

CUBE - PRO

Troubleshooting Guide

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Enterprise Work Order Management System
Technical Documentation

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1. System Overview

CUBE - PRO is a Flask-based enterprise work order management system built with Python, SQLAlchemy, and Bootstrap. This troubleshooting guide covers common issues, their root causes, and step-by-step solutions for system administrators and technical support teams.

System Architecture

- Frontend: HTML5, CSS3, JavaScript, Bootstrap 5
- Backend: Python Flask Framework
- Database: SQLite (Development), PostgreSQL/MySQL (Production)
- Authentication: Flask-Login with role-based access
- Email: SMTP integration for notifications
- Deployment: WSGI-compatible servers (Gunicorn, uWSGI)

2. Authentication Issues

2.1 Login Failures

Issue	Root Cause	Solution
Invalid credentials error	Wrong username/password	1. Verify credentials 2. Check caps lock 3. Reset password if needed
User account locked	Multiple failed login attempts	1. Check user.is_active status 2. Reset account via admin panel 3. Clear failed login attempts
Session expires immediately	Flask session configuration	1. Check SECRET_KEY configuration 2. Verify session timeout settings 3. Check browser cookies
Role permissions denied	Incorrect user role assignment	1. Verify user role in database 2. Check role permissions 3. Update user role if needed
Login page not loading	Template or route issues	1. Check Flask routes 2. Verify template files 3. Check static file serving

3. Database Connection Problems

3.1 Connection Issues

Problem: Database file not found (SQLite)

Root Cause: Missing database file or incorrect path

Solution:

```
1. Check SQLAlchemy_DATABASE_URI in config 2. Run database
initialization: python -c "from app import db; db.create_all()" 3. Verify
file permissions
```

Problem: OperationalError: no such table

Root Cause: Database tables not created

Solution:

```
1. Run migrations: flask db upgrade 2. Initialize database: python
init_db.py 3. Check model definitions
```

Problem: Connection timeout

Root Cause: Database server unavailable or network issues

Solution:

```
1. Check database server status 2. Verify network connectivity 3. Check
connection pool settings 4. Review firewall rules
```

Problem: Permission denied errors

Root Cause: Insufficient database user privileges

Solution:

```
1. Check database user permissions 2. Grant necessary privileges 3.
Verify database user exists 4. Check connection string credentials
```

4. Work Order Management Issues

4.1 Work Order Creation Problems

Work order creation fails

Cause: Form validation errors or database constraints

Solution: 1. Check required fields are filled 2. Verify data types and lengths 3. Check foreign key constraints 4. Review form validation logic

Work order number not generating

Cause: Auto-increment or sequence issues

Solution: 1. Check work_order_number generation logic 2. Verify database sequence 3. Check for duplicate numbers 4. Reset sequence if needed

Status transitions not working

Cause: Workflow validation or permission issues

Solution: 1. Check status transition rules 2. Verify user permissions 3. Review workflow logic 4. Check WorkOrderStatus table

Assignment notifications not sent

Cause: Email configuration or template issues

Solution: 1. Check SMTP settings 2. Verify email templates 3. Check notification triggers 4. Review email logs

5. Product Management Issues

Product creation fails with duplicate error

Unique constraint violation on product code

1. Check for existing product codes 2. Use different product code 3. Review unique constraints 4. Check data import process

Company-product relationship broken

Foreign key constraint or orphaned records

1. Verify company exists 2. Check foreign key relationships 3. Clean up orphaned records 4. Re-establish relationships

Product images not displaying

File path issues or missing static files

1. Check static file configuration 2. Verify image file paths 3. Check file permissions 4. Review upload directory settings

6. Email Management Issues

Issue	Diagnostic Steps	Solution
SMTP connection failed	1. Test SMTP settings 2. Check firewall 3. Verify credentials	1. Update SMTP configuration 2. Use app passwords for Gmail 3. Check port settings (587/465)
Emails not sending	1. Check email logs 2. Verify templates 3. Test connectivity	1. Fix SMTP configuration 2. Update email templates 3. Check email queue
Template rendering errors	1. Check template syntax 2. Verify variables 3. Test rendering	1. Fix Jinja2 syntax 2. Add missing variables 3. Update template logic
High bounce rate	1. Check email addresses 2. Review content 3. Check reputation	1. Clean email list 2. Improve content 3. Use proper sender domain

8. Performance Issues

Performance issues can significantly impact user experience. Here are common performance problems and solutions:

Symptom	Likely Cause	Optimization
Slow page loading	Large database queries Unoptimized templates	1. Add database indexes 2. Optimize queries 3. Use pagination 4. Enable caching
High memory usage	Memory leaks Large datasets in memory	1. Check for memory leaks 2. Use lazy loading 3. Implement pagination 4. Optimize data structures

Database timeouts	Long-running queries Locking issues	<ol style="list-style-type: none"> 1. Optimize slow queries 2. Add proper indexes 3. Use connection pooling 4. Analyze query plans
High CPU usage	Inefficient algorithms Too many requests	<ol style="list-style-type: none"> 1. Profile code performance 2. Optimize algorithms 3. Implement rate limiting 4. Use caching

12. Emergency Procedures

In case of critical system failures, follow these emergency procedures:

12.1 System Down

1. Check server status and logs 2. Verify database connectivity 3. Restart application services 4. Check system resources (CPU, memory, disk) 5. Review recent changes or deployments 6. Contact system administrator if issue persists

12.2 Data Corruption

1. STOP all write operations immediately 2. Backup current state 3. Identify scope of corruption 4. Restore from latest known good backup 5. Verify data integrity 6. Document incident for analysis

12.3 Security Breach

1. Isolate affected systems 2. Change all admin passwords 3. Review access logs 4. Check for unauthorized changes 5. Update security patches 6. Notify relevant stakeholders 7. Document and report incident

13. Appendix: Common Error Codes

Error Code	Description	Action Required
ERR_DB_001	Database connection failed	Check database server and connection string
ERR_AUTH_002	Authentication failure	Verify user credentials and account status
ERR_PERM_003	Permission denied	Check user role and permissions
ERR_VAL_004	Form validation error	Review form input data and constraints
ERR_FILE_005	File upload failed	Check file size, type, and storage permissions
ERR_EMAIL_006	Email sending failed	Verify SMTP configuration and connectivity
ERR_WO_007	Work order creation failed	Check required fields and business rules
ERR_PROD_008	Product operation failed	Verify product data and relationships
ERR_SYS_009	System configuration error	Review system settings and configuration
ERR_NET_010	Network connectivity issue	Check network connection and firewall settings

14. Contact Information

For additional technical support or to report issues not covered in this guide, please contact the appropriate support team:

Support Level	Contact Method	Response Time
Level 1 - General Support	help@cubeproapp.com Phone: +1-800-CUBE-PRO	24 hours
Level 2 - Technical Issues	tech-support@cubeproapp.com Phone: +1-800-CUBE-TEC	8 hours
Level 3 - Critical Issues	emergency@cubeproapp.com Phone: +1-800-CUBE-911	2 hours
Development Team	dev-team@cubeproapp.com	48 hours
Security Issues	security@cubeproapp.com PGP Key Available	Immediate

Note: Keep this troubleshooting guide accessible to all technical staff. Regular updates will be provided as new issues are identified and resolved.

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