

Deployment Guide

Local Deployment

Prerequisites

- Python 3.11 or higher
- pip package manager

Quick Start

1. Clone the repository
2. Install dependencies: `pip install -r requirements.txt`
3. Generate sample data: `python simulate_data.py`
4. Run tests: `python run_tests.py`
5. Start dashboard: `streamlit run enhanced_dashboard.py`

Cloud Deployment Options

Streamlit Cloud

1. Push code to GitHub repository
2. Connect to Streamlit Cloud
3. Deploy directly from repository
4. Configure environment variables if needed

Heroku

1. Create Procfile : `web: streamlit run enhanced_dashboard.py --server.port=$PORT --server.address=0.0.0.0`

2. Deploy using Heroku CLI or GitHub integration
3. Configure buildpacks for Python

Docker

Plain Text

```
FROM python:3.11-slim

WORKDIR /app
COPY requirements.txt .
RUN pip install -r requirements.txt

COPY . .
EXPOSE 8501

CMD ["streamlit", "run", "enhanced_dashboard.py", "--server.port=8501", "--server.address=0.0.0.0"]
```

AWS/GCP/Azure

- Use container services (ECS, Cloud Run, Container Instances)
- Configure load balancing and auto-scaling as needed
- Set up monitoring and logging

Environment Variables

- `STREAMLIT_SERVER_PORT` : Server port (default: 8501)
- `STREAMLIT_SERVER_ADDRESS` : Server address (default: 0.0.0.0)

Performance Optimization

- Use data caching for large datasets
- Implement pagination for large tables

- Consider database backend for production use
- Enable compression for static assets

Security Considerations

- Implement authentication for production use
- Use HTTPS in production
- Sanitize user inputs
- Regular security updates

Monitoring

- Set up application monitoring
- Configure error tracking
- Monitor performance metrics
- Set up alerts for critical issues