



IT Installation Guide - Transportation Management System



Prerequisites Checklist

⚠ IMPORTANT: Install these software in EXACTLY this order!

1. Required Software Downloads

A. Node.js (Version 18 or higher)

- **Download Link:** <https://nodejs.org/en/download/>
- **Choose:** “LTS” version (Long Term Support)
- **File Type:** Windows Installer (.msi) for Windows
- **Installation:** Double-click and follow the wizard (accept all defaults)

B. Git (Version Control)

- **Download Link:** <https://git-scm.com/download/win>
- **Choose:** Windows version
- **File Type:** Windows Installer (.exe)
- **Installation:** Double-click and follow the wizard (accept all defaults)

C. Visual Studio Code (Code Editor)

- **Download Link:** <https://code.visualstudio.com/download>
- **Choose:** Windows version
- **File Type:** Windows Installer (.exe)
- **Installation:** Double-click and follow the wizard (accept all defaults)

D. MongoDB Compass (Database GUI - Optional but Recommended)

- **Download Link:** <https://www.mongodb.com/try/download/compass>
 - **Choose:** Windows version
 - **File Type:** Windows Installer (.exe)
 - **Installation:** Double-click and follow the wizard (accept all defaults)
-

QUICK TIPS

*** Steps to follow inside terminal ***

From root directory

```
npm run install-all
```

Backend setup

```
cd backend  
copy env.example .env
```

Edit .env file with production values

Frontend setup

```
cd ../frontend  
copy env.example .env
```

Edit .env file with production values

```
npm run build
```

Start backend in production mode

```
cd ../backend  
npm run prod
```

In a new terminal window, start frontend

```
cd frontend  
npm run preview
```



Step-by-Step Installation Process

Step 1: Verify Software Installation

Open **Command Prompt** (Windows + R, type `cmd` , press Enter) and run these commands:

```
node --version
npm --version
git --version
```

✅ If all commands show version numbers, proceed to Step 2

❌ If any command shows “not recognized”, reinstall that software

Step 2: Create Project Directory

```
cd C:\Users\[YourUsername]\Desktop
mkdir Transportation-Project
cd Transportation-Project
```

Step 3: Download the Project

```
git clone https://github.com/aryan-marthak/Transportation-Management-System.git
cd Transportation-Management-System
```

⚠️ If you don't have the GitHub repository, ask the developer for the project files and extract them to this folder.

Step 4: Set Up Backend Environment

```
cd backend
copy env.example .env
```

Edit the `.env` file with your actual values (see IT_Install.txt for details).

Step 5: Install Backend Dependencies

```
cd backend
npm install
```

Step 6: Set Up Frontend Environment

```
cd ..
cd frontend
copy env.example .env
```

Edit the frontend `.env` file as needed.

Step 7: Install Frontend Dependencies

```
cd frontend
npm install
```



Running the Application

DEVELOPMENT MODE (For Testing)

Method 1: Using Root Package Scripts (Recommended)

```
cd ..
npm install
npm run dev
```

Method 2: Running Separately

```
# Terminal 1 (Backend)
cd backend
npm start

# Terminal 2 (Frontend)
cd frontend
```

```
npm run dev
```

PRODUCTION MODE (For Company Server - 24/7 Running)

IMPORTANT: DO NOT keep terminal windows open 24/7 for production!

Step 1: Install PM2 Process Manager

```
npm install -g pm2
```

Step 2: Build Frontend for Production

```
cd frontend
npm run build
# This creates a 'dist' folder
```

Step 3: Start Backend with PM2

```
cd ../backend
pm2 start index.js --name "tms-backend" --port 5003
# Set environment variables for production (or use a .env file)
```

Step 4: Start Frontend with PM2

```
cd ../frontend
pm2 serve dist 80 --name "tms-frontend"
# Or use another port if 80 is busy
pm2 serve dist 3000 --name "tms-frontend"
```

Step 5: Save PM2 Configuration

```
pm2 save
```

```
pm2 startup
# Follow the instructions that appear
```

Step 6: Verify Everything is Running

```
pm2 status
pm2 logs tms-backend
pm2 logs tms-frontend
```

Step 7: Access the Application

- **Frontend:** <http://your-server-ip> (or <http://your-server-ip:3000>)
- **Backend API:** <http://your-server-ip:5003>



PM2 Management Commands

```
pm2 status           # View all running processes
pm2 restart tms-backend # Restart backend
pm2 restart tms-frontend # Restart frontend
pm2 stop tms-backend   # Stop backend
pm2 start tms-backend  # Start backend
pm2 logs tms-backend   # View backend logs
pm2 logs tms-frontend  # View frontend logs
pm2 monit             # Monitor resources (CPU, Memory)
pm2 delete tms-backend # Delete backend process
pm2 reload all         # Reload all processes
pm2 restart all        # Restart all processes
```



Accessing the Application

DEVELOPMENT MODE:

- Frontend: <http://localhost:5173>
- Backend: <http://localhost:5002>

PRODUCTION MODE:

- Frontend: `http://your-server-ip` (or `http://your-server-ip:3000`)
- Backend: `http://your-server-ip:5003`

Test the application by opening the frontend URL in your browser.



Troubleshooting Common Issues

Issue 1: “Port already in use”

- Choose some random port names which are not being used in any processes.

Issue 2: “Module not found” errors

```
cd backend
rmdir /s node_modules
npm install
cd ../frontend
rmdir /s node_modules
npm install
```

Issue 3: “MongoDB connection failed”

- Check your MongoDB Atlas connection string
- Ensure your IP is whitelisted in MongoDB Atlas
- Verify username and password are correct

Issue 4: “Email not working”

- Check Gmail app password is correct
- Ensure 2-Step Verification is enabled
- Verify ADMIN_USER email is correct

Issue 5: “npm command not recognized”

- Reinstall Node.js

- Restart Command Prompt
- Check PATH environment variable

Issue 6: “PM2 process not starting”

- Check if PM2 is installed: `npm list -g pm2`
- Reinstall PM2: `npm uninstall -g pm2 && npm install -g pm2`
- Check logs: `pm2 logs`
- Restart PM2: `pm2 kill && pm2 start`

Issue 7: “Application not accessible from other computers”

- Check firewall settings - allow ports 80, 3000, 5003
- Check if server IP is correct
- Verify PM2 processes are running: `pm2 status`
- Check if application is bound to correct IP (not just localhost)

Project Structure (For Reference)

```
Transportation-Management-System/
├── backend/                # Server-side code
│   ├── models/            # Database models
│   ├── routes/            # API endpoints
│   ├── middleware/        # Authentication middleware
│   ├── utils/             # Email and SMS utilities
│   ├── Scheduler/         # Automated tasks
│   ├── jwt/               # Token generation
│   ├── package.json       # Backend dependencies
│   └── .env               # Backend environment variables
├── frontend/              # Client-side code
│   ├── src/               # React source code
│   ├── public/            # Static files
│   ├── package.json       # Frontend dependencies
│   └── .env               # Frontend environment variables
├── package.json           # Root scripts
└── README.md              # Main documentation
```



Support Contacts

If you encounter issues:

1. Check this guide first
2. Check the main [README.md](#) file
3. Contact the developer (+91 6351773853)
4. Check console errors in browser (F12)
5. Check PM2 logs: `pm2 logs`
6. Check server firewall settings
7. Verify network connectivity

PRODUCTION SUPPORT:

- Monitor application: `pm2 monit`
 - Check application status: `pm2 status`
 - View real-time logs: `pm2 logs --lines 100`
 - Restart if needed: `pm2 restart all`
-



Final Checklist

DEVELOPMENT MODE CHECKLIST:

- ☐ Node.js installed and working
- ☐ Git installed and working
- ☐ Project files downloaded
- ☐ Backend `.env` file configured
- ☐ Frontend `.env` file configured
- ☐ Backend dependencies installed
- ☐ Frontend dependencies installed
- ☐ Application starts without errors
- ☐ Frontend accessible at <http://localhost:5173>
- ☐ Backend API accessible at <http://localhost:5002>
- ☐ Can create account and login

- ☐ Can access employee/admin dashboard

PRODUCTION MODE CHECKLIST:

- ☐ PM2 installed globally
- ☐ Frontend built for production (`npm run build`)
- ☐ Backend started with PM2
- ☐ Frontend served with PM2
- ☐ PM2 configuration saved
- ☐ PM2 startup configured
- ☐ Application accessible from other computers
- ☐ Firewall ports opened (80, 3000, 5003)
- ☐ Production environment variables set
- ☐ Database connection working
- ☐ Email notifications working
- ☐ Application survives server restart

🎉 If all checkboxes are marked, the installation is successful!