

## 1) Workflow Overview

Workflow Name	Business Objective	Trigger	Entry Agent	Terminal States
Account Opening Agentic Workflow	Orchestrate fully auditable, agent-driven account opening across intake, validation, review, and custodian submission, ensuring compliance, auditability, and system synchronization	Intake event (API, schedule, webhook, or manual trigger)	Workflow Orchestrator Agent	Success (Final Write-Back Complete) Failure (Hard Exception, Unrecoverable Error) Escalation (Human Oversight/Manual Remediation)

## 2) Agent Inventory (Workflow Scope)

Agent Name	Agent Type	Goal	Decisions Allowed	Failure Behavior
Workflow Orchestrator Agent	Orchestrator	Coordinate the sequence, branching, and overall state transitions of the account opening workflow	Which agent to activate next; when to branch to human/exception flow; terminate or retry	Route to escalation/termination upon unrecoverable workflow logic error; log failure in audit
Intake Agent	Worker / Retriever	Ingest and normalize all intake data, and associate it with correct client/household	How to process different intake types; error/format handling; classification path	Move to exception state; escalate to Operations for manual review
Validation Agent	Validator	Validate packets for completeness, cross-form consistency, custodian/account rule compliance	Which validation rules to run; pass/fail; surface anomalies/ambiguities	Flag packet for human review; emit explicit validation failure and trigger log
Packet Assembly Agent	Worker / Assembler	Generate correctly pre-populated custodian packets/forms	Which forms to use; field mapping; bundle construction	Raise exception to Orchestrator; flag for Operations/manual correction
Human Review Agent	Human-in-the-Loop	Enable human review and approval/rejection/correction of exceptions and rule conflicts	Approve, reject, or mark "needs correction"; escalate complex reviews	Escalate to secondary reviewer or compliance; log all actions for audit
DocuSign Envelope Agent	Worker	Assemble, send, and track DocuSign envelopes for signature	Which packets need signature; routing logic; reminders	Retry sending; escalate on persistent failure; log for manual intervention
Submission Agent	Worker	Submit finalized packet to custodian, verify receipt, and log confirmation	Select delivery channel (API/SFTP/manual); handle submission outcome	Retry, fallback to manual; log unconfirmed status; escalate on persistent submission failure
Write-back Agent	Worker	Write all status updates, artifacts, and lifecycle state to Salesforce/Edge	Mapping of record updates/artifacts; batch or incremental writings	Retry, queue, log for reconciliation; escalate on repeated system write-back failure
Audit/Trace Agent	Evaluator / Auditor	Log and structure workflow, agent actions, human decisions, and lineage	What to record at each event; persistence method	Ensure at-least-once/immutable log; escalate on log-write failure for compliance
Continuous Improvement Agent	Evaluator / Advisor	Periodic/on-demand workflow/process assessment and optimization	When/how to apply process improvement or rule optimization	Notify stakeholders for non-applied/failed assessments; recommend manual process review

## 3) Agent Inputs and Outputs

Agent	Inputs	Outputs	Data Layer Interaction
Workflow Orchestrator Agent	Workflow trigger, execution context, prior step status	Step activation, workflow state transitions	Reads/writes workflow context state (structured execution store; not business data layer directly)
Intake Agent	Formstack forms, document uploads (raw, Bronze), household mapping	Normalized intake entity records, classification mapping	Reads: Bronze (object/file); Writes: Silver (structured, normalized, associated intake records)
Validation Agent	Silver intake data, validation rule artifacts, previous errors	Validation log/results, pass/fail; flagged exceptions	Reads: Silver (normalized); Writes: Silver (validation result entry, exception(flag output))
Packet Assembly Agent	Validated intake data, current custodian forms/templates	Pre-populated packet, assembled digital forms	Reads: Silver (validated), Gold (form templates); Writes: Gold (packet assembly area, artifact files)
Human Review Agent	Gold packets (exception state or routine review), validation findings	Review actions (approve/reject/request correction), annotation	Reads: Gold (review artifacts); Writes: Gold (reviewed state/decisions), Silver (audit record)
DocuSign Envelope Agent	Gold: reviewed/approved packets, envelope templates	Envelope sent, DocuSign status/tracking	Reads: Gold (ready packets); Writes: Gold (envelope prep area, signature status metadata)
Submission Agent	Gold: finalized/signed packets, submission instructions	Submission result, confirmation code, receipt record	Reads: Gold; Writes: Gold (submission result metadata), Silver (audit/result log)
Write-back Agent	Gold: submission result, all packet artifacts	System update acknowledgement, Salesforce/Edge update	Reads: Gold (result/artifacts); Writes: Gold (write-back queue), Salesforce/Edge (via tool adapter)
Audit/Trace Agent	All agent events, state transitions, human actions	Structured audit log/traces	Reads: All (event bus); Writes: Silver (structured log/audit), Deep Lens/Audit Adapter

Agent	Inputs	Outputs	Data Layer Interaction
Continuous Improvement Agent	Silver: audit logs/history, Gold: process metadata	Recommendations, rule/process proposals	Reads: Silver (audit, process logs); Writes: Silver (advisory log), Gold (config snapshot/update)

#### 4) Control Flow Graph (Conceptual)

Step ID	Agent	Condition / Decision	Next Step(s)
1	Workflow Orchestrator	Intake event received	2
2	Intake Agent	Intake data successfully normalized and associated	3 On error: 12
3	Validation Agent	All validations pass	4 Validation fail/exception: 11
4	Packet Assembly Agent	Assembly complete, all forms mapped	5 Assembly fail: 12
5	Workflow Orchestrator	Check if human review required (exception, ambiguous, or policy)	6 if Yes; 7 if No
6	Human Review Agent	Human approves	7 Rejects: 12 Correction: 2
7	Workflow Orchestrator	Does submission require DocuSign signature?	8 if Yes; 9 if No
8	DocuSign Envelope Agent	Envelope signed and completed	9 Not signed: 13 (Retries/Timeout)
9	Submission Agent	Submission to custodian successful	10 Submission fail: 13 (Retry) Manual fallback: 12
10	Write-back Agent	Write-back to Salesforce/Edge successful	14 (Terminal Success) Write-back fail: 13
11	Human Review Agent	Human decision on validation fail	Approve: 4; Needs correction: 2; Reject/Abandon: 12
12	Workflow Orchestrator	Unrecoverable error or manual intervention required	15 (Terminal Failure/Escalation)
13	Workflow Orchestrator	Retry path for failed submission, signing, or write-back	Retry prior step (8, 9, or 10), max attempts then 12 if still fail
14	Audit/Trace Agent	Workflow completes successfully	--- (Terminal Success recorded, audit record flushed)
15	Audit/Trace Agent	Workflow ends with escalation/failure	--- (Terminal Failure/Escalation recorded, audit record flushed)

#### 5) Data Layer Interaction Map

Agent	Reads From	Writes To	Data Layer	Store Type
Intake Agent	Bronze	Silver	Bronze→Silver	Object/File→Structured DB
Validation Agent	Silver	Silver	Silver	Structured/Audit Log DB
Packet Assembly Agent	Silver, Gold (templates)	Gold (packet assembly)	Silver/Gold→Gold	Structured→Object/File
Human Review Agent	Gold	Gold, Silver (audit)	Gold/Silver	Structured/Obj, Audit Log
DocuSign Envelope Agent	Gold	Gold	Gold	Envelope Prep Staging
Submission Agent	Gold	Gold, Silver (log)	Gold/Silver	Object store, Audit Log
Write-back Agent	Gold	Gold, Salesforce/Edge	Gold→Salesforce	Write-back Queue, SFDC API
Audit/Trace Agent	All (event bus)	Silver, Deep Lens	Silver	Structured/WORM Trace Store
Continuous Improvement Agent	Silver, Gold	Silver, Gold (config)	Silver/Gold	Audit Log, Config Store
Workflow Orchestrator Agent	Structured state store	Structured state store	-	-

#### 6) Tool & Adapter Map

Tool / Adapter	Used By Agent(s)	Purpose	Failure Modes
Formstack Adapter	Intake Agent	Read raw structured intake forms	API error, schema mismatch, data unavailable
Salesforce/Edge Adapter	Intake, Validation, Write-back	Lookup/association, write lifecycle updates/artifacts	API quota, authentication fail, field change
	Validation, Packet Assembly		

Tool / Adapter	Used By Agent(s)	Purpose	Failure Modes
Custodian Rulebook Adapter		Retrieve current rules/templates for validation/assembly	Out-of-date, missing/invalid, retrieval timeout
DocuSign Adapter	DocuSign Envelope Agent	Create envelopes, send, and track signatures	Envelope creation fail, API/plan limits, routing error
Black Diamond Adapter	Intake Agent	Retrieve/verify client statements (optional)	API unavail., file parse error, access denied
Deep Lens Audit Adapter	Audit/Trace Agent, Orchestrator	Write event/audit log entries	Write fail, inaccessibility, quota, data corruption
ETL Ingestion Service	Intake Agent	Ingest raw forms/docs to Bronze	Transfer fail, storage quota, file corruption
Vector Store Adapter	Continuous Improvement Agent (optional)	Persistent agent memory/learning	Write/read fail, integrity error, unavailable
Workflow State Store	Orchestrator, All Agents	Store execution context and step data	Lock/loss/corruption, unavailable, version drift

## 7) Validation & Guardrail Definition

Validator Agent	Validates	Trigger Point	On Failure
Validation Agent	Completeness, cross-document consistency, custodian/account-type rules	After intake normalization, before packet assembly	Flag as invalid; route to Human Review Agent
Human Review Agent	Any exception, ambiguity, or unhandled rule conflict; approval/correction action	Whenever validation fails, or policy triggers mandatory review	Approve/reject/correct or escalate
Packet Assembly Agent	Data-to-form mapping, template currency, artifact integrity	After passing validation, prior to review/signature	Raise error/exception to Orchestrator
Audit/Trace Agent	Workflow event sequence, lineage, explicit error codes	At every workflow state transition	Ensure audit log/trace; escalate log gaps
Continuous Improvement Agent	Rule/process drift, error/bottleneck rates	Periodic, scheduled, or on-demand	Notify stakeholders; log unmet improvements

## 8) State, Memory, and Replay

State Type	Scope	Owner	Persistence
Execution Context	Per-run	Workflow Orchestrator	Structured state store (DB)
Short-term Memory	Per-run	All Agents (shared context)	In-memory + state store snapshot
Audit Artifacts	Per-run	Audit/Trace Agent	WORM event/audit log (Silver)
Human Decision History	Per-run	Human Review Agent	Gold (artifact)/Silver (log)
Long-term Agent Memory	Cross-run	Continuous Improvement Agent	Vector/Config Store (optional)
Replay Data	Per-run	Orchestrator/Audit Agent	Audit log and execution context DB

## 9) Failure Handling & Recovery

Failure Scenario	Detected By	Recovery Strategy	Escalation
Intake (format/API/unclassifiable)	Intake Agent	Mark as exception, route to Human Review/exception queue	Operations/manual review
Validation exception	Validation Agent	Route to Human Review for decision/correction	Secondary reviewer/compliance
Packet assembly failure	Packet Assembly Agent	Escalate to Workflow Orchestrator; retry up to N	Operations/manual correction
DocuSign envelope not sent/signed	DocuSign Agent	Retry with backoff; escalate on persistent failure	Notify reviewer, Operations/manual fallback
Submission failure (API/SFTP/manual)	Submission Agent	Retry, escalate to fallback/manual if all retries fail	Operations/manual submission
Write-back to Salesforce failed	Write-back Agent	Retry/queue operation; reconcile on next sync round	Operations/manual write-back
Audit log write failure	Audit/Trace Agent	Redundant write/alert; ensure at-least-once guarantees	Notify compliance, halt if persistent
Unrecoverable workflow error	Orchestrator	Halt run, mark exception, flush audit, alert Ops	Escalation to compliance & process owner
SLA/Timeout on Human Review	Human Review Agent	Notify alternate reviewer, escalate per SLA	Supervisor/compliance committee
Memory/Config update failure	Continuous Improvement Agent	Log, retry, notify stakeholders	Operations/admin action needed

## 10) Explicit Non-Goals

Out of Scope Item	Reason
General analytics/BI, reporting	Not in the onboarding workflow scope per requirements
Downstream customer/web access to audit	Compliance/ops only; no direct client-facing exposure
General-purpose integrations	Only named systems/tools/adapters are in scope
Account maintenance/portfolio changes	Scope restricted to new account onboarding/opening
External model training or non-agent AI	No ML/AI outside specified agent execution and learning
Unstructured data warehouse access	Workflow handles only via defined data layers, not ad hoc
Data processing outside NorthRock infra	Security/compliance constraint
Procedural code for control flow	Only agentic, decision-driven, and auditable workflows allowed
Non-agent automation/RPA	Explicit agentic architecture as core principle
Direct system/database access by agents	All integrations must use tool/adapters per software architecture
Code/implementation specifics	Output is for workflow specification, not code generation