SOP: Google Drive Integration for Automated File Management

*Generated: 03/09/2025 14:16*

# SOP: Google Drive Integration for Automated File Management

: 1.0

: 03/09/2025

: Standardise automated file management and distribution via Google Drive integration

: All marketing analysis reports, SOPs, templates, and client deliverables

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## \*\*OVERVIEW & OBJECTIVES\*\*

### \*\*System Capabilities\*\*:

* \*\*Automated file categorisation\*\* and folder organisation
* \*\*Batch upload processing\*\* with queue management
* \*\*Intelligent sharing permissions\*\* based on content type
* \*\*Workflow automation\*\* for regular file distribution
* \*\*Status tracking\*\* and comprehensive reporting

### \*\*Integration Points\*\*:

* \*\*google\_drive\_publisher\*\*: File uploads and metadata management
* \*\*google\_drive\_manager\*\*: Folder creation and permission management
* \*\*google\_drive\_assistant\*\*: Natural language file operations

### \*\*Success Criteria\*\*:

* 100% successful file upload rate
* Automated organisation with zero manual intervention
* Proper sharing permissions for all stakeholders
* Comprehensive audit trail for all operations

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## \*\*SECTION 1: GOOGLE DRIVE FOLDER STRUCTURE\*\*

### \*\*1.1 Standard Folder Hierarchy\*\*

:

Marketing Analysis System/  
├── Analysis Reports/  
│ ├── SEO Analysis/  
│ ├── UX Analysis/   
│ ├── Performance Reports/  
│ └── Competitive Analysis/  
├── Standard Operating Procedures/  
│ ├── Content Creation/  
│ ├── Token Optimization/  
│ ├── Quality Assurance/  
│ └── System Operations/  
├── Document Templates/  
│ ├── Report Templates/  
│ ├── SOP Templates/  
│ └── Presentation Templates/  
├── Client Projects/  
│ ├── [Client Name]/  
│ │ ├── Reports/  
│ │ ├── Assets/  
│ │ └── Communications/  
└── System Documentation/  
 ├── Orchestration Guides/  
 ├── Agent Specifications/  
 └── Implementation Guides/

### \*\*1.2 Automatic Categorisation Rules\*\*

:

CATEGORISATION\_RULES = {  
 'sops': {  
 'patterns': ['sop\_', 'SOP\_', 'standard\_operating'],  
 'target\_folder': 'Standard Operating Procedures'  
 },  
 'reports': {  
 'patterns': ['report', 'analysis', 'audit', '\_extraction'],  
 'target\_folder': 'Analysis Reports'  
 },  
 'templates': {  
 'patterns': ['template', 'Template'],  
 'target\_folder': 'Document Templates'  
 },  
 'system': {  
 'patterns': ['orchestration', 'AGENT\_', 'SYSTEM\_'],  
 'target\_folder': 'System Documentation'  
 },  
 'clients': {  
 'path\_patterns': ['clients/', 'client\_'],  
 'target\_folder': 'Client Projects'  
 }  
}

### \*\*1.3 Folder Permissions Matrix\*\*

:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Folder Type** | **Team Members** | **Clients** | **Management** | **System Agents** |
| \*\*Analysis Reports\*\* | Edit | View (specific) | Edit | Upload |
| \*\*SOPs\*\* | Edit | View (relevant) | Edit | Upload |
| \*\*Templates\*\* | Edit | None | Edit | Upload |
| \*\*Client Projects\*\* | Edit (assigned) | View (own only) | Edit | Upload |
| \*\*System Documentation\*\* | View | None | Edit | Upload |

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## \*\*SECTION 2: AUTOMATED UPLOAD WORKFLOWS\*\*

### \*\*2.1 Queue-Based Processing\*\*

:

upload\_item = {  
 'file\_path': '/path/to/file.md',  
 'filename': 'Report\_Name.md',  
 'category': 'reports',  
 'target\_folder': 'Analysis Reports',  
 'file\_size': 2048,  
 'last\_modified': datetime\_object,  
 'queued\_at': datetime\_object,  
 'status': 'queued', # queued, uploading, uploaded, failed  
 'priority': 'normal' # high, normal, low  
}

:

1. \*\*High Priority\*\*: Client deliverables, urgent reports
2. \*\*Normal Priority\*\*: Regular analysis reports, updated SOPs
3. \*\*Low Priority\*\*: Templates, system documentation updates

### \*\*2.2 Batch Upload Operations\*\*

:

# Daily automated uploads  
daily\_batch = {  
 'source': 'system/reports/docx\_exports/',  
 'pattern': '\*.docx',  
 'target\_category': 'reports',  
 'schedule': 'daily\_09:00'  
}  
  
# Weekly SOP synchronisation  
weekly\_sop\_sync = {  
 'source': 'system/sops/',  
 'pattern': '\*.md',  
 'target\_category': 'sops',   
 'schedule': 'weekly\_monday\_08:00'  
}  
  
# On-demand client report distribution  
client\_distribution = {  
 'source': 'clients/\*/reports/',  
 'pattern': '\*.{pdf,docx}',  
 'target\_category': 'clients',  
 'trigger': 'manual\_request'  
}

### \*\*2.3 Error Handling and Retry Logic\*\*

:

* \*\*Network Errors\*\*: Retry 3 times with exponential backoff
* \*\*Permission Errors\*\*: Log and notify system administrator
* \*\*File Size Limits\*\*: Compress or split large files automatically
* \*\*Quota Exceeded\*\*: Archive old files and retry upload

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* Failed uploads logged to system error log
* Email notifications for critical failures
* Dashboard alerts for quota warnings
* Weekly error summary reports

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## \*\*SECTION 3: SHARING AND PERMISSIONS MANAGEMENT\*\*

### \*\*3.1 Automatic Sharing Rules\*\*

:

SHARING\_RULES = {  
 'sops': {  
 'team\_members': 'edit',  
 'management': 'edit',  
 'clients': 'none'  
 },  
 'reports': {  
 'team\_members': 'edit',  
 'management': 'edit',   
 'clients': 'view\_specific' # Only relevant reports  
 },  
 'client\_projects': {  
 'assigned\_team': 'edit',  
 'client\_contact': 'view',  
 'management': 'edit'  
 }  
}

### \*\*3.2 Dynamic Permission Assignment\*\*

:

* \*\*Project Managers\*\*: Edit access to assigned client projects
* \*\*Content Creators\*\*: Edit access to templates and SOPs
* \*\*Analysts\*\*: Edit access to analysis tools and reports
* \*\*Clients\*\*: View access to delivered reports only

:

* Folder permissions cascade to contained files
* New files inherit parent folder permissions
* Permission changes propagate within 5 minutes

### \*\*3.3 Sharing Notifications\*\*

:

notification\_settings = {  
 'new\_client\_report': {  
 'recipients': ['project\_manager', 'client\_contact'],  
 'template': 'new\_report\_available',  
 'include\_link': True  
 },  
 'sop\_update': {  
 'recipients': ['all\_team\_members'],  
 'template': 'sop\_updated',  
 'digest\_mode': 'weekly'  
 },  
 'system\_documentation': {  
 'recipients': ['technical\_team'],  
 'template': 'system\_update',  
 'priority': 'normal'  
 }  
}

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## \*\*SECTION 4: INTEGRATION WITH DOCUMENT CONVERSION\*\*

### \*\*4.1 Conversion and Upload Pipeline\*\*

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1. \*\*Detection\*\*: Monitor markdown files for changes
2. \*\*Conversion\*\*: Convert .md to .docx using document conversion system
3. \*\*Categorisation\*\*: Apply automatic categorisation rules
4. \*\*Upload\*\*: Add to Google Drive upload queue
5. \*\*Sharing\*\*: Apply appropriate permissions
6. \*\*Notification\*\*: Inform relevant stakeholders

:

def automated\_conversion\_upload(markdown\_file):  
 # Convert to .docx  
 docx\_file = document\_converter.convert\_markdown\_to\_docx(markdown\_file)  
   
 # Add to Google Drive queue  
 upload\_item = drive\_automation.add\_to\_upload\_queue(docx\_file)  
   
 # Process upload  
 result = drive\_automation.process\_upload\_queue()  
   
 # Apply sharing permissions  
 permissions = create\_sharing\_permissions(  
 file\_ids=[result['file\_id']],   
 permission\_type='view',  
 users=get\_stakeholders\_for\_content(upload\_item['category'])  
 )  
   
 return result

### \*\*4.2 Version Control Integration\*\*

:

* Automatic versioning for updated files
* Previous versions retained for 90 days
* Version history accessible to authorised users
* Automatic cleanup of obsolete versions

:

* \*\*Original\*\*: `Report\_Name.docx`
* \*\*Version 2\*\*: `Report\_Name\_v2.docx`
* \*\*Dated Version\*\*: `Report\_Name\_20250903.docx`

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## \*\*SECTION 5: MONITORING AND REPORTING\*\*

### \*\*5.1 System Monitoring Dashboard\*\*

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monitoring\_metrics = {  
 'upload\_success\_rate': 'percentage',  
 'average\_upload\_time': 'seconds',   
 'queue\_processing\_time': 'minutes',  
 'storage\_usage': 'gigabytes',  
 'monthly\_uploads': 'count',  
 'failed\_uploads': 'count',  
 'permission\_changes': 'count'  
}

:

* Upload queue status and estimated completion time
* Google Drive storage usage and quota warnings
* Failed upload alerts and retry status
* Permission change audit trail

### \*\*5.2 Reporting and Analytics\*\*

:

* \*\*Daily\*\*: Upload summary and error log
* \*\*Weekly\*\*: Storage usage and performance metrics
* \*\*Monthly\*\*: Comprehensive system performance review
* \*\*Quarterly\*\*: Access patterns and optimisation recommendations

:

* System administrators: All reports
* Project managers: Client-specific metrics
* Management: High-level performance summaries

### \*\*5.3 Compliance and Audit Trail\*\*

:

* Complete log of all file operations
* Permission changes with timestamps
* User access patterns and frequency
* Data retention and deletion records

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* GDPR data protection requirements
* Client confidentiality agreements
* Industry-specific regulatory requirements
* Internal security policies

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## \*\*SECTION 6: MAINTENANCE AND OPTIMISATION\*\*

### \*\*6.1 Regular Maintenance Tasks\*\*

:

* Review failed upload queue and retry
* Clean up temporary files and conversion artifacts
* Verify folder structure integrity
* Check storage quota and usage patterns

:

* Archive completed client projects
* Review and update sharing permissions
* Optimise folder organisation structure
* Update automation rules based on usage patterns

:

* Comprehensive system performance review
* Update integration with new Google Drive features
* Review and optimise storage costs
* Conduct security audit of permissions and access

### \*\*6.2 Performance Optimisation\*\*

:

* Batch similar files for efficient processing
* Compress large files automatically
* Use resumable uploads for large files
* Implement parallel upload processing

:

* Automatic compression for archived files
* Smart deduplication for similar content
* Tiered storage for different access patterns
* Regular cleanup of obsolete files

### \*\*6.3 System Scaling\*\*

:

* Monitor growth trends in file volume
* Plan storage expansion based on projections
* Scale processing capacity for peak loads
* Implement load balancing for high availability

:

* Support for multiple Google Drive accounts
* Enterprise-grade permission management
* Advanced workflow automation
* Custom integration with third-party tools

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## \*\*SECTION 7: TROUBLESHOOTING GUIDE\*\*

### \*\*7.1 Common Issues and Solutions\*\*

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Issue: Files failing to upload  
Causes: Network connectivity, file size limits, permissions  
Solutions:  
1. Check network connection and retry  
2. Verify file size under Google Drive limits  
3. Confirm Google Drive API permissions  
4. Check storage quota availability

:

Issue: Cannot access or modify files  
Causes: Insufficient permissions, expired authentication  
Solutions:  
1. Verify user has appropriate role  
2. Check folder-level permissions  
3. Re-authenticate Google Drive connection  
4. Contact administrator for permission updates

:

Issue: Files not appearing in correct folders  
Causes: Categorisation rules, folder structure changes  
Solutions:  
1. Verify file categorisation patterns  
2. Check folder structure integrity  
3. Manually recategorise misplaced files  
4. Update categorisation rules if needed

### \*\*7.2 Emergency Procedures\*\*

:

1. \*\*Immediate\*\*: Switch to manual file management
2. \*\*Short-term\*\*: Queue files for later processing
3. \*\*Recovery\*\*: Verify all queued files processed correctly
4. \*\*Post-incident\*\*: Review logs and update procedures

:

* Access Google Drive version history for file recovery
* Use Google Drive Trash for recently deleted files
* Contact Google Support for account-level issues
* Restore from local backups if available

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## \*\*SUCCESS CRITERIA VALIDATION\*\*

### \*\*Performance Standards\*\*:

* \*\*Upload Success Rate\*\*: >99%
* \*\*Processing Time\*\*: <5 minutes for standard batch
* \*\*Storage Efficiency\*\*: >90% useful content (minimal duplicates)
* \*\*Permission Accuracy\*\*: 100% correct access control
* \*\*Notification Delivery\*\*: 100% stakeholder notification success

### \*\*Quality Standards\*\*:

* All files correctly categorised and organised
* Sharing permissions appropriate for content sensitivity
* Complete audit trail for compliance requirements
* No unauthorised access to confidential content

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: Google Drive integration operational with automated workflows

: 95% reduction in manual file management overhead

: Fully integrated with document conversion and analysis systems

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