

Redis Chat Application

Prerequisites

- **Java17** or higher •
- Maven3.6+**
- **RedisServer6.0+**
- **IDE** (IntelliJ IDEA, Eclipse, or VS Code)

Installation & Setup

1. Install Redis

Windows

```
bash
```

```
# Using Chocolatey
```

```
choco install redis-64
```

```
# Or download from: https://redis.io/download
```

macOS

```
bash
```

```
# Using Homebrew
```

```
brew install redis
```

```
# Start Redis
```

```
brew services start redis
```

2. Verify Redis Installation

```
bash
```

```
redis-cli ping
```

```
# Should return: PONG
```

3. Clone and Setup Project

```
bash
```

```
git clone <repository-url> cd
```

```
RedisChatApplication
```

4. Configure Application

Edit `src/main/resources/application.yml`:

yaml

```
spring:
  redis:
    host: localhost port:
    6379
    password: # Set if Redis requires authentication timeout:
    2000ms
  lettuce:
    pool:
      max-active: 8
      max-idle: 8
      min-idle: 0 max-
      wait: -1ms
  jackson:
    time-zone: UTC
    date-format: yyyy-MM-dd HH:mm:ss

server:
  port: 8080

logging:
  level:
    com.example.redischat: DEBUG
```

5. Build and Run

bash

```
# Build the project
mvn clean install
```

```
# Run the application
mvn spring-boot:run
```

```
# Or run the JAR file
java -jar target/redis-chat-app-1.0.0.jar
```

The application will start on

<http://localhost:8080>

API Documentation

REST Endpoints

1. CreateChatRoom

http

POST /api/chat/rooms

Content-Type: application/json

```
{  
  "name": "General Discussion",  
  "description": "A general chat room for all topics"  
}
```

2. JoinChatRoom

http

POST /api/chat/rooms/join

Content-Type: application/json

```
{  
  "chatRoomId": "room-uuid",  
  "username": "john_doe"  
}
```

3. SendMessage

http

POST /api/chat/messages

Content-Type: application/json

```
{  
  "chatRoomId": "room-uuid",  
  "username": "john_doe", "content":  
  "Hello everyone!"  
}
```

4. GetAllChatRooms

http

GET /api/chat/rooms

5. GetChatHistory

http

GET /api/chat/rooms/{roomId}/messages?limit=50

6. GetRoomParticipants

http

GET /api/chat/rooms/{roomId}/participant

Dependencies

Key dependencies used in this project:

xml

```
<dependencies>
  <dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-web</artifactId>
  </dependency>
  <dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-data-redis</artifactId>
  </dependency>
  <dependency>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-websocket</artifactId>
  </dependency>
  <dependency>
    <groupId>com.fasterxml.jackson.core</groupId>
    <artifactId>jackson-databind</artifactId>
  </dependency>
</dependencies>
```

Monitoring Redis

Using Redis CLI

bash

Monitor all commands

redis-cli monitor

Check memory usage

redis-cli info memory

List all keys

redis-cli keys "*"

Check specific key

redis-cli type chatroom:names

redis-cli smembers chatroom:names