

Quick Start Guide - MERN MySQL App

Local Development (5 Minutes)

1. Backend Setup

```
bash

cd backend
npm install
cp .env.example .env
# Edit .env with your MySQL credentials
npm run dev
```

2. Frontend Setup

```
bash

cd frontend
npm install
cp .env.example .env
npm run dev
```

3. Create Database

```
sql

CREATE DATABASE mern_app_db;
```

Done! Visit <http://localhost:5173>

VPS Deployment (15 Minutes)

1. Run Initial Setup on VPS

```
bash

ssh root@your_vps_ip
chmod +x setup-vps.sh
./setup-vps.sh
```

2. Setup MySQL Database

```
bash
```

```
mysql -u root -p
CREATE DATABASE mern_app_db;
CREATE USER 'mern_user'@'localhost' IDENTIFIED BY 'password';
GRANT ALL PRIVILEGES ON mern_app_db.* TO 'mern_user'@'localhost';
FLUSH PRIVILEGES;
EXIT;
```

3. Clone and Deploy

```
bash

cd /var/www
git clone <your-repo-url>
cd mern-mysql-app

# Backend
cd backend
npm install --production
cp .env.example .env
# Edit .env with production values
pm2 start server.js --name mern-backend
pm2 save

# Frontend
cd ../frontend
npm install
cp .env.example .env
# Edit .env: VITE_API_URL=https://yourdomain.com/api/v1
npm run build
```

4. Configure Nginx

```
bash

nano /etc/nginx/sites-available/mern-app
# Paste nginx.conf content
ln -s /etc/nginx/sites-available/mern-app /etc/nginx/sites-enabled/
nginx -t
systemctl restart nginx
```

5. Setup SSL

```
bash

apt install certbot python3-certbot-nginx -y
certbot --nginx -d yourdomain.com
```

Automatic Deployment Setup

1. Generate SSH Key (Local Machine)

```
bash

ssh-keygen -t rsa -b 4096 -f ~/.ssh/vps_deploy_key
cat ~/.ssh/vps_deploy_key.pub
# Copy this to VPS ~/.ssh/authorized_keys
```

2. Add GitHub Secrets

Go to GitHub Repo → Settings → Secrets → Actions

Add:

- `VPS_HOST`: your_vps_ip
- `VPS_USERNAME`: root
- `VPS_SSH_KEY`: (paste private key)

3. Push to GitHub

```
bash

git add .
git commit -m "Deploy"
git push origin main
```

Done! Every push to main auto-deploys to VPS!

Key Files to Edit

Local Development

- `backend/.env` - Local MySQL credentials
- `frontend/.env` - Local API URL

Production (VPS)

- `backend/.env` - VPS MySQL credentials
 - `frontend/.env` - Production API URL (your domain)
-

Monitoring Commands

bash

Check status

pm2 status

systemctl status nginx

View logs

pm2 logs mern-backend

tail -f /var/log/nginx/error.log

Manual deploy

./deploy.sh

Testing Checklist

- ☐ Local backend running on port 5000
- ☐ Local frontend running on port 5173
- ☐ Can register new user locally
- ☐ Can login locally
- ☐ VPS backend running (pm2 status)
- ☐ VPS frontend served by Nginx
- ☐ Can register user on live site
- ☐ Can login on live site
- ☐ GitHub Actions deploys successfully
- ☐ Changes pushed to GitHub appear on live site

Quick Troubleshooting

Backend won't start:

bash

pm2 logs mern-backend

Frontend blank:

bash

cd frontend && npm run build

Database error:

```
bash
```

```
mysql -u mern_user -p  
SHOW DATABASES;
```

Nginx error:

```
bash
```

```
nginx -t  
systemctl status nginx
```

For detailed instructions, see [DEPLOYMENT_GUIDE.md](#)