

Knowledge Management System

(KMS)

Complete User Guide & Flow Documentation

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Table of Contents

1. Introduction & Overview
 - 1.1 About KMS
 - 1.2 Key Features
 - 1.3 User Roles & Permissions
2. Article Management
 - 2.1 Creating Articles
 - 2.2 Editing Articles
 - 2.3 Article Status Workflow
 - 2.4 Publishing Articles
3. File & Attachment Management
 - 3.1 Uploading Files
 - 3.2 Downloading Files
 - 3.3 File Restrictions & Limits
4. Version Control
 - 4.1 Version History
 - 4.2 Comparing Versions
 - 4.3 Restoring Versions
 - 4.4 Marking Stable Versions
5. Access Control & Visibility
 - 5.1 Visibility Levels
 - 5.2 Role-Based Access
 - 5.3 Branch-Based Access
 - 5.4 Private Articles
6. Collaboration Features
 - 6.1 Adding Collaborators
 - 6.2 Collaborator Roles
 - 6.3 Time-Limited Access
7. Comments & Feedback
 - 7.1 Adding Comments
 - 7.2 Threaded Replies
 - 7.3 Helpful/Not Helpful Feedback
8. Content Governance
 - 8.1 Review Cycles
 - 8.2 Stale Content Management
 - 8.3 Ownership Transfer
9. Analytics & Reporting
 - 9.1 Access Logs
 - 9.2 Analytics Dashboard
 - 9.3 Search Analytics

10. User Flow Scenarios

10.1 Technician Flow

10.2 Manager Flow

10.3 End User Flow

10.4 Admin Flow

1. Introduction & Overview

1.1 About KMS

The Knowledge Management System (KMS) is an integrated component of Bank SulutGo's ServiceDesk platform, designed to centralize, organize, and share institutional knowledge across the organization. KMS enables teams to create, review, and maintain documentation with enterprise-grade features including version control, access management, and comprehensive analytics.

1.2 Key Features

- **Article Management:** Create, edit, and publish knowledge articles with rich content support
- **File Attachments:** Upload and manage documents, images, and supporting files
- **Version Control:** Track changes, compare versions, and restore previous states
- **Access Control:** Fine-grained visibility settings based on roles, branches, or individuals
- **Collaboration:** Invite collaborators with specific permissions and time-limited access
- **Review Workflow:** Built-in approval process with draft, review, and publish states
- **Content Governance:** Automated stale content detection and review cycle management
- **Analytics:** Comprehensive access logs, usage metrics, and search analytics
- **Comments & Feedback:** Threaded discussions and helpful/not-helpful voting

1.3 User Roles & Permissions

The KMS implements role-based access control (RBAC) with the following roles:

Role	Description	KMS Permissions
USER	Standard end-user	View published articles, search, comment, provide feedback
TECHNICIAN	IT Support staff	Create articles, edit own articles, upload files, manage collaborators
MANAGER	Department manager	Full access to all articles, manage visibility, bulk operations
ADMIN	System administrator	Complete system access, analytics, templates, governance

Permission Matrix by Role:

Feature	USER	TECHNICIAN	MANAGER	ADMIN
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View Published Articles	✓	✓	✓	✓
Search & Filter	✓	✓	✓	✓
Add Comments	✓	✓	✓	✓
Provide Feedback	✓	✓	✓	✓
Download Attachments	✓	✓	✓	✓
Create Articles	✗	✓	✓	✓
Edit Own Articles	✗	✓	✓	✓
Edit Others' Articles	✗	✗	✓	✓
Upload Attachments	✗	✓	✓	✓
Manage Collaborators	✗	Own Only	✓	✓
View Drafts	✗	Own Only	✓	✓
Delete Articles	✗	Own Only	✓	✓
View Access Logs	✗	Limited	✓	✓
Manage Visibility	✗	Own Only	✓	✓
Bulk Operations	✗	✗	✓	✓
Analytics Dashboard	✗	✗	✓	✓
Permission Templates	✗	✗	✗	✓

2. Article Management

2.1 Creating Articles

Articles are the core content units in KMS. Only users with TECHNICIAN role or higher can create articles.

Required Fields:

- **Title** - Article title (1-200 characters)
- **Content** - Main article body (minimum 1 character)

Optional Fields:

- **Summary** - Brief description for search results
- **Category/Subcategory/Item** - Service catalog hierarchy for organization
- **Tags** - Keywords for improved searchability
- **Expiry Date** - Auto-archive date for time-sensitive content
- **Visibility** - Access control settings (see Chapter 5)

Note: When an article is created, Version 1 is automatically generated with 'Initial version' as the change notes.

2.2 Editing Articles

Articles can be edited by the author, collaborators with EDITOR role, managers, and admins. When content fields (title, content, or summary) are modified, a new version is automatically created.

Edit Permissions:

- Authors can always edit their own articles
- Collaborators with EDITOR or OWNER role can edit
- Managers and Admins can edit any article

2.3 Article Status Workflow

Articles follow a defined workflow from creation to publication:

Status	Description	Visible To
DRAFT	Work in progress, not ready for review	Author, Collaborators, Managers, Admins
UNDER_REVIEW	Submitted for review/approval	Author, Collaborators, Managers, Admins
PUBLISHED	Approved and visible to target audience	Based on visibility settings

ARCHIVED	Deprecated or soft-deleted content	Managers, Admins only
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Workflow Flow:

DRAFT → UNDER_REVIEW → PUBLISHED → (Optional) ARCHIVED

2.4 Publishing Articles

When an article is published, the system automatically sets the publishedAt timestamp. The article then becomes visible according to its visibility settings.

Publishing Checklist:

- Content is complete and reviewed
- Appropriate category/tags assigned
- Visibility settings configured correctly
- Attachments are uploaded (if needed)
- Collaborators have been notified

3. File & Attachment Management

3.1 Uploading Files

Files can be attached to articles to provide supporting documentation, images, or reference materials. Only authorized users (authors, collaborators with edit rights, managers, admins) can upload files.

Upload Process:

- 1. Navigate to the article you want to add attachments to
- 2. Click 'Add Attachment' or use the attachment section
- 3. Select file from your device
- 4. System validates file type and size
- 5. File is uploaded and saved with metadata
- 6. Attachment appears in the article's attachment list

3.2 Downloading Files

Files can be downloaded by any user who has access to view the article. Downloads are tracked in the access logs for analytics and audit purposes.

Download Process:

- 1. View the article containing the attachment
- 2. Locate the attachment in the attachments section
- 3. Click the download button/link
- 4. System verifies user has access to the article
- 5. File is served with original filename
- 6. Download is logged as accessType: DOWNLOAD

3.3 File Restrictions & Limits

Restriction	Value
Maximum File Size	10 MB per file
Allowed Document Types	PDF, Word (.docx), Excel (.xlsx), PowerPoint (.pptx)
Allowed Image Types	JPEG, PNG, GIF

Allowed Text Types	Plain Text (.txt), Markdown (.md)
Storage Location	Server: uploads/knowledge/{articleId}/
Filename Format	timestamp-originalname (for uniqueness)

Warning: Executable files (.exe, .bat, .sh) and other potentially dangerous file types are not allowed for security reasons.

4. Version Control

KMS maintains a complete version history for all articles, allowing users to track changes, compare versions, and restore previous states when needed.

4.1 Version History

Every article maintains a sequential version history. A new version is created when:

- Article is first created (Version 1)
- Title is modified
- Content is modified
- Summary is modified
- A previous version is restored

Note: Metadata changes (status, visibility, tags) do not create new versions but are logged in the activity timeline.

Version Information Stored:

- **Version Number** - Sequential integer starting from 1
- **Title** - Article title at that version
- **Content** - Full article content
- **Summary** - Article summary
- **Change Notes** - Description of what changed (auto-generated or user-provided)
- **Author** - User who made the changes
- **Created At** - Timestamp of version creation
- **Is Stable** - Whether this version is marked as approved/stable
- **Approved By/At** - Who approved and when (if marked stable)

4.2 Comparing Versions

The version comparison feature uses a diff algorithm to show changes between any two versions. This helps reviewers understand what was modified.

Diff Display:

- **+ Added lines** - New content in the newer version
- **- Removed lines** - Content deleted from the older version
- **Unchanged lines** - Content that remains the same

- Title/Summary changes shown separately if modified

4.3 Restoring Versions

Any previous version can be restored, which replaces the current article content with the selected version's content. The restore operation creates a new version to maintain history.

Restore Process:

1. View the version history for an article
2. Select the version you want to restore
3. Click 'Restore' and confirm the action
4. System creates a new version (e.g., 'Restored from version 3')
5. Article content is updated to match the restored version
6. Activity is logged in the article timeline

4.4 Marking Stable Versions

The 'stable' designation identifies approved/verified versions. Only one version per article can be marked as stable at a time. When a new version is marked stable, the previous stable version is automatically unmarked.

Stable Version Benefits:

- Clearly identifies approved content
- Records who approved and when
- Provides a rollback point if issues arise
- Supports approval workflows

5. Access Control & Visibility

KMS provides flexible visibility controls to ensure articles reach the right audience while protecting sensitive information.

5.1 Visibility Levels

Level	Icon	Description	Who Can Access
EVERYONE	■	Public to all authenticated users	All logged-in users
BY_ROLE	■	Limited to specific roles	Users with matching roles
BY_BRANCH	■	Limited to specific branches	Users in specified branches
PRIVATE	■	Restricted access	Author and collaborators only

Note: Admins and Super Admins bypass all visibility checks and can access any article.

5.2 Role-Based Access (BY_ROLE)

When visibility is set to BY_ROLE, you specify which roles can view the article:

- **USER** - Standard end users
- **TECHNICIAN** - IT support staff
- **MANAGER** - Department managers
- **MANAGER_IT** - IT department managers
- **ADMIN** - System administrators
- **SECURITY_ANALYST** - Security team members

Example: An article visible to TECHNICIAN and MANAGER roles will only appear for users with those specific roles.

5.3 Branch-Based Access (BY_BRANCH)

When visibility is set to BY_BRANCH, you select specific branch offices that can access the article. Users are matched based on their assigned branchId in the system.

Use Cases:

- Branch-specific procedures or policies
- Regional operational guides
- Location-specific troubleshooting

- Local announcement and updates

5.4 Private Articles

Private articles are only accessible to the author and explicitly added collaborators. This is useful for work-in-progress documents or sensitive information.

Who Can Access Private Articles:

- The article author (always)
- Collaborators with VIEWER, EDITOR, or OWNER role
- Managers and Admins (override capability)

6. Collaboration Features

6.1 Adding Collaborators

Article authors can invite other users to collaborate on their articles. Collaborators receive specific permissions based on their assigned role.

How to Add Collaborators:

1. Open the article you authored
2. Navigate to the Collaborators section
3. Click 'Add Collaborator'
4. Search for and select the user
5. Choose their role (VIEWER, EDITOR, OWNER)
6. Optionally set an expiry date for access
7. Click 'Add' to invite them

6.2 Collaborator Roles

Role	Permissions
VIEWER	<ul style="list-style-type: none">• View the article (including drafts)• Add comments• Download attachments
EDITOR	<ul style="list-style-type: none">• All VIEWER permissions• Edit article content• Upload attachments• Add other collaborators
OWNER	<ul style="list-style-type: none">• All EDITOR permissions• Remove collaborators• Change visibility settings• Transfer ownership

6.3 Time-Limited Access

Collaborator access can be set to expire after a specific date. This is useful for:

- Temporary project team members
- External consultants or contractors
- Time-sensitive review processes
- Audit or compliance requirements

When access expires, the collaborator can no longer view or edit the article, but their previous contributions (comments, edits) remain.

7. Comments & Feedback

7.1 Adding Comments

All users with access to an article can add comments to provide feedback, ask questions, or share additional information. Comments support threaded replies for organized discussions.

Comment Features:

- Maximum 2000 characters per comment
- File attachments supported (same restrictions as article attachments)
- Comments can be marked as resolved
- Author name, role, and timestamp displayed
- Nested replies for threaded conversations

7.2 Threaded Replies

Comments can have replies, creating threaded conversations. This keeps discussions organized and makes it easy to follow specific topics within an article's comment section.

Thread Structure:

Comment (Parent) ■■■ Reply 1 ■■■ Reply 2 ■■■ Reply 3

7.3 Helpful/Not Helpful Feedback

Users can provide quick feedback on articles using the Helpful/Not Helpful buttons. This helps identify valuable content and areas for improvement.

Feedback Rules:

- One vote per user per article
- Users can change their vote
- Feedback counts (helpful/notHelpful) stored on article
- Helpful rate calculated: $\text{helpful} \div (\text{helpful} + \text{notHelpful}) \times 100\%$
- Feedback analytics available in dashboard

8. Content Governance

KMS includes built-in content governance features to ensure knowledge stays accurate, up-to-date, and properly maintained over time.

8.1 Review Cycles

Articles can be assigned a review frequency (default: 90 days). The system tracks when articles are due for review and flags overdue content.

- **reviewFrequencyDays** - How often article should be reviewed (e.g., 30, 60, 90 days)
- **nextReviewDate** - Calculated date for next review
- **lastReviewedAt** - When article was last reviewed
- **lastReviewedBy** - Who performed the last review

Review Process:

1. Article reaches its nextReviewDate
2. Article appears in the 'Needs Review' queue
3. Reviewer checks content for accuracy and relevance
4. Reviewer clicks 'Mark as Reviewed'
5. System clears stale flag and calculates next review date
6. Review activity logged in article timeline

8.2 Stale Content Management

Articles past their review date are flagged as 'stale'. The analytics dashboard shows stale content organized by urgency level.

Urgency	Criteria	Action Required
CRITICAL	Overdue >30 days OR explicitly marked stale	Immediate review needed
HIGH	Overdue 14-30 days	Review within this week
MEDIUM	Overdue 7-14 days	Schedule review soon
LOW	Upcoming review (within 7 days)	Plan for upcoming review

8.3 Ownership Transfer

Article ownership can be transferred to another user. This is useful when the original author changes roles, leaves the organization, or content responsibility shifts.

1. Navigate to article settings
2. Click 'Transfer Ownership'
3. Search for and select new owner
4. Optionally add reason for transfer
5. Confirm the transfer
6. New owner receives notification
7. Activity logged with previous/new owner details

9. Analytics & Reporting

9.1 Access Logs

Every article access is logged with detailed information for analytics and audit purposes.

Field	Description
Article ID	Which article was accessed
User ID	Who accessed it
Accessed At	Timestamp of access
Access Type	VIEW, DOWNLOAD, PRINT, or SHARE
IP Address	Source IP (from x-forwarded-for header)
User Agent	Browser/client information
Duration	Time spent viewing (seconds)
Referrer	Page that led to the article
Search Query	Search terms if accessed via search

Note: Views by the article author are not logged to avoid inflating view counts.

9.2 Analytics Dashboard

The analytics dashboard provides insights into KMS usage and content performance. Available to Managers and Admins at /knowledge/analytics.

Dashboard Metrics:

Category	Metrics Available
Overview	Total articles, Published/Draft/Archived counts, Stale articles
Access Statistics	Total views, Downloads, Unique users, Unique articles viewed
Feedback	Total helpful votes, Not helpful votes, Overall helpful rate %
Trending	Views by date (time series chart), Period comparison
Top Content	Top 10 viewed articles with helpful rates
Search Analytics	Top 10 search queries with frequency
Content Health	Articles needing attention, urgency breakdown
Activity	Recent activity log (last 7 days)

Time Period Options:

- 7 Days
- 30 Days (default)
- 90 Days
- 1 Year

9.3 Search Analytics

Search queries are tracked to understand what users are looking for. This helps identify:

- Popular topics that need comprehensive documentation
- Content gaps where searches don't find results
- Terminology users prefer (for SEO/tagging)
- Emerging topics or new issues

10. User Flow Scenarios

This chapter details complete workflows for each user role, showing how they interact with KMS.

10.1 Technician Flow: Creating and Publishing an Article

1. **Access KMS:** Navigate to Knowledge Base from ServiceDesk navigation menu
2. **Create Article:** Click 'New Article' button to open the creation form
3. **Enter Content:** Fill in title, content (required), summary, category, tags
4. **Set Visibility:** Choose EVERYONE, BY_ROLE, BY_BRANCH, or PRIVATE
5. **Save as Draft:** Click 'Save Draft' - article saved with DRAFT status
6. **Add Attachments:** Upload supporting files (PDF, images, documents)
7. **Invite Collaborators:** Add team members as VIEWER or EDITOR (optional)
8. **Request Review:** Change status to UNDER_REVIEW when ready
9. **Address Feedback:** Respond to comments/feedback from reviewers
10. **Publish:** Change status to PUBLISHED - article goes live

10.2 Manager Flow: Reviewing and Managing Content

1. **Access Dashboard:** View KMS analytics at /knowledge/analytics
2. **Review Stale Content:** Check articles needing review, sorted by urgency
3. **Review Article:** Open stale article, verify content accuracy
4. **Mark as Reviewed:** Click 'Mark as Reviewed' to clear stale flag
5. **Check Access Logs:** View who accessed articles and when
6. **Manage Visibility:** Update visibility settings as needed
7. **Bulk Operations:** Apply permission templates to multiple articles
8. **Transfer Ownership:** Reassign articles to appropriate owners
9. **Monitor Analytics:** Track top articles, search queries, feedback trends
10. **Archive Old Content:** Archive outdated articles no longer relevant

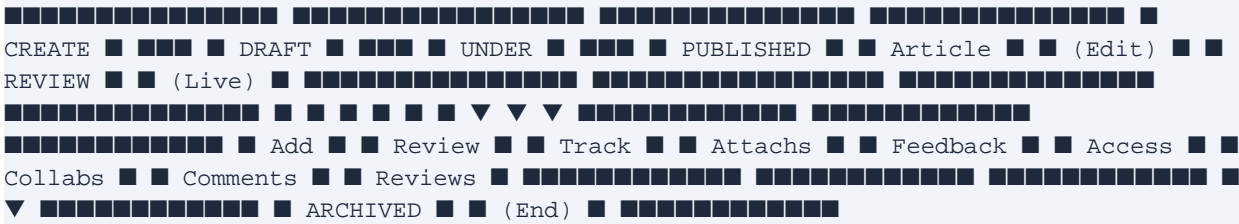
10.3 End User Flow: Finding and Using Knowledge

1. **Access KMS:** Navigate to Knowledge Base from main menu
2. **Search:** Enter keywords in search bar, use filters
3. **Browse:** Filter by category, tags, or browse all articles
4. **View Article:** Click article to read full content
5. **Download Files:** Download any attached documents needed
6. **Add Comment:** Ask questions or provide additional info
7. **Give Feedback:** Click Helpful or Not Helpful to rate article
8. **Bookmark:** Save frequently used articles for quick access

10.4 Admin Flow: System Administration

1. **Create Templates:** Set up permission templates for common scenarios
2. **Batch Stale Check:** Run stale content detection (cron job)
3. **View All Articles:** Access any article regardless of visibility
4. **System Analytics:** Monitor overall KMS health and usage
5. **Manage Access:** Create API keys, manage permissions
6. **Audit Activities:** Review all activity logs for compliance
7. **Content Governance:** Enforce review schedules, handle escalations
8. **Backup/Recovery:** Manage version history, restore if needed

Complete Article Lifecycle



Appendix A: API Reference

Complete list of KMS API endpoints for developers and integration purposes.

Endpoint	Method	Description
/api/knowledge	GET	List all accessible articles
/api/knowledge	POST	Create new article
/api/knowledge/[id]	GET	Get article details (by ID or slug)
/api/knowledge/[id]	PUT	Update article
/api/knowledge/[id]	DELETE	Delete article (soft delete)
/api/knowledge/[id]/attachments	GET	List attachments
/api/knowledge/[id]/attachments	POST	Upload attachment
/api/knowledge/[id]/attachments/[attId]/download	GET	Download file
/api/knowledge/[id]/versions/[verId]	GET	Get version details
/api/knowledge/[id]/versions/[verId]	PATCH	Mark stable
/api/knowledge/[id]/versions/[verId]/restore	POST	Restore version
/api/knowledge/[id]/versions/compare	GET	Compare versions
/api/knowledge/[id]/access-logs	GET	List access logs
/api/knowledge/[id]/access-logs/stats	GET	Get access statistics
/api/knowledge/[id]/collaborators	GET/POST	Manage collaborators
/api/knowledge/[id]/comments	GET/POST	Manage comments
/api/knowledge/[id]/feedback	POST	Submit feedback
/api/knowledge/[id]/visibility	GET/PUT	Manage visibility
/api/knowledge/[id]/ownership	POST	Transfer ownership
/api/knowledge/[id]/review	GET/POST	Review status/mark reviewed
/api/knowledge/stale	GET	List stale articles
/api/knowledge/analytics	GET	Dashboard analytics
/api/knowledge/permission-templates	GET/POST	Manage templates
/api/knowledge/bulk/permissions	POST	Bulk apply permissions