Ballotix Blockchain Voting System User Guide

INTRODUCTION

This user guide provides step-by-step instructions for installing, configuring, and using the Ballotix Blockchain Voting System. It includes platform requirements, installation procedures, and essential usage guidelines for demonstration and deployment.

MINIMUM PLATFORM SPECIFICATION

- Processor: Intel i5 / AMD Ryzen 5 or higher
- RAM: 8 GB (16 GB recommended)
- Storage: 50 GB free disk space
- Network: Stable internet connection
- OS: Windows 10+, macOS 11+, or Linux
- Node.js: v18.x or higher
- Browser: Chrome/Microsoft Edge (MetaMask support)

PREREQUISITES

- Node.js (v18+) and npm
- Git for cloning the repository
- MetaMask browser extension
- MongoDB Atlas or local MongoDB
- SendGrid/Mailtrap account
- Cloudinary account (optional)

INSTALLATION STEPS

1. Clone the Repository:
   ```
   git clone <your-repo-url>
   cd ballotix-blockchain-voting
   ```
2. Install Dependencies:
   - Frontend: cd frontend && npm install
   - Backend: cd .. /backend && npm install
   - Smart Contracts: cd .. /ethereum && npm install
3. Configure .env in frontend/backend with required credentials
4. Deploy Smart Contracts (Sepolia):
   ```
   npx hardhat compile
   npx hardhat run scripts/deploy.js -- network sepolia
   Copy deployed address into .env
   ```

RUNNING THE APPLICATION

- Start Backend: cd backend && npm start
- Start Frontend: cd frontend && npm run dev

Access at http://localhost:5173

USING THE SYSTEM

- Registration/Login via Email & OTP
- MetaMask must be connected to Sepolia Testnet
- Admins: Create elections, add candidates, control lifecycle
- Users: View elections, cast votes, view results

TROUBLESHOOTING

- MetaMask not detected: Ensure correct network
- Email not received: Check spam/junk or email settings
- Contract issues: Confirm Sepolia ETH and correct contract address
- MongoDB error: Re-check URI and access settings

DEMO & RESET

- Clear DB and redeploy contracts as needed
- Use admin tools to clear old elections

SUPPORT

For further help, refer to README.md or contact the development team.