mode
- t : Test plan location
- l : Results file
- e : Generate report

### Expected Output

- ✓ Test execution summary
- ✓ Performance metrics
- ✓ HTML dashboard
- ✓ Detailed logs

## About Developer



### Anas Altaf

Software Quality Engineer

API Testing

Performance Testing

Automation

Passionate about software quality and test automation. Specialized in REST API testing and performance engineering with extensive experience in modern testing frameworks.

