

1. Silver Applicability Decision

Business Use Case	Silver Required (Yes / No)	Reason
Automated, Auditable Account Opening for New Clients	Yes	Bronze layer exhibits high schema/format variability across intake forms, documents, and logs; Silver normalization is required to enable structural alignment/conformance.

2. Selected Silver Design Pattern

Selected Pattern	Structural Problem Addressed
Lakehouse Pattern	Raw datasets arrive as a mix of structured, semi-structured, and unstructured objects; must flatten, unnest, conform schemas for agent workflow; normalize for downstream table alignment while retaining flexibility for schema drift.

3. Bronze-to-Silver Dataset Mapping

Silver Dataset Group	Source Bronze Dataset(s)	Structural Issues Being Resolved
IntakeFormNormalized	RawIntakeForms	Semi-structured JSON submissions with variable fields; form templates differ; inconsistent optional/required fields.
Document_Metadata	RawClientDocuments, Raw_Statements	Raw files lack standardized metadata; reference/linkage info scattered or embedded; attributes embedded in filename/path only.
CustodianFormIndex	RawCustodianForm_Libraries	Batches contain mixed form types; versioning/ID fields inconsistent; structure varies by custodian.
Envelope_Metadata	RawDocuSignEnvelopes	Nested JSON/PDF envelope payload; embedded signature data and routes; inconsistent envelope metadata fields.
AuditEventLog	RawAuditEvent_Logs	Log/event fields vary in structure and naming; event ID, time, and source fields not always explicit.

4. Normalization Plan by Bronze Dataset (Concrete Actions)

Source Bronze Dataset	Observed Raw Structure Issue	Normalization Action Type (Split / Flatten / Unnest / Conform / Deduplicate / Align)	Target Silver Table(s)	Notes
RawIntakeForms	Variable field presence; nested structures; per-template schema	Flatten, Conform, Align	IntakeFormNormalized	Collapse nested fields; align field naming; extract metadata
RawClientDocuments	File-based, no explicit metadata; attributes only in filename or path	Conform, Deduplicate, Align	Document_Metadata	Extract standardized metadata; deduplicate by file hash/name
Raw_Statements	Same as above (optional input)	Conform, Deduplicate, Align	Document_Metadata	Distinct doc type in metadata
RawCustodianForm_Libraries	Mixed file structure; inconsistent versioning and IDs	Conform, Flatten, Deduplicate	CustodianFormIndex	Extract custodian/type/version into columns
RawDocuSignEnvelopes	Nested JSON; PDFs attached; variable metadata	Flatten, Unnest, Conform, Align	Envelope_Metadata	Unnest recipient/signature lists; conform timestamps
RawAuditEvent_Logs	Variable event field naming; inconsistent event/time/actor fields	Flatten, Conform, Align, Deduplicate	AuditEventLog	Enforce presence of event id, source, timestamp

5. Silver Table Catalog (Conceptual Tables)

Silver Table	Table Purpose (Structural)	Grain (What one row represents)	Source Bronze Dataset(s)	Origin Structure (Embedded / Repeated / Cross-File)
IntakeFormNormalized	Aligned/flattened intake form	One form submission (per event)	RawIntakeForms	Embedded, repeated (per template)
Document_Metadata	Conformed doc/statement metadata	One uploaded document/statement file	RawClientDocuments, Raw_Statements	Cross-file, flat
CustodianFormIndex	Standardized custodian form entry	One custodian form/version/file	RawCustodianForm_Libraries	Cross-file, flat

Silver Table	Table Purpose (Structural)	Grain (What one row represents)	Source Bronze Dataset(s)	Origin Structure (Embedded / Repeated / Cross-File)
Envelope_Metadata	Extracted envelope/ event metadata	One DocuSign envelope/ event	RawDocuSignEnvelopes	Embedded, nested
AuditEventLog	Normalized audit/ workflow event	One workflow/audit event	RawAuditEvent_Logs	Flat, repeated

6. Silver Table Column Definition (Attribute-Level, No SQL Types)

IntakeFormNormalized

Silver Table	Column Name	Source Bronze Field/Path	Column Role	Required (Yes/No)	Notes
IntakeFormNormalized	form_id	\$.formid, \$.eventid	Identifier	Yes	Standardized form/event identifier
IntakeFormNormalized	template_name	\$.template_name	Attribute	Yes	
IntakeFormNormalized	client_id	\$.client_id	Attribute	No	
IntakeFormNormalized	household_id	\$.household_id	Attribute	No	
IntakeFormNormalized	submission_timestamp	\$.submission_time	Metadata	Yes	
IntakeFormNormalized	field_	\$.fields.	Attribute	No	For each observed field; flatten as columns
IntakeFormNormalized	source_file	\$.source_file/path	Metadata	Yes	
IntakeFormNormalized	ingestion_timestamp	metadata.ingest_time	Metadata	Yes	

Document_Metadata

Silver Table	Column Name	Source Bronze Field/Path	Column Role	Required (Yes/No)	Notes
Document_Metadata	document_id	filename, file_id	Identifier	Yes	
Document_Metadata	client_id	extracted/linked / filename	Attribute	No	If present
Document_Metadata	document_type	extracted from file	Attribute	Yes	(statement, ID, etc.)
Document_Metadata	upload_timestamp	ingestion_ts	Metadata	Yes	
Document_Metadata	file_hash	file hash	Attribute	No	For deduplication
Document_Metadata	source_system	ingestion_source	Metadata	Yes	

CustodianFormIndex

Silver Table	Column Name	Source Bronze Field/Path	Column Role	Required (Yes/No)	Notes
CustodianFormIndex	custodian	batch.custodian, path	Attribute	Yes	
CustodianFormIndex	form_id	filename, form_id	Identifier	Yes	
CustodianFormIndex	account_type	extracted from file	Attribute	No	If observable
CustodianFormIndex	version	version number/file name	Attribute	No	If present
CustodianFormIndex	ingest_timestamp	batch ingestion time	Metadata	Yes	
CustodianFormIndex	file_name	file name	Attribute	Yes	
CustodianFormIndex	source_system	ingestion_source	Metadata	Yes	

Envelope_Metadata

Silver Table	Column Name	Source Bronze Field/Path	Column Role	Required (Yes/No)	Notes
Envelope_Metadata	envelope_id	\$.envelope_id	Identifier	Yes	
Envelope_Metadata	event_timestamp	\$.event_time	Metadata	Yes	
Envelope_Metadata	status	\$.status	Attribute	Yes	
Envelope_Metadata	recipient_email	\$.recipients[].email	Attribute	No	Unnest as needed
Envelope_Metadata	recipient_role	\$.recipients[].role	Attribute	No	
Envelope_Metadata	doc_link	\$.documents[].file_name	Attribute	No	
Envelope_Metadata	source_system	ingestion_source	Metadata	Yes	

AuditEventLog

Silver Table	Column Name	Source Bronze Field/Path	Column Role	Required (Yes/No)	Notes
AuditEventLog	auditeventid	\$.eventid, \$.logid	Identifier	Yes	
AuditEventLog	event_type	\$.event_type	Attribute	Yes	
AuditEventLog	actor_id	\$.actor, \$.user_id	Attribute	No	
AuditEventLog	event_timestamp	\$.timestamp, \$.event_time	Metadata	Yes	
AuditEventLog	relatedformid	\$.formid, \$.refid	Attribute	No	If present
AuditEventLog	source_system	ingestion_source	Metadata	Yes	

7. Keys and Uniqueness (Structural Identity Only)

Silver Table	Natural Key Candidate(s) (From Bronze)	Key Completeness Issues	Resolution Method	Enforced Uniqueness (Yes/No)
IntakeFormNormalized	formid, submissiontimestamp	form_id may not always be globally unique	Composite (form_id + timestamp)	Yes
Document_Metadata	documentid (file name), filehash	Non-unique if file re-uploaded; hash may be missing	Composite (file name + upload)	Yes
CustodianFormIndex	formid, filename, custodian, version	Versioning inconsistencies	Composite (form_id + version + custodian)	Yes
Envelope_Metadata	envelope_id	Sometimes missing; fallback to (envelope_id + time)	Composite if not unique	Yes (as composite)
AuditEventLog	auditeventid, event_timestamp	Event IDs may not always be stable	Composite (event_id + time)	Yes

8. Relationship Model (Tables + Cardinalities)

Parent Table	Child Table	Cardinality	Relationship Realization	Derived From Bronze Evidence
IntakeFormNormalized	Document_Metadata	1:N	FK-like link (form_id)	Document filenames or IDs referenced in forms
IntakeFormNormalized	Envelope_Metadata	1:N	Embedded preserved	Envelope doc_link or form associations
IntakeFormNormalized	AuditEventLog	1:N	Embedded preserved	Audit events referencing form_id
Envelope_Metadata	Document_Metadata	1:N	Association via doc_link	Envelope doc_link pointing to document file

9. Association / Bridge Tables (Only If Needed)

Association Table	Left Entity Table	Right Entity Table	Association Grain	Source Bronze Evidence	Notes
FormDocumentAssoc	IntakeFormNormalized	Document_Metadata	One document referenced in one form	Document filename/ID within form field(s)	Only if reference is not direct in Document_Metadata
EnvelopeDocumentAssoc	Envelope_Metadata	Document_Metadata	One document attached to one envelope	Envelope doc_link(s) mapping to document file names/IDs	

10. Structural Conformance Rules (Data Shape Contracts)

Silver Table	Conformance Rule Type	Rule Description	Derived From Bronze Issue
IntakeFormNormalized	Required Fields	formid, templatenam, submissiontimestamp, sourcefile must be present	Variable field presence, missing identifiers
IntakeFormNormalized	Format Alignment	All date/time fields as ISO 8601 strings	Timestamps in varied formats
Document_Metadata	Required Fields	documentid (file name), uploadtimestamp, source_system must be present	Missing standard doc metadata
Envelope_Metadata	Enum Stabilization	Envelope status standardized to {sent, completed, cancelled, error}	Inconsistent status labels
AuditEventLog	Required Fields	auditeventid, eventtimestamp, sourcesystem must be present	Missing/inconsistent event IDs/timestamps
CustodianFormIndex	Null Handling	version field nullable, but custodian and form_id required	Incomplete version info

11. Incremental and State Handling (Structural Only)

Silver Table	History Required (Yes/No)	Change Capture Source (Bronze)	Incremental Strategy	Idempotent (Yes/No)
IntakeFormNormalized	Yes	form/event id + ingestion timestamp	Append	Yes
Document_Metadata	Yes	file name + upload timestamp	Append	Yes
CustodianFormIndex	Yes	form file name + version	Append	Yes
Envelope_Metadata	Yes	envelope id + event time	Append	Yes
AuditEventLog	Yes	event id + timestamp	Append	Yes

12. Anti-Overmodel Guardrail (Explicit Non-Actions)

Scope (Dataset/ Table)	Not Done Item (Aggregation / Enrichment / KPI / Business Rules / Consumer Views)	Reason (Scope Control)
IntakeFormNormalized	Aggregation, Enrichment, Business Rules, Consumer Views	Structural normalization only
Document_Metadata	Aggregation, KPI, Business Rules, Consumer Views	Only minimal doc metadata conformance
CustodianFormIndex	Aggregation, Enrichment, Business Rules, Consumer Views	No custodian rule-logic, validation, etc.
Envelope_Metadata	Aggregation, Enrichment, Business Rules, Consumer Views	No envelope status processing
AuditEventLog	Aggregation, Enrichment, Business Rules, Consumer Views	No operational/audit scoring or analysis
All Bridge Tables	Any consumer shaping or logic	Strictly association only