

REF-Manager

Technical Documentation

Developer and Administrator Reference

Version 4.0.0

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Contents

1 Architecture Overview

1.1 Technology Stack

Component	Technology
Framework	Django 4.2 LTS
Language	Python 3.10+
Database	SQLite (dev) / PostgreSQL 15 (prod)
Web Server	Nginx
WSGI Server	Gunicorn
Frontend	Bootstrap 5, Chart.js

2 Server Deployment

2.1 System Packages

```
sudo apt update && sudo apt upgrade -y
sudo apt install -y \
    python3.12 python3.12-venv \
    postgresql postgresql-contrib \
    nginx certbot python3-certbot-nginx git
```

2.2 PostgreSQL Setup

```
sudo -u postgres psql

CREATE DATABASE ref_manager;
CREATE USER ref_user WITH PASSWORD 'secure_password';
GRANT ALL PRIVILEGES ON DATABASE ref_manager TO ref_user;
\q
```

2.3 Application Setup

```
sudo mkdir -p /var/www/ref-manager
cd /var/www/ref-manager

git clone https://github.com/gtsoulas/ref-manager.git .
python3 -m venv venv
source venv/bin/activate
pip install -r requirements.txt
pip install gunicorn psycpg2-binary requests

mkdir -p static media logs
```

2.4 Environment Configuration

Create `/var/www/ref-manager/.env`:

```
DEBUG=False
SECRET_KEY=your-secure-secret-key
```

```
ALLOWED_HOSTS=your-domain.ac.uk
DATABASE_URL=postgres://ref_user:password@localhost:5432/ref_manager
STATIC_ROOT=/var/www/ref-manager/static
MEDIA_ROOT=/var/www/ref-manager/media
```

2.5 Gunicorn Service

Create `/etc/systemd/system/gunicorn-ref-manager.service`:

```
[Unit]
Description=Gunicorn daemon for REF-Manager
After=network.target

[Service]
User=www-data
WorkingDirectory=/var/www/ref-manager
ExecStart=/var/www/ref-manager/venv/bin/gunicorn \
    --bind 127.0.0.1:8000 \
    --workers 4 \
    config.wsgi:application
Restart=always

[Install]
WantedBy=multi-user.target
```

Enable and start:

```
sudo systemctl daemon-reload
sudo systemctl enable gunicorn-ref-manager
sudo systemctl start gunicorn-ref-manager
```

2.6 Nginx Configuration

Create `/etc/nginx/sites-available/ref-manager`:

```
server {
    listen 443 ssl http2;
    server_name your-domain.ac.uk;

    ssl_certificate /etc/letsencrypt/live/.../fullchain.pem;
    ssl_certificate_key /etc/letsencrypt/live/.../privkey.pem;

    location /static/ {
        alias /var/www/ref-manager/static/;
    }

    location / {
        proxy_pass http://127.0.0.1:8000;
        proxy_set_header Host $http_host;
    }
}
```

3 Database Schema (v4.0)

3.1 New O/S/R Fields

```
# Self-Assessment
originality_self = DecimalField(max_digits=3, decimal_places=2)
significance_self = DecimalField(max_digits=3, decimal_places=2)
rigour_self = DecimalField(max_digits=3, decimal_places=2)

# Internal Panel
originality_internal = DecimalField(...)
significance_internal = DecimalField(...)
rigour_internal = DecimalField(...)

# External (Critical Friend)
originality_external = DecimalField(...)
significance_external = DecimalField(...)
rigour_external = DecimalField(...)
```

3.2 OA Compliance Fields

```
acceptance_date = DateField(null=True)
deposit_date = DateField(null=True)
embargo_end_date = DateField(null=True)
oa_status = CharField(choices=OA_STATUS_CHOICES)
oa_exception = CharField(choices=OA_EXCEPTION_CHOICES)
```

4 API Reference

4.1 DOI Metadata Endpoint

- **URL:** /outputs/fetch-doi/
- **Method:** GET
- **Parameter:** doi – DOI to look up

Response:

```
{
  "success": true,
  "data": {
    "title": "Paper Title",
    "publication_year": 2024,
    "all_authors": "Smith, J., Jones, A.",
    "oa_status": "gold"
  }
}
```

5 Backup & Recovery

5.1 Database Backup

```
pg_dump -U ref_user ref_manager > backup.sql
```

5.2 Restore

```
psql -U ref_user ref_manager < backup.sql
```

6 Contact

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