

# DMS – Phase DB-1 – Core Database Schema (SQL Server)

**Audience:** AI Studio

**Version:** v1.0

**Status:** Draft – For Generation

**Database:** Microsoft SQL Server

**Scope:** Core persistence layer for DMS (Phases 0–3B locked)

## Objective

Generate the authoritative SQL Server schema for the DMS that enforces document lifecycle, versioning, tenant isolation, and audit integrity at the persistence layer. The schema must prevent invariant violations even if application logic fails.

## Non-Negotiable Constraints

- 1 Multi-tenant isolation enforced via TenantId on all tables
- 2 Only ONE Approved version per Document at any time
- 3 VersionNumber is NULL until approval
- 4 Approved and Archived versions are immutable
- 5 Audit records are append-only (no UPDATE/DELETE)

## Required Tables

- 1 Document
- 2 DocumentVersion
- 3 DocumentType
- 4 AuditEvent

## AI Studio Generation Instructions

You are an Enterprise Database Architect specializing in SQL Server.

Generate SQL Server DDL for the DMS Core Schema with the following rules:

TABLES:

1. Document
  - Id (PK)
  - TenantId (NOT NULL)
  - DocumentTypeId (FK)
  - OwnerUserId
  - CurrentApprovedVersionId (FK, nullable)
  - CreatedAt, CreatedBy
  - IsDeleted (BIT, default 0)
2. DocumentVersion
  - Id (PK)
  - TenantId (NOT NULL)
  - DocumentId (FK)
  - VersionNumber (INT, NULL until Approved)
  - BaseVersionId (FK to DocumentVersion.Id, nullable)
  - LifecycleStatus (DRAFT, IN REVIEW, APPROVED, ARCHIVED)
  - ValidityStatus (PENDING, VALID, EXPIRED, SUPERSEDED)
  - Metadata (NVARCHAR(MAX))
  - FilePath / BlobRef

- CreatedAt, CreatedBy
  - ApprovedAt, ApprovedBy
  - UpdatedAt (for optimistic locking)
3. DocumentType
- Id (PK)
  - TenantId (NULL for system, NOT NULL for overrides)
  - Code (unique per tenant)
  - MetadataSchema (NVARCHAR(MAX))
  - RequiresApproval (BIT)
  - TracksValidity (BIT)
  - ReviewCycleDays (INT, NULL)
4. AuditEvent
- Id (PK)
  - TenantId (NOT NULL)
  - EntityType (DOCUMENT, VERSION)
  - EntityId
  - Action
  - ActorUserId
  - Details (NVARCHAR(MAX))
  - CreatedAt

**ENFORCEMENT:**

- Unique filtered index on (DocumentId) WHERE LifecycleStatus = 'APPROVED'
- CHECK constraints for lifecycle transitions where possible
- NO CASCADE DELETE
- Soft delete only on Document
- All FK relationships must include TenantId alignment

**OUTPUT:**

- SQL Server compatible DDL
- Indexes and constraints included
- Clear comments explaining each enforcement rule

## Exit Criteria

The output is accepted only if the schema alone can see and prevent multiple Approved versions, enforce immutability expectations, and guarantee tenant isolation without relying on application code.