

# Online Chat Application

## Introduction

‘Online-chat’ is a browser-based web chat application utilizing layer 7 protocols, specifically WebSocket. The WebSocket protocol facilitates end-to-end messaging between two clients over a network, offering a reliable full-duplex communication channel over TCP. This enables real-time communication between the client and server, supporting the following features:

- User login
- List of online users
- Private messaging between users
- Group (broadcast) messages to all online users
- Peer-to-peer file transfer

## Technologies Used

The application is developed with Python for server-side scripting, and JavaScript and HTML for the client-side. This combination ensures the application is resource-efficient and user-friendly.

## Prerequisites

To run this application, the following dependencies and scripts are required:

1. Download the `server.py` script.
2. Ensure all clients are on the same subnet or connected via a hotspot for testing.

## Server-side Prerequisites

**Installing Python** For Linux, use the following commands to install the required dependencies:

```
apt update
apt install python3.8 python3.8-venv python3.8-dev
```

For Windows: 1. Download the Python installer from the official Python website. 2. Run the installer and ensure the path is correctly defined by checking the “*Add Python to PATH*” option.

For macOS:

```
brew update
brew install python@3.8
```

Install the necessary Python libraries:

```
pip install websockets
```

After successfully installing all dependencies, configure the IP address and domain on the server side.

### **Client-side Prerequisites**

Download the client scripts. No additional dependencies are required for the client side.

## **Configuration Changes**

### **Server-side Configuration**

Update the `server.py` file with your laptop/PC IP address and port number `<IP Address>` and `<5555>` respectively. After making the necessary changes, run the script:

```
python server.py
```

You should see output indicating that your IP address is associated with port 5555 instead of `ws://localhost:5555`.

Server Output

### **Client-side Configuration**

Download the `index.html` script and make the necessary changes in the file. You can change localhost to your Laptop/PC IP in `server.py` and `script.js`

Python IP change

To find your IP address, use `ipconfig` for Windows or `ifconfig` for Linux, and update it in the script accordingly.

Double-click on the `index.html` file to open it.

Client Configuration

We have created some test users with admin privilege. The index page will prompt for a jid and password for login. Use the following credentials:

Username: `test1@s6`

Password: `test1@s6`

Username: `test2@s6`

Password: `test2@s6`

After logging in, the main chat room will appear, showing the online users. In the example below, the users `test1` and `test2` are online.

Test 1 Dashboard

Test 2 Dashboard

The online chat between two clients is displayed as follows:

Test1 Send Message

Test 1 sent message to Test 2 Test2 Receive Message Test 2 received message from Test 1

### **Some Screenshots of Group Chat**

To start group chat we need to click on Group Chat Group Chat started from Test1 Group Chat started from Test1

This documentation provides a comprehensive guide to setting up and using the ‘Online-chat’ application, ensuring a seamless and secure communication experience.