

Deployment

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1 Deployment - FACIN_IA

Guia de deployment e publicação do projeto.

1.1 Ambientes de Deployment

1.1.1 1. Development

- Local: localhost:8501
- Automático: push para branch develop
- Validação: Tipo “warning”

1.1.2 2. Staging

- URL: staging-facin-ia.herokuapp.com (exemplo)
- Automático: PR aprovada para main
- Validação: Tipo “error”, obrigatória

1.1.3 3. Production

- URL: facin-ia.herokuapp.com (exemplo)
- Manual: Tag de versão (v1.0.0)
- Validação: Todas as checks devem passar

1.2 🚀 Pipeline de Deployment

```
Code → GitHub Push
↓
GitHub Actions Triggered
↓
1. Validation (Spec + Code Quality)
  ├── Spec validation (MANDATORY)
  ├── Code formatting
  ├── Type checking
  └── Tests
  ↓
2. Build & Artifacts
  ├── Generate documentation
  └── Create build artifacts
  ↓
3. Deploy Decision
  ├── develop → Auto deploy to Staging
  ├── main → Manual approval for Prod
  └── tag → Auto deploy to Production
```

1.3 🔑 Secrets & Configurations

1.3.1 GitHub Secrets (Required)

```
OPENAI_API_KEY:      # OpenAI API key
GROQ_API_KEY:        # Groq API key
AGENTICOPS_API_KEY:  # AgenticOps key (optional)
HEROKU_API_KEY:      # Heroku deployment key
HEROKU_APP_NAME:     # Heroku app name
DATABASE_URL:        # Production database URL
```

1.3.2 Environment Variables

```
# .env.production
DEBUG=false
LOG_LEVEL=INFO
ENVIRONMENT=production
AGENTICOPS_ENABLED=true
```

1.4 🐳 Docker Deployment

1.4.1 Dockerfile Example

```
FROM python:3.12-slim

WORKDIR /app

COPY requirements.txt .
RUN pip install --no-cache-dir -r requirements.txt

COPY . .

EXPOSE 8501

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

1.4.2 Build & Run

```
# Build
docker build -t facin-ia:1.0.0 .

# Run Locally
docker run -p 8501:8501 \
    -e OPENAI_API_KEY=sk-... \
    -e GROQ_API_KEY=gsk-... \
    facin-ia:1.0.0

# Push to registry
docker push your-registry/facin-ia:1.0.0
```

1.5 Deployment Platforms

1.5.1 Heroku

```
# Login
heroku login

# Create app
heroku create facin-ia

# Set environment variables
heroku config:set OPENAI_API_KEY=sk-...
heroku config:set GROQ_API_KEY=gsk-...

# Deploy
git push heroku main

# View logs
heroku logs --tail
```

1.5.2 AWS/EC2

```
# SSH into instance
ssh -i key.pem ec2-user@instance-ip

# Clone repository
git clone https://github.com/gutpassos/FACIN_IA.git
cd FACIN_IA
```

```
# Setup environment
python -m venv venv
source venv/bin/activate
pip install -r requirements.txt

# Configure supervisor or systemd
sudo cp facin-ia.service /etc/systemd/system/
sudo systemctl enable facin-ia
sudo systemctl start facin-ia

# Nginx reverse proxy
sudo apt install nginx
sudo cp nginx.conf /etc/nginx/sites-available/facin-ia
```

1.5.3 GCP/App Engine

```
# Initialize App Engine
gcloud app create

# Deploy
gcloud app deploy app.yaml

# View Logs
gcloud app logs read
```

1.6 CI/CD Configuration

1.6.1 GitHub Actions Workflow

O arquivo `.github/workflows/validate.yml` já está configurado com:

1. **Validation Stage**
 - Especificação JSON (OBRIGATÓRIO)
 - Code quality checks
 - Type checking
 - Tests with coverage
 2. **Build Stage**
 - Generate documentation
 - Create artifacts
 - Build Docker image
 3. **Deploy Stage**
 - Auto-deploy to staging on PR merge
 - Manual approval for production
 - Automated rollback on failure
-

1.7 Monitoring Post-Deployment

1.7.1 AgenticOps Dashboard

```
# URL: https://agenticops.io/dashboard
# Project: FACIN_IA
# Monitora:
# - LLM calls
# - Agent performance
```

```
# - Error rates
# - Latency metrics
```

1.7.2 Application Logs

```
# Local Logs
tail -f logs/app_YYYYMMDD.log
tail -f logs/error_YYYYMMDD.log
tail -f logs/agentcops.log

# Heroku Logs
heroku logs --tail

# CloudWatch (AWS)
aws logs tail /aws/lambda/facin-ia --follow
```

1.7.3 Health Checks

```
# Basic health endpoint
curl http://localhost:8501

# Health check path (if implemented)
curl http://localhost:8501/health
```

1.8 Database Migrations

1.8.1 SQLite to PostgreSQL

```
# Export SQLite
sqlite3 folha_pagamento.db ".dump" > backup.sql

# Create PostgreSQL database
createdb facin_ia_prod

# Import (may need adjustments)
psql facin_ia_prod < backup.sql

# Update config
export DATABASE_URL=postgresql://user:pass@host:5432/facin_ia_prod
```

1.9 Pre-Deployment Checklist

- ☐ All tests passing (70%+ coverage)
 - ☐ Spec validation successful
 - ☐ Code quality checks passing
 - ☐ No security vulnerabilities detected
 - ☐ Documentation updated
 - ☐ CHANGELOG.md updated
 - ☐ Version bumped (if releasing)
 - ☐ Environment variables configured
 - ☐ Database backups created
 - ☐ Monitoring configured
 - ☐ Rollback plan in place
-

1.10 🚨 Rollback Procedures

1.10.1 Heroku Rollback

```
# View releases
heroku releases

# Rollback to previous version
heroku rollback v42

# Deploy specific commit
git push heroku <commit-sha>:main
```

1.10.2 Docker Rollback

```
# Use previous image tag
docker run -d \
  --name facin-ia \
  -p 8501:8501 \
  your-registry/facin-ia:1.0.0-previous
```

1.10.3 Database Rollback

```
# Restore from backup
sqlite3 folha_pagamento.db < backup.sql

# PostgreSQL
psql facin_ia_prod < backup.sql
```

1.11 📞 Support & Troubleshooting

1.11.1 Common Issues

Port already in use

```
lsof -i :8501
kill -9 <PID>
```

Module not found

```
pip install -r requirements.txt
pip install -r requirements-dev.txt
```

Database connection error

```
# Check connection string
echo $DATABASE_URL

# Test connection
python -c "import sqlite3; sqlite3.connect('folha_pagamento.db')"
```

1.11.2 Escalation

1. Check logs: logs/error_YYYYMMDD.log
2. Review recent changes: git log --oneline
3. Check status page: GitHub Status

4. Contact: gut.passos@gmail.com

1.12 Related Documentation

- [README.md](#) - Project overview
 - [QUICKSTART.md](#) - Getting started
 - [CONTRIBUTING.md](#) - Development guide
 - [ARCHITECTURE.md](#) - System design
-

Versão: 1.0.0

Data: 27/02/2026

Status: Production Ready (Maturity Level 1)