

Low-Level Design (LLD)

Tech Stack

Component	Tech
Backend	PHP (Symfony Framework)
Frontend	HTML/CSS/JS (Bundled)
DB	MariaDB / MySQL
Server	Nginx
Runtime	PHP-FPM
OS	Amazon Linux 2 (EC2)

STEP-BY-STEP SETUP GUIDE

1. EC2 Setup (Amazon Linux 2)

Launch EC2 Instance:

- t2.micro
- Security Group: Allow **HTTP (80)**, **HTTPS (443)**, and **SSH (22)**
- Log in:

```
ssh -i your-key.pem ec2-user@your-public-ip
```

2. Install Dependencies

```
sudo yum update -y
sudo amazon-linux-extras enable php8.2
sudo yum clean metadata
```

```
sudo yum install php php-{cli,fpm,common,gd,mbstring,mysqlnd,xml,zip,intl,opcache,sqlite3,pecl-apcu} nginx mariadb105 git unzip -y
```

3. Start Services

```
sudo systemctl start nginx
sudo systemctl start php-fpm
sudo systemctl enable nginx
sudo systemctl enable php-fpm
```

4. Setup MariaDB

```
sudo systemctl start mariadb
sudo mysql_secure_installation
```

Then log into MariaDB:

```
mysql -u root -p
```

Run this SQL to create user & DB:

```
CREATE DATABASE kimai2 CHARACTER SET utf8mb4 COLLATE utf8mb4_unicode_ci;
CREATE USER 'kimaiuser'@'localhost' IDENTIFIED BY 'YourStrongPassword123!';
GRANT ALL PRIVILEGES ON kimai2.* TO 'kimaiuser'@'localhost';
```

```
FLUSH PRIVILEGES;  
EXIT;
```

5. Download Kimai

```
cd ~  
git clone https://github.com/kevinpapst/kimai.git  
cd kimai  
composer install --no-dev --optimize-autoloader
```

6. Fix Permissions

```
sudo chown -R nginx:nginx .  
sudo chmod -R 775 var/  
sudo chmod -R 775 public/
```

7. Environment Setup

```
nano .env.local
```

Paste this:

```
APP_ENV=prod
```

```
DATABASE_URL=mysql://kimaiuser:YourStrongPassword123!@127.0.0.1/kimai2
```

8. Install Kimai

```
php bin/console kimai:install -n
```

To create an admin user:

```
php bin/console kimai:user:create admin admin@example.com ROLE_SUPER_
ADMIN adminpass
```

9. Nginx Config

```
sudo nano /etc/nginx/conf.d/kimai.conf
```

Paste:

```
server {
    listen 80;
    server_name _;

    root /home/ec2-user/kimai/public;

    index index.php;

    location / {
```

```
try_files $uri /index.php$is_args$args;
}

location ~ \.php$ {
    include fastcgi_params;
    fastcgi_pass unix:/run/php-fpm/www.sock;
    fastcgi_param SCRIPT_FILENAME $document_root$fastcgi_script_name;
}

location ~* \.(jpg|jpeg|png|gif|ico|css|js)$ {
    expires max;
    log_not_found off;
}
}
```

Then:

```
sudo nginx -t
sudo systemctl restart nginx
```

10. Final Fixes for Permission & Cache

```
sudo chown -R nginx:nginx var/
sudo chmod -R 775 var/
php bin/console cache:clear --env=prod
php bin/console cache:warmup --env=prod
```

Commands Cheat Sheet

Task	Command
Create new user	<code>php bin/console kimai:user:create username email@example.com ROLE_USER password</code>
Reset password	<code>php bin/console kimai:user:password username</code>
Promote user	<code>php bin/console kimai:user:promote username ROLE_SUPER_ADMIN</code>
List users	<code>php bin/console kimai:user:list</code>
Stop all timers	<code>php bin/console kimai:timesheet:stop-all</code>
Clear Cache	<code>php bin/console cache:clear --env=prod</code>
Reload Kimai	<code>php bin/console kimai:reload</code>

Access Kimai

1. Go to browser: `http://<EC2_PUBLIC_IP>`
2. Login with created credentials.

For Safety

You may also want to:

```
sudo firewall-cmd --permanent --add-service=http
sudo firewall-cmd --permanent --add-service=https
sudo firewall-cmd --reload
```

Tips for Team Use

- Always pull the latest Kimai using `git pull` from the `kimai` folder.
- Set up SSL with Let's Encrypt once all is working: `certbot --nginx`