

Deployment Guide – Real-Time Micro-Bridge

This document explains how to set up, configure, and run the Real-Time Micro-Bridge + Multi-Agent Orchestrator Dashboard using a single-command startup. The guide is written for fresh machines and handover to other teams.

1. System Requirements

Ensure the following software is installed before proceeding:

- Node.js v18 or higher
- npm v9 or higher
- MongoDB (local installation or MongoDB Atlas)
- Modern browser (Chrome / Edge / Firefox)

2. Ports and Network

The system uses the following default ports. These can be changed using environment variables if required:

- Frontend (Vite): `http://localhost:5173`
- Backend API + Socket Server: `http://localhost:3000`

3. Repository Setup

Clone the repository and navigate to the project root:

```
git clone https://github.com/Rudra212545/Real-time-Dashboard
cd Real-Time-Micro-Bridge
```

4. Environment Configuration

Environment variables are required for both backend and frontend. Example files are provided in the repository.

Backend configuration:

- Copy `backend/.env.example` to `backend/.env`
- Set `MONGO_URI`, `JWT_SECRET`, `JWT_ISSUER`, `FRONTEND_ORIGIN`, and `PORT`

Frontend configuration:

- Copy `frontend/.env.example` to `frontend/.env`
- Set `VITE_BACKEND_URL` to match backend server URL

5. Dependency Installation

Install all backend and frontend dependencies using a single command from the project root:

```
npm run install:all
```

6. Single-Command Startup

Start the complete system (backend + frontend + sockets) with one command:

```
npm run start:all
```

Both services will run concurrently in a single terminal window.

7. Runtime Verification

After startup, verify the following:

- Frontend dashboard loads correctly in the browser
- MongoDB connection is successful
- Socket connection is established (WebSocket visible in browser devtools)

- Authentication and role-based access function as expected

8. Common Issues and Fixes

- MongoDB connection error: Ensure MongoDB service is running and MONGO_URI is correct.
- CORS error: Verify FRONTEND_ORIGIN matches frontend URL.
- Port conflict: Change PORT or VITE_BACKEND_URL in environment files.
- Socket not connecting: Confirm token exists in localStorage and backend is running.

9. Shutdown Procedure

To stop the system, press Ctrl + C in the terminal. This cleanly shuts down both frontend and backend services.

10. Deployment Notes

This project is deployment-ready for local, LAN, or cloud environments. For cloud deployment, update environment variables accordingly and use the production start script for the backend.

End of Deployment Guide.