

# Testing and deployment

## Testing

### Current Test Setup

The project currently has limited automated tests. Main test file:

- `referral_system_test.js` - Tests for referral system calculations

### Running Tests

```
npm test
```

### Manual Testing

1. **Use Postman/Insomnia**
  - Import OpenAPI spec from `docs/openapi.json`
  - Test endpoints manually
2. **Use Scalar API Reference**
  - Access `http://localhost:3610/api/kitab-suci` in development
  - Test directly from browser
3. **WebSocket Testing**
  - Use Socket.IO client library
  - Or use tools like Socket.IO Client Tool

### Recommended Test Coverage

Future test implementation should cover:

- Unit tests for utilities and services
- Integration tests for API endpoints
- E2E tests for critical flows (checkout, payment)
- Load testing for concurrent operations

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# Deployment

## Production Checklist

### 1. Environment Configuration

- Set `ENV=PRODUCTION`
- Configure production database credentials
- Set secure JWT secret
- Configure production API keys (Xendit, GoSend)
- Set CORS origins
- Configure email settings

### 2. Database

- Run database migrations
- Set up database backups
- Configure connection pooling
- Set up read replicas (if needed)

### 3. Security

- Enable HTTPS
- Configure Helmet security headers
- Set up rate limiting
- Configure firewall rules
- Set up SSL certificates

### 4. Performance

- Enable Redis caching
- Configure CDN for static assets
- Set up load balancer
- Configure process manager (PM2)

### 5. Monitoring

- Set up logging (Winston/Bunyan)
- Configure error tracking (Sentry)
- Set up uptime monitoring
- Configure performance monitoring (New Relic/DataDog)

# Deployment Options

## Option 1: VPS/Dedicated Server

```
# Install PM2
npm install -g pm2

# Start application
pm2 start index.js --name onmarket-api

# Configure PM2 startup
pm2 startup
pm2 save

# Monitor
pm2 monit
```

## Option 2: Docker

Create `Dockerfile`:

```
FROM node:16-alpine

WORKDIR /app

COPY package*.json ./
RUN npm ci --only=production

COPY . .

EXPOSE 3610

CMD ["node", "index.js"]
```

Create `docker-compose.yml`:

```
version: '3.8'
services:
  api:
    build: .
```

```
ports:
  - "3610:3610"
env_file:
  - .env
depends_on:
  - postgres
  - mongo
  - redis

postgres:
  image: postgres:14
  environment:
    POSTGRES_DB: onmarket_db
    POSTGRES_USER: onmarket
    POSTGRES_PASSWORD: password
  volumes:
    - postgres-data:/var/lib/postgresql/data

mongo:
  image: mongo:5
  volumes:
    - mongo-data:/data/db

redis:
  image: redis:7-alpine
  command: redis-server --requirepass yourpassword

volumes:
  postgres-data:
  mongo-data:
```

Run with Docker:

```
docker-compose up -d
```

## Option 3: Cloud Platforms

### AWS:

- Use Elastic Beanstalk
- Or ECS with Fargate

- RDS for PostgreSQL
- DocumentDB for MongoDB
- ElastiCache for Redis

### Google Cloud:

- Cloud Run
- Cloud SQL
- Memorystore

### Heroku:

```
heroku create onmarket-api
heroku addons:create heroku-postgresql
heroku addons:create mongolab
heroku addons:create heroku-redis
git push heroku main
```

## Ngix Configuration

```
server {
    listen 80;
    server_name api.yourdomain.com;

    location / {
        proxy_pass http://localhost:3610;
        proxy_http_version 1.1;
        proxy_set_header Upgrade $http_upgrade;
        proxy_set_header Connection 'upgrade';
        proxy_set_header Host $host;
        proxy_cache_bypass $http_upgrade;
        proxy_set_header X-Real-IP $remote_addr;
        proxy_set_header X-Forwarded-For $proxy_add_x_forwarded_for;
    }

    # WebSocket support
    location /socket.io/ {
        proxy_pass http://localhost:3610;
        proxy_http_version 1.1;
        proxy_set_header Upgrade $http_upgrade;
        proxy_set_header Connection "upgrade";
    }
}
```

```
    proxy_set_header Host $host;
  }
}
```

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