

Software Installation Guide for “Chena” Web-Based Agricultural Supply Chain Management System



Version 1.0

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Technology Stack Next.js Node.js MySQL

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1. Introduction

About This Guide

- This guide provides step by step instructions to install the Chena Agricultural Platform on a local machine or server
- Each step should be followed carefully to ensure a successful installation

Components Installed

- MySQL database server for data storage
- Node.js runtime environment
- Backend server running on port 5000
- Frontend server running on port 3000
- Required npm dependencies

Installation Overview

- Estimated installation time is 30 to 45 minutes
- Intermediate technical knowledge is recommended
- Internet connection is required to download packages

2. System Requirements

Hardware Requirements

Minimum requirements

- Intel Core i3 processor or equivalent
- 4 GB RAM
- 2 GB free disk space
- Broadband internet connection

Recommended requirements

- Intel Core i5 processor or higher
- 8 GB or more RAM
- 5 GB free disk space
- High speed internet connection

Supported Operating Systems

- Windows 10 or 11
- macOS 10.15 or later
- Ubuntu 20.04 LTS or later
- Debian 10 or later
- CentOS 8 or later

Software Prerequisites

- Node.js version 18 or higher
- npm version 9 or higher
- MySQL Server version 5.7 or 8.0
- Git for repository management

3. Pre Installation Checklist

- Administrator or root access available
- Stable internet connection
- Minimum 2 GB free disk space
- Firewall allows ports 3000 5000 and 3306
- Chena project files available locally

- Text editor such as Visual Studio Code installed

4. Installing Prerequisites

Installing Node.js

- Visit the official Node.js website
- Download the LTS version
- Run the installer and follow on screen instructions
- Restart the terminal after installation

Verification steps

- Open terminal or command prompt
- Run node version command
- Run npm version command
- Ensure versions meet minimum requirements

Installing MySQL Server

- Download MySQL Server from the official website
- Install MySQL Server and MySQL Workbench
- Set a root password during installation
- Enable MySQL service to start automatically

Verification steps

- Open terminal or command prompt
- Run MySQL version command
- Login using root credentials
- Exit MySQL after verification.

Installing Git

- Download Git from the official website
- Install using default settings
- Verify installation using git version command

5. Database Installation

Obtaining the Database Schema

- Locate chena_schema.sql in the database folder
- Or download it from the project repository

Creating the Database

- Open terminal or command prompt
- Navigate to the database folder
- Login to MySQL using root credentials
- Create the Chena database
- Import the schema file
- Verify tables are created successfully

Verifying Database Data

- Run sample queries to confirm users table exists
- Verify product catalog records
- Confirm farmer records are available

6. Backend Installation

Navigating to Backend Folder

- Open terminal or command prompt
- Navigate to the backend directory inside the project

Installing Backend Dependencies

- Run npm install command
- Wait for dependency installation to complete
- Ensure no critical errors are shown

Environment Configuration

- Create a .env file from the example file
- Configure database connection details
- Set server port to 5000
- Configure JWT secrets
- Add payment gateway credentials
- Save the file after editing

Backend Structure Verification

- Confirm server.js exists
- Ensure config controllers routes and middleware folders are present
- Verify package.json and environment files exist

7. Frontend Installation

Navigating to Frontend Folder

- Open a new terminal window
- Navigate to the frontend directory

Installing Frontend Dependencies

- Run npm install command
- Allow installation to complete
- Ensure dependencies are installed successfully

Frontend Environment Configuration

- Create .env.local file
- Configure backend API URL
- Add payment gateway public keys
- Save the configuration file

Frontend Structure Verification

- Verify app pages components services and styles folders
- Ensure configuration files exist
- Confirm environment file is present

8. Configuration

Database Connection Test

- Create a test script for database connection
- Run the script using Node.js
- Verify successful database connection message

Port Availability Check

- Confirm ports 3000 and 5000 are available
- Stop conflicting services if required
- Update port numbers if necessary

Firewall Configuration

- Allow inbound traffic for required ports
- Apply firewall rules for all profiles

9. Starting the Application

Starting Backend Server

- Open terminal in backend directory
- Run npm run dev
- Verify backend server starts on port 5000
- Keep the terminal running

Starting Frontend Server

- Open a new terminal in frontend directory
- Run npm run dev

- Verify frontend server starts on port 3000
- Keep the terminal running

Accessing the Application

- Open a web browser
- Navigate to <http://localhost:3000>
- Confirm the Chena homepage loads

10. Verification and Testing

Backend API Testing

- Access health check endpoint
- Verify successful response
- Confirm database connectivity

Frontend Testing

- Verify homepage loads correctly
- Test navigation menu
- Open login pages for all user roles
- Login using sample credentials

Database Testing

- Login to MySQL
- Check record counts in users products and farmers tables

End to End Testing

- Register a new customer
- Login using the new account
- Browse products

- Add items to cart
- Proceed to checkout

11. Troubleshooting

Node.js Issues

- Verify Node.js installation
- Restart terminal after installation
- Reinstall Node.js if necessary

MySQL Issues

- Ensure MySQL service is running
- Verify database credentials
- Confirm database exists
- Reimport schema if required

Backend Issues

- Reinstall node modules if errors occur
- Check environment variables
- Verify port configuration

Frontend Issues

- Clear build cache
- Reinstall dependencies
- Verify API URL configuration

Payment Gateway Issues

- Verify test credentials
- Ensure correct keys are configured

- Check browser console for errors

12. Uninstallation

Stopping Application Servers

- Stop frontend server using terminal
- Stop backend server using terminal

Removing Database

- Login to MySQL
- Drop the Chena database
- Exit MySQL

Removing Project Files

- Delete the Chena project directory

Optional Software Removal

- Uninstall Node.js if no longer required
- Uninstall MySQL Server if not needed
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