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# 1 REF Manager v2.0 - Troubleshooting Guide

## Problem Solving and Solutions

**Version:** 2.0.0

**Last Updated:** November 3, 2025

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### 1.1 📄 Quick Problem Finder

**Installation Issues** - [Python version problems](#) - [Package installation failures](#) - [Virtual environment errors](#)

**Runtime Errors** - [Server won't start](#) - [Database errors](#) - [Permission denied](#)

**Feature-Specific** - [CSV import failures](#) - [Excel export problems](#) - [PDF upload issues](#) - [Login problems](#)

**Performance** - [Slow loading](#) - [Database queries](#)

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### 1.2 📄 Installation Issues

#### 1.2.1 Python Version Issues

**Problem:** Wrong Python version or Python 3.13 compatibility errors

**Error Messages:**

`TypeError: unsupported operand type(s) for *: 'decimal.Decimal' and 'float'`

**Solution:** 1. Check Python version: `bash python3 --version` Should be 3.10 or higher.

2. If you have Python 3.13, the decimal issue is fixed in v2.0. Update to latest code.

3. For decimal errors in `required_outputs`:

```
# In models.py, change:  
return self.fte * 2.5  
# To:  
return float(self.fte) * 2.5
```

#### 1.2.2 Package Installation Failures

**Problem:** `pip install` fails

**Error Messages:**

`ERROR: Could not install packages due to an EnvironmentError`

## **Solutions:**

### **For Python 3.13:**

```
pip install --break-system-packages -r requirements.txt
```

### **For permission errors:**

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

### **For specific package failures:**

```
# Update pip first
```

```
pip install --upgrade pip
```

```
# Install packages one by one to identify problem
```

```
pip install Django==4.2.0
```

```
pip install django-crispy-forms==2.0
```

```
# etc.
```

### **For PostgreSQL adapter issues:**

```
# Install PostgreSQL development files first
```

```
sudo apt-get install libpq-dev python3-dev
```

```
# Then install psycopg2
```

```
pip install psycopg2-binary
```

## **1.2.3 Virtual Environment Errors**

**Problem:** Virtual environment not activating

### **Solutions:**

#### **Linux/macOS:**

```
# Create fresh venv
```

```
rm -rf venv
```

```
python3 -m venv venv
```

```
source venv/bin/activate
```

#### **Windows:**

```
# Create fresh venv
```

```
rmdir /s venv
```

```
python -m venv venv
```

```
venv\Scripts\activate
```

#### **If activation still fails:**

```
# Check Python venv module is installed
```

```
python3 -m pip install virtualenv
```

```
# Use virtualenv instead
```

```
virtualenv venv
```

```
source venv/bin/activate
```

## 1.3 ☐ Runtime Errors

### 1.3.1 Server Won't Start

**Problem:** python manage.py runserver fails

#### **Error 1: Port already in use**

Error: That port is already in use.

#### **Solution:**

```
# Find process using port 8000
lsof -i :8000
```

```
# Kill the process
kill -9 PID
```

```
# Or use different port
python manage.py runserver 8001
```

#### **Error 2: Import errors**

ModuleNotFoundError: No module named 'crispy\_forms'

#### **Solution:**

```
# Ensure virtual environment is activated
source venv/bin/activate
```

```
# Reinstall requirements
pip install -r requirements.txt
```

#### **Error 3: Settings errors**

django.core.exceptions.ImproperlyConfigured: The SECRET\_KEY setting must not be empty

#### **Solution:**

```
# Check .env file exists
ls -la .env
```

```
# Generate new SECRET_KEY
python -c "from django.core.management.utils import get_random_secret_key; print(get_random_secret_key())"
```

```
# Add to .env file
echo "SECRET_KEY=generated-key-here" >> .env
```

### 1.3.2 Database Errors

**Problem:** Database migrations fail

#### **Error: No such table**

django.db.utils.OperationalError: no such table: core\_colleague

#### **Solution:**

```
# Run migrations
python manage.py migrate
```

```
# If that fails, try:
python manage.py migrate --run-syncdb
```

### **Error: Migration conflicts**

```
django.db.migrations.exceptions.InconsistentMigrationHistory
```

### **Solution:**

```
# Show migrations
python manage.py showmigrations
```

```
# Fake problematic migration
python manage.py migrate core --fake 0001
```

```
# Then run normally
python manage.py migrate
```

### **Error: PostgreSQL connection refused**

```
FATAL: password authentication failed for user "ref_manager_user"
```

### **Solution:**

```
# Check PostgreSQL is running
sudo systemctl status postgresql
```

```
# Start if needed
sudo systemctl start postgresql
```

```
# Reset password
sudo -u postgres psql
ALTER USER ref_manager_user WITH PASSWORD 'new_password';
\q
```

```
# Update .env file with new password
```

## **1.3.3 Permission Denied Errors**

**Problem:** Can't access files or database

### **Error:**

```
PermissionError: [Errno 13] Permission denied: '/path/to/file'
```

### **Solutions:**

#### **For database file:**

```
# SQLite database
chmod 664 db.sqlite3
chmod 775 .
```

#### **For media files:**

```
chmod -R 755 media/
```

**For logs:**

```
mkdir -p logs  
chmod 775 logs
```

---

## 1.4 □ Feature-Specific Issues

### 1.4.1 CSV Import Issues

**Problem:** CSV import fails or gives errors

**Error 1: Encoding problems**

UnicodeDecodeError: 'utf-8' codec can't decode byte

**Solution:**

```
# Save CSV as UTF-8 in Excel:  
# File → Save As → CSV UTF-8 (Comma delimited) (.csv)  
  
# Or convert existing file:  
iconv -f ISO-8859-1 -t UTF-8 oldfile.csv > newfile.csv
```

**Error 2: Missing required columns**

ValidationError: Missing required columns: title, all\_authors

**Solution:** - Download CSV template from import page - Ensure all required columns present: - title - all\_authors - publication\_venue - publication\_type - publication\_date - quality\_rating - author\_email - uoa - ref\_eligible

**Error 3: Date format errors**

ValidationError: Invalid date format

**Solution:** - Use YYYY-MM-DD format: 2025-01-15 - Not DD/MM/YYYY or MM/DD/YYYY

**Error 4: Email not matching colleague**

Warning: No colleague found with email: x@example.com

**Solution:** - Ensure colleague exists in system first - Check email spelling matches exactly - Or add colleague before import

**Error 5: Quality rating invalid**

ValidationError: Quality rating must be 0, 1, 2, 3, or 4

**Solution:** - Use numbers only: 0, 1, 2, 3, or 4 - 0 = Unclassified - 4 = 4\* (World-Leading)

### 1.4.2 Excel Export Issues

**Problem:** Excel export fails or links don't work

### **Error 1: Export button does nothing**

Check browser console for JavaScript errors

#### **Solution:**

```
# Reinstall openpyxl
pip install --force-reinstall openpyxl
```

```
# Check version
pip show openpyxl
# Should be 3.1.2+
```

### **Error 2: Links not clickable**

**Solution:** - Ensure PDFs are uploaded for outputs - Check PDF files are accessible - Verify file paths in media directory

### **Error 3: File download fails**

#### **Solution:**

```
# Check disk space
df -h
```

```
# Check permissions
ls -la media/pdfs/
```

```
# Check media URL in settings
python manage.py shell
>>> from django.conf import settings
>>> print(settings.MEDIA_ROOT)
>>> print(settings.MEDIA_URL)
```

## **1.4.3 PDF Upload Issues**

**Problem:** Can't upload PDF files

### **Error 1: File too large**

RequestDataTooBig: The request's size exceeds the maximum allowed

#### **Solution:**

```
# In settings.py, add:
DATA_UPLOAD_MAX_MEMORY_SIZE = 20971520 # 20MB
FILE_UPLOAD_MAX_MEMORY_SIZE = 20971520 # 20MB
```

#### **For Nginx:**

```
# In nginx config
client_max_body_size 20M;
```

### **Error 2: Invalid file type**

ValidationError: Only PDF files allowed

**Solution:** - Ensure file extension is .pdf - Check file is actually PDF (not renamed) - Maximum 20MB per file

### **Error 3: Upload directory not writable**

PermissionError: [Errno 13] Permission denied: '/path/to/media/pdfs/'

#### **Solution:**

```
mkdir -p media/pdfs
chmod -R 755 media
chown -R your-username:your-username media
```

### **1.4.4 Authentication Issues**

**Problem:** Can't log in

#### **Error 1: Forgot password**

##### **Solution:**

```
# Reset password via command line
python manage.py changepassword username
```

#### **Error 2: User doesn't exist**

##### **Solution:**

```
# Create new user
python manage.py createsuperuser
```

```
# Or create via shell
python manage.py shell
>>> from django.contrib.auth.models import User
>>> User.objects.create_user('username', 'email@example.com', 'password')
```

#### **Error 3: Session expired**

**Solution:** - Just log in again - To extend sessions, in settings.py:

```
SESSION_COOKIE_AGE = 86400 # 24 hours
```

---

## **1.5 ⚡ Performance Issues**

### **1.5.1 Slow Loading**

**Problem:** Pages load slowly

#### **Diagnosis:**

```
# Enable Django Debug Toolbar
pip install django-debug-toolbar

# Add to INSTALLED_APPS in settings.py
INSTALLED_APPS = [
    # ...
    'debug_toolbar',
]
```



```
# Add to MIDDLEWARE
MIDDLEWARE = [
    # ...
    'debug_toolbar.middleware.DebugToolbarMiddleware',
]
```

```
# Add to urls.py
import debug_toolbar
urlpatterns = [
    # ...
    path('__debug__/', include(debug_toolbar.urls)),
]
```

```
# Set INTERNAL_IPS
INTERNAL_IPS = ['127.0.0.1']
```

### **Solutions:**

#### **1. Database query optimization:**

```
# Use select_related for foreign keys
colleagues = Colleague.objects.select_related('user').all()
```

```
# Use prefetch_related for reverse relationships
colleagues = Colleague.objects.prefetch_related('outputs').all()
```

#### **2. Add database indexes:**

```
python manage.py makemigrations
python manage.py migrate
```

#### **3. Enable caching:**

```
# settings.py
CACHES = {
    'default': {
        'BACKEND': 'django.core.cache.backends.locmem.LocMemCache',
        'LOCATION': 'unique-snowflake',
    }
}
```

### **1.5.2 Slow Database Queries**

**Problem:** Database queries taking too long

#### **Diagnosis:**

```
# Enable query logging
# settings.py
LOGGING = {
    'version': 1,
    'handlers': {
        'console': {
            'class': 'logging.StreamHandler',
```

```

        },
    },
    'loggers': {
        'django.db.backends': {
            'handlers': ['console'],
            'level': 'DEBUG',
        },
    },
}

```

## Solutions:

### 1. Reduce number of queries:

```

# Bad - N+1 queries
for colleague in Colleague.objects.all():
    print(colleague.user.username)

# Good - 2 queries
for colleague in Colleague.objects.select_related('user'):
    print(colleague.user.username)

```

### 2. Use aggregation:

```

from django.db.models import Count

# Bad
for colleague in Colleague.objects.all():
    count = colleague.outputs.count()

# Good
colleagues = Colleague.objects.annotate(
    output_count=Count('outputs')
)

```

### 3. Switch to PostgreSQL for large datasets

---

## 1.6 Data Issues

### 1.6.1 Category Field Inconsistencies

**Problem:** Categories stored with both hyphens and underscores

**Error:**

Colleague shows 'non-independent' in database but 'non\_independent' in code

**Solution:**

```

# Run data migration
python manage.py shell

from core.models import Colleague

```

```
# Fix hyphenated entries
colleagues = Colleague.objects.filter(colleague_category='non-independent')
for c in colleagues:
    c.colleague_category = 'non_independent'
    c.save()

print(f"Fixed {colleagues.count()} colleagues")
```

### 1.6.2 Missing Dropdowns

**Problem:** Colleague categories or status not showing in forms

**Solution:**

#### 1. Check model choices are correct:

```
# In models.py
COLLEAGUE_CATEGORY_CHOICES = [
    ('non_independent', 'Non-Independent Researcher'),
    # Ensure underscore, not hyphen
]
```

#### 2. Run migrations:

```
python manage.py makemigrations
python manage.py migrate
```

**3. Clear browser cache:** - Ctrl+Shift+R (hard refresh) - Or clear all cache

#### 4. Collect static files:

```
python manage.py collectstatic --clear --noinput
```

---

## 1.7 Systemd Service Issues

**Problem:** Systemd service won't start

**Error:**

```
Job for ref-manager.service failed
```

**Diagnosis:**

```
# Check service status
sudo systemctl status ref-manager

# View logs
sudo journalctl -u ref-manager -n 50
```

**Common Issues:**

#### 1. Wrong username in service file

```
# /etc/systemd/system/ref-manager.service
[Service]
User=CORRECT_USERNAME # Must match your actual username
```

## 2. Wrong paths

```
WorkingDirectory=/home/CORRECT_USERNAME/ref-project-app/ref-manager
ExecStart=/home/CORRECT_USERNAME/ref-project-app/ref-manager/venv/bin/gunicorn.
```

## 3. Virtual environment not activated

```
Environment="PATH=/home/USERNAME/ref-project-app/ref-manager/venv/bin"
```

### Fix and reload:

```
# Edit service file
sudo nano /etc/systemd/system/ref-manager.service
```

```
# Reload systemd
sudo systemctl daemon-reload
```

```
# Restart service
sudo systemctl restart ref-manager
```

```
# Check status
sudo systemctl status ref-manager
```

---

## 1.8 Template Errors

**Problem:** Template syntax errors

### Error:

TemplateSyntaxError: Invalid block tag

### Common causes:

#### 1. Unbalanced tags:

```
<!-- Bad -->
{% if condition %}
    <div>Content</div>
<!-- Missing {% endif %} -->
```

```
<!-- Good -->
{% if condition %}
    <div>Content</div>
{% endif %}
```

#### 2. Missing template tag load:

```
<!-- Bad -->
{{ value|custom_filter }}
```

```
<!-- Good -->
```

```
{% load custom_filters %}
{{ value|custom_filter }}
```

### 3. Wrong quote types:

```
<!-- Bad -->
href="{% url 'core:view_name" %}"

<!-- Good -->
href="{% url 'core:view_name' %}"
```

---

## 1.9 □ Development Tools

### 1.9.1 Django Shell Issues

**Problem:** Can't access Django shell

**Solution:**

```
# Standard shell
python manage.py shell

# Enhanced shell (install ipython)
pip install ipython
python manage.py shell
```

### 1.9.2 Missing Admin Styling

**Problem:** Admin panel has no CSS

**Solution:**

```
# Collect static files
python manage.py collectstatic --noinput

# Check STATIC_ROOT setting
python manage.py shell
>>> from django.conf import settings
>>> print(settings.STATIC_ROOT)

# Restart server
sudo systemctl restart ref-manager
```

---

## 1.10 □ Getting Additional Help

### 1.10.1 Information to Include When Seeking Help

When reporting issues, include:

## 1. System Information:

```
# Python version
python3 --version
```

```
# Django version
python manage.py version
```

```
# OS information
uname -a
```

**2. Error Message:** - Full error traceback - When error occurs - Steps to reproduce

**3. Recent Changes:** - What was changed before error - New packages installed - Configuration changes

## 4. Logs:

```
# Application logs
tail -n 100 logs/django.log
```

```
# System service logs
sudo journalctl -u ref-manager -n 100
```

```
# Nginx logs (if applicable)
sudo tail -n 100 /var/log/nginx/error.log
```

### 1.10.2 Diagnostic Commands

```
# Check Django installation
python manage.py check
```

```
# Check deployment settings
python manage.py check --deploy
```

```
# Show migrations
python manage.py showmigrations
```

```
# Show database state
python manage.py dbshell
.tables # (in SQLite)
\dt    # (in PostgreSQL)
```

```
# Test database connection
python manage.py shell
>>> from django.db import connection
>>> connection.ensure_connection()
>>> print("Connected!")
```

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## 1.11 □ Common Error Messages Index

Error	Section
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**Maintained by:** George Tsoulas

For additional support, see complete documentation suite or contact system administrator.