Anthesis: An Agentic Software Development Lifecycle

Anthesis Whitepaper (Draft)

Versioning & Authors

Version	Date	Author	Notes
0.1.0	2025-12-10	Ryan Jennings	Initial draft compiled from Meristem RFCs.
0.1.1	2026-01-18	Ryan Jennings	Expanded details and organizing
0.1.2	2026-02-12	Ryan Jennings	Patch update to whitepaper overview.

1. Executive Summary

Anthesis is a governed agentic SDLC operating system designed to enable autonomous software delivery without surrendering human authority, auditability, or safety.

It treats governance as a first-class system boundary. Autonomy is permitted only when context is complete, risk is understood, and approvals are explicit.

Anthesis exists to answer:

> *How can AI assist real software development without undermining safety, governance, or trust?*

Primary sources:

- `CHARTER.md`
- `meristem/rfc_0001_agentic_sdlc_platform.md`

2. System Overview

Anthesis centers on the Model Context Protocol (MCP) as the orchestration and governance layer. MCP coordinates events, agent execution, and audit trails while preserving Git as the system of record.

This separation allows automation to operate safely: agents never mutate Git directly, and all actions flow through MCP-controlled proposals, approvals, and state transitions.

Primary sources:

- `meristem/rfc_0001_agentic_sdlc_platform.md`
- `meristem/rfc_0002_mcp_orchestration_api.md`

3. Governance and Safety Model

Anthesis enforces governance via Calyx policies, risk tiers, and a formal state machine. Approvals gate risky actions and ensure human oversight.

Policy evaluation and state transitions are auditable. This makes the system deterministic about when an agent can act, when it must pause, and how it recovers from failure.

Primary sources:

- `meristem/rfc_0003_approval_policy_engine.md`
- `meristem/rfc_0014_risk_classification_safety_tiers.md`
- `meristem/rfc_0020_state_machine_formal_specification.md`

4. Agent Model

Agents are defined by explicit schemas and execution contracts. They produce proposals and never self-approve. MCP enforces lifecycle rules and idempotency.

Agents are capability-scoped and operate under least-privilege constraints. Execution modes and retries are standardized to ensure predictable behavior across the SDLC.

Primary sources:

- `meristem/rfc_0005_agent_schema.md`
- `meristem/rfc_0009_agent_execution_semantics.md`

5. Context and Determinism

Context assembly is deterministic, provenance-aware, and token-budgeted. This ensures reproducibility across agent runs.

Inputs are structured and attributable, preserving provenance from source artifacts, prompts, and event metadata. The result is a reproducible context snapshot for audits and replay.

Primary sources:

- `meristem/rfc_0007_context_assembly_prompt_composition.md`
- `meristem/rfc_0004_provenance_ingestion.md`

6. Model Runtime Abstraction

Anthesis abstracts model runtimes so agents declare requirements rather than specific backends. MCP resolves runtimes safely and audits drift.

This approach supports local-first deployments while allowing controlled model evolution. Drift budgets and benchmarking constrain unexpected behavior changes.

Primary sources:

- `meristem/rfc_0008_model_runtime_abstraction.md`
- `meristem/rfc_0025_model_evaluation_benchmarking_drift_budgets.md`

7. Observability and Evidence

Executions are fully observable with logs, traces, and audit trails. Evidence remains attributable and immutable.

Observability ties together events, executions, approvals, and outputs so incidents can be investigated and compliance evidence can be exported without ambiguity.

Primary sources:

- `meristem/rfc_0011_observability_telemetry_drift.md`
- `meristem/rfc_0023_audit_compliance_evidence_export.md`

8. Orchestration and Events

Repository events and explicit triggers initiate agent workflows. MCP schedules, retries, and coordinates execution.

Event ingestion provides a consistent entry point for automation, while execution controls prevent duplicate runs and enforce idempotency.

Primary sources:

- `meristem/rfc_0006_repository_event_trigger_model.md`
- `meristem/rfc_0009_agent_execution_semantics.md`

9. Interfaces and Control Surfaces

CLI, UI, and chat interfaces provide operator control. All interfaces map to MCP actions and enforce the same governance rules.

Human control surfaces are designed for transparency and recovery, including approvals, overrides, and kill switches, without granting hidden capabilities.

Primary sources:

- `meristem/rfc_0015_human_interfaces_control_surfaces.md`
- `meristem/rfc_0021_cli_ux_command_semantics.md`

10. Extensibility and Plugins

Plugins extend capability without expanding authority. Governance, auditability, and isolation remain mandatory.

Extensions are constrained by explicit contracts and policy enforcement so they cannot bypass MCP or elevate privileges.

Primary sources:

- `meristem/rfc_0026_plugin_extension_model.md`

11. Security and Identity

Secrets, credentials, and integration boundaries are explicitly managed. Trust boundaries are documented and enforced.

Agents operate without direct access to sensitive material unless explicitly authorized, and integration tokens are scoped and auditable.

Primary sources:

- `meristem/rfc_0012_secrets_credential_management.md`
- `meristem/rfc_0022_external_integrations_mcp_federation.md`

12. Lifecycle and Governance

RFCs, policies, agents, and models follow an explicit lifecycle and ownership model. Amendments are governed and auditable.

This lifecycle prevents silent drift, preserves intent, and ensures future agents can reason about historical decisions.

Glossary

- **Anthesis**: The governed execution state where agents are permitted to act.
- **Phloem (MCP)**: The Model Context Protocol server that orchestrates events, context, policies, and execution.
- **Calyx**: Policy engine that evaluates approvals, risk tiers, and governance rules.

- **Bloom Class**: Risk tier classification used to gate approvals and execution.
- **Xylem**: Relay/worker execution plane and scheduling fabric.
- **Meristem**: Constitutional layer containing normative RFCs.
- **Inflorescence**: Multi-agent coordination graphs and workflow orchestration. Primary sources:
- `meristem/rfc_0017_governance_ownership_rfc_lifecycle.md`
- `meristem/rfc_0099_v1_unfreeze_amendment_rules.md`

Anthesis — Executive Summary

Anthesis enables unmonitored, asynchronous background agents to automate every stage of the software development lifecycle, while governance ensures humans remain accountable, decisions auditable, and risk explicitly controlled.

The Problem Anthesis Addresses

AI tools can now:

- Generate code
- Modify repositories
- Execute tools
- Propose architectural changes

But they lack:

- Accountability
- Provenance
- Clear authority boundaries
- Auditable decision trails

In most environments today, AI is either:

- **Over-trusted** (silent changes, auto-execution), or
- **Under-used** (manual copy/paste, no integration)

Anthesis exists to answer:

> *How can AI assist real software development without undermining safety, governance, or trust?*

What Anthesis Is

Anthesis is:

- A **governance system** for AI-assisted SDLC
- A **policy-driven control plane** for agents and tools
- A **Git-native source of truth** for intent, decisions, and state
- A **human-in-the-loop framework** by design

It treats AI agents as **contributors**, not authorities.

What Anthesis Is Not

Anthesis is **not**:

- A code generator
- A replacement for IDE tools like Copilot
- A single AI model or vendor platform
- An autonomous "auto-ship" system

Anthesis governs *how* those tools may be used — not *which* tools you use.

Core Principles

1. Git Is the Source of Truth All plans, decisions, approvals, and outcomes are recorded in version control.

2. Agents Propose — Humans Approve Agents may analyze, draft, and recommend. Final authority remains human.

3. Everything Is Auditable Every action has provenance: who or what proposed it, under which policy, and why.

4. Risk Determines Oversight Higher-risk changes require stronger review and approval guarantees.

5. No Silent Execution No tool execution or state mutation occurs without an explicit, recorded transition.

How Anthesis Works (Conceptual Flow)

1. **Intent is declared** A task, change, or investigation is proposed.
2. **Agents assist** AI agents analyze context, generate plans, draft artifacts, or surface risks.
3. **Policies evaluate risk** Governance rules determine required approvals and constraints.

4. **Humans review and approve** Decisions are explicit and recorded.
5. **Execution is controlled** Tools run only within approved boundaries.
6. **State is recorded** Outcomes and rationale are committed to Git.

Why This Matters (Especially for Regulated Environments)

Anthesis enables:

- Safe adoption of AI in production SDLCs
- Clear audit trails for compliance and incident review
- Controlled use of external tools and models
- Incremental rollout with increasing governance

It is designed for environments where:

- Security matters
- Compliance matters
- Mistakes are costly
- "The agent did it" is not an acceptable explanation

The Role of RFCs

Anthesis is governed by a set of **living RFCs**.

- RFCs define what is allowed, forbidden, and required
- RFCs are precise, versioned, and auditable
- This document explains *why* Anthesis exists
- The RFCs define *how Anthesis works*

If there is a conflict, RFCs always win.

Adoption Model

Anthesis is designed to be adopted:

- Gradually
- Incrementally
- Alongside existing tools and workflows

Organizations can start with:

- Planning and review governance
- Then expand to controlled execution
- Then introduce more advanced agent participation

Anthesis Platform PRD

Anthesis is a governed agentic SDLC orchestration platform purpose-built to coordinate AI agents against code repositories while enforcing strict human-in-the-loop controls, policy gates, and comprehensive audit trails. The platform enables automation with deterministic, safe, and fully traceable execution: teams can scale agent workflows without sacrificing control, governance, or risk tolerance.

Goals

Business Goals

- Achieve 90% reduction in ungoverned code changes by enforcing mandatory policy gates and human approvals.
- Enable safe deployment of AI agent workflows in at least 5 enterprise SDLC environments within the first year.
- Demonstrate regulatory and audit compliance for AI-powered SDLC pipelines, opening up new enterprise sales opportunities.
- Drive 50% adoption among engineering leads and platform engineers within pilot client organizations.
- Decrease mean-time-to-remediate risky agent behaviors/events below 2 hours via streamlined oversight and rollback tools.

User Goals

- Ensure all agent-driven code changes are subject to explicit, auditable human approval or rejection.
- Empower platform engineers and ICs to safely compose, propose, and manage complex agent workflows without risk of policy violation.
- Give engineering leads full, real-time visibility and control over agentic SDLC processes, preventing accidental or unauthorized changes.
- Streamline the agent workflow proposal/approval lifecycle to avoid friction while maintaining oversight.
- Provide clear, machine-and-human readable records of all agent actions and governance events.

Non-Goals

- Anthesis does not aim to replace CI/CD pipeline tools; it orchestrates agentic workflows and integrates with existing pipelines.

- The platform will not operate in unsupervised or autonomous mode; human-in-the-loop is always required for sensitive or production-impacting actions.
- Anthesis is not an AI agent development platform; it serves as the orchestrator and policy/governance layer for existing agent workflows.

User Stories

Personas 1. Engineering Lead

- As an Engineering Lead, I want to review and approve AI agent proposals before execution, so that I can ensure all actions comply with company policy and best practices.
- As an Engineering Lead, I want a complete audit trail of agent activity and approvals, so that I can quickly address compliance requests.

2. Platform Engineer

- As a Platform Engineer, I want to define, classify, and compose agentic workflows using policy templates, so that deterministic and compliant automation is guaranteed.
- As a Platform Engineer, I want to trigger proposals via CLI and assign reviewers based on required clearance levels, so that appropriate oversight is enforced.

3. Individual Contributor (IC)

- As an IC, I want to submit code or infrastructure change proposals through Anthesis, so that my work benefits from automated agent support while staying within governance.
- As an IC, I want machine-readable feedback on rejected proposals, so that I can rapidly iterate and comply with required revisions.
- As an IC, I want to see which agent actions require human approval, so that I can track and accelerate the review process.

Functional Requirements

- **Orchestration Core (Phloem) — Priority: Critical**
  - *Agent Workflow Orchestration:* Execute, monitor, and manage AI agent-driven SDLC workflows.
  - *State Machine Enforcement:* Enforce allowable transitions, preventing agents from acting outside approved workflow states.

  - *Output Standardization:* Normalize agent outputs for deterministic audit and review.

- **Governance & Controls — Priority: Critical**
  - *Policy Definition & Enforcement:* Allow admins to create/tune policy gates, clearance classifications, and risk thresholds.
  - *Approval Workflow:* Route agent proposals through multi-stage human approval with granular, role-based access controls.
  - *Audit Logging & Traceability:* Record every agent and human interaction/decision in an immutable, queryable audit log.
- **User Interface & CLI — Priority: High**
  - *CLI Submission:* Allow users to compose, test, and submit proposals directly from the command line.
  - *Feedback & Notification:* Deliver immediate, clear CLI or webhook-based feedback for approvals, rejections, and policy violations.
  - *Machine/Human-Readable Outputs:* Output workflow status, proposal metadata, and audit records in formats suitable for both human and machine consumption.
- **Policy/Classification Library — Priority: Medium**
  - *Reusable Policy Templates:* Catalog of company/vetting policies, risk classifications, and action boundaries for workflow reuse.
  - *Classification Levels:* Allow for automatic classification tags (e.g., LOW, MEDIUM, HIGH RISK) and clearance requirements on agent actions.
- **Oversight & Rollback Tools — Priority: Medium**
  - *Rollbacks:* Manual or automated reversal of agent actions with provenance management.
  - *Approval/Denial Comments:* Require rationale for all human overrides/denials to strengthen audit and learning.

User Experience

Entry Point & First-Time User Experience

- Users discover Anthesis either through internal onboarding documentation or via direct CLI/console prompts in their development environments.

- On first use, the CLI provides a guided onboarding flow: user authentication, selection of clearance level, introduction to policy gates, and a sample agentic workflow proposal.
- A tutorial (CLI/console-based) walks users through proposal composition, policy selection, and the review/approval cycle with stepwise feedback.

Core Experience

- **Step 1:** User composes an agentic workflow (e.g., refactor codebase using Agent X) and submits for proposal via Anthesis CLI.
  - Intuitive CLI command structure; prompts for required metadata and classification.
  - Validates proposal structure, flags missing fields, and prevents submission if out of policy.
- **Step 2:** Proposal appears in the governance dashboard (or mirrored CLI feed) for required human review.
  - Role-based access: Only reviewers with sufficient clearance see/rule on the item.
  - Real-time notification to reviewers (email, Slack, webhook).
- **Step 3:** Reviewer opens the proposal, sees policy diff, agent action summary, and risk classification.
  - Provides approve/deny buttons and optional comment box.
  - Record is written to audit log, including rationale if denied.
- **Step 4:** Upon approval, Anthesis executes the agent workflow; output is streamed back to the CLI in real time.
  - Execution is paused if new policy violations are detected post-approval.
- **Step 5:** Every state transition—proposal, approval, execution, post-execution classification—is both human- and machine-readable, (e.g., JSON, RFC-style outline).
  - Rollback option available immediately on post-execution events.

Advanced Features & Edge Cases

- Power users can save and share reusable workflow/policy templates within their organization.
- Supports bulk-approval or multi-proposal batch review for high-velocity pipelines.
- If an agent attempts an unauthorized transition, Anthesis halts execution and files an incident for escalation review.

- Handles disconnected/failed review scenarios by auto-expiring stale proposals and alerting the submitter.

UI/UX Highlights

- CLI output is color-coded for warnings/errors and uses ANSI-safe formatting for accessibility.
- Responsive web dashboard (for audit/review) supports keyboard navigation and screen readers.
- All outputs and records can be exported in compliance-friendly, immutable formats (YAML, JSON, RFC text).
- Minimal multi-step flows; every action requires explicit confirmation and provides context for next steps.
- High-contrast, scalable elements for both terminal and web UIs to meet AA accessibility standards.

Narrative

Taylor, an engineering lead at a large fintech firm, worries about the risk and opacity of letting AI agents modify their codebase. Her team wishes to automate routine maintenance using modern agent tools, but CTO mandates require auditable, policy-governed pipelines—no exceptions.

With Anthesis, Taylor's platform engineers hook into their code repositories and orchestrate workflows using Phloem. An individual contributor submits a refactoring task via CLI; the workflow is automatically classified as "Medium Risk" due to the codebase size, requiring explicit review. Taylor receives a detailed summary—policy diff, proposed changes, required clearance—right in her Anthesis dashboard and can approve or reject with rationale.

Upon approval, Anthesis executes the workflow under strict state machine supervision, streaming every result, decision, and agent output into a structured audit log. Weeks later, a client regulator requests a full trace: Taylor instantly exports an immutable, human- and machine-readable record of the entire event.

By shifting from opaque automation to governed, agentic SDLC, Taylor not only accelerates the team's work but dramatically reduces compliance overhead and mitigates operational risk—turning the AI revolution into a business advantage.

Success Metrics

User-Centric Metrics

- Number/proportion of agent proposals submitted through Anthesis vs. "shadow" automation workflows (target: >90% via Anthesis)
- User satisfaction score for core CLI/review UX (target: 4.5/5)
- Average review/approval cycle time (target: <30 minutes)

Business Metrics

- New enterprise customers acquired citing audit/governance as key driver (target: 5 in year one)
- Decrease in compliance incidents or risk events from agentic SDLC (target: 0 critical/major events in pilot phase)
- Percentage reduction in manual policy review workload for leads/managers (target: 60%)

Technical Metrics

- System uptime for orchestration engine and CLI (target: >99.9%)
- Median latency for workflow proposal to execution (<2 minutes under normal load)
- Audit log integrity (zero detected inconsistencies, tampering, or gaps)

Tracking Plan

- Agent workflow submission events
- Approval/denial actions and timings
- Policy violation detections and escalations
- Audit log access/export requests
- Rollback and incident/alert triggers

Technical Considerations

Technical Needs

- Orchestration engine (Phloem): Manages agent workflow lifecycles, execution, and state transitions.
- Policy engine: Evaluates workflows against active policy templates/classifications at proposal and execution time.
- CLI Client: Cross-platform, secure, integrates with user auth and proposal APIs.

- Data models: Immutable audit log objects; proposal, workflow, approval, policy schema.
- Dashboard (optional in v1): For review/approval traceability, policy management.
- APIs: Internal and (optionally) public endpoints for workflow submission, review, policy access.

Integration Points

- SCM/code repository hooks (e.g., GitHub, GitLab)
- Notification/email/Slack/workflow integration (for real-time approvals/reviews)
- SIEM/Compliance tool export endpoints

Data Storage & Privacy

- Immutable audit/event log stored in append-only, encrypted persistence (cloud or on-prem)
- Separation of user data/proposal content from minimal PII (all access/exports logged)
- Meets SOC2, ISO, and regulator requirements for SDLC traceability (for US/EU clients)

Scalability & Performance

- Supports hundreds of concurrent workflow proposals/executions per org (enterprise use case)
- Designed for low-latency review/approval, resilient to reviewer delays
- Horizontal scaling for orchestration and policy enforcement microservices

Potential Challenges

- Guaranteeing out-of-band agent activity is captured/prevented (requires deep SCM hooks and alerting)
- Handling workflows with overlapping/conflicting policy classifications
- User education: ensuring leads/engineers understand the limits and powers of the agentic model
- Ensuring audit log/tamper protection in on-premise deployments

Anthesis SDLC Usage Example

This example shows how a team uses Anthesis inside a repository to automate the SDLC while keeping governance intact.

Phloem is the MCP server; references to MCP below refer to Phloem.

Scenario: Add a Billing Endpoint

1) An engineer opens a feature branch and updates `requirements/` with a short PRD note describing the billing endpoint.
2) A human runs:

```
anthesis agent run requirements "draft API requirements for billing endpoint"
```

MCP processes the run:

- Pre-Bloom: event recorded.
- Context Assembly: RFCs and requirements pulled in.
- Calyx: Bloom Class evaluated; approval required for schema changes.

1) MCP creates a proposal and halts at `awaiting_approval`. An approver reviews and approves via CLI or UI.
2) MCP executes the requirements agent and writes updated artifacts under `requirements/` or `meristem/`.
3) The engineer runs:

```
anthesis agent run implementation "implement billing endpoint"
```

1) MCP enforces policy, generates a proposal with code diffs, and waits for approval if required.
2) The approver approves; MCP applies changes and records execution metadata.
3) The engineer runs:

```
anthesis agent run testing "add tests for billing endpoint"
```

1) MCP executes the testing agent and logs outcomes; CI runs as usual and is not bypassed.
2) Audit evidence is available via MCP (`/v1/audit/logs`) for compliance and review.

Outcome:

Every agent action is gated by Calyx, recorded via MCP, and replayable or auditable. Humans remain in control; automation is used only where allowed.

Scenario: Repository Modification Triggers SDLC Workflow

This shows a repo-change-driven flow where the human does not call the CLI directly.

1) A developer updates `requirements/payment_api.md` and pushes a commit.
2) MCP receives the repo event (e.g., `git.commit`) via webhook or a workflow tool.
3) Calyx classifies changes under `requirements/**` as Bloom Class 2 and requires approval.
4) MCP assembles context and runs a requirements-review agent to identify gaps or draft updates.
5) MCP creates a proposal and halts at `awaiting_approval`.
6) An approver reviews and approves; MCP applies the agent's updates and logs audit metadata.

Outcome:

The commit itself triggers SDLC automation, but all changes are still gated by policy and human approval.

Scenario: Deferred Execution with Manual Dispatch

This shows a queued execution that is explicitly dispatched later.

1) A developer runs:

```
anthesis agent run implementation "refactor payment adapter" --mode deferred
```

1) MCP creates the execution in `queued` lifecycle state.
2) An operator dispatches it when ready:

```
curl -X POST "$ANTHESIS_MCP_URL/v1/executions/<id>/dispatch" \
  -H "X-Anthesis-Key: $ANTHESIS_API_KEY" \
  -H "Content-Type: application/json" \
  -d '{"reason":"manual dispatch","actor":"operator"}'
```

1) MCP advances through context, Calyx, and either awaits approval or completes.

Scenario: Clarification via Approval Payload

This shows how to capture clarifying answers without mid-run input.

1) Trigger the agent run:

```
anthesis agent run requirements "clarify billing rules"
```

1) MCP creates a proposal that includes the question in `rationale`.
2) The approver supplies the answer in the approval reason (or attached payload via the UI).
3) MCP records the decision and continues execution under the approved context.

Documentation: Types and Conventions

- **RFCs** (Request for Comments) are proposals for changes or additions to the Anthesis system that may impact requirements and specifications. They provide a structured process for discussing and approving modifications to ensure alignment with the overall goals and design principles of Anthesis.
- **Architecture** documents the technical design and structure of the Anthesis system, including decision records, design notes, and diagrams.
- **Requirements** define the "what" - the necessary conditions and capabilities for the Anthesis system.
- **Specifications** define the "how" - the expected structure, behavior, and interfaces for components that fulfill the requirements.

Meristem: The Living RFCs of Anthesis

This directory is the **public summary view** of Anthesis Meristem RFCs.

- Each `rfc_*.md` file here is a concise, non-normative summary.
- The canonical, normative RFC source is `meristem/`.
- If any discrepancy exists between this directory and `meristem/`, `meristem/` is authoritative.

Meristem is Anthesis's constitutional layer: the RFC set that defines system behavior, governance, and constraints.

RFC-0000: Anthesis Terminology & Naming Convention

- **Status**: Living
- **Owner**: Anthesis Core
- **Created**: 2025-12-18
- **Last Updated**: 2025-12-18
- **Related RFCs**: None

This RFC canonizes Project Anthesis as the official project name and defines the shared terminology used across all existing and future RFCs.

RFC-0001: Agentic SDLC Platform

- **Status**: Living
- **Owner**: RJ
- **Created**: 2025-01-13
- **Last Updated**: 2025-01-13
- **Related RFCs**: RFC-0002, RFC-0003, RFC-0004, RFC-0005

This RFC defines an agentic AI platform to support the full Software Development Lifecycle (SDLC) using specialized AI agents coordinated via a Model Context Protocol (MCP) server, with Git as the system of record.

- Change Log
- Context & Motivation
- Goals
- Non-Goals
- System Overview
- Core Principles
- Human Interaction Model
- Security Considerations
- Decision

RFC-0002: MCP Orchestration API

- **Status**: Living
- **Owner**: RJ
- **Created**: 2025-01-13
- **Last Updated**: 2026-02-10
- **Related RFCs**: RFC-0001, RFC-0003, RFC-0004, RFC-0005, RFC-0033

Defines the Model Context Protocol (MCP) server as the central orchestration and governance layer for agentic workflows interacting with Git repositories.

- Responsibilities
- Event Sources
- Core APIs
- Event Ingestion
- Audit Logs
- Proposal Blocking
- Proposal Taxonomy & Approval Scoping (Normative Reference)
- Approval-Artifact Mapping (Normative Reference)
- Git as Source of Truth
- Failure Modes
- Schema Migrations
- CLI + Container Access

RFC-0003: Approval Policy Engine

- **Status**: Living
- **Owner**: RJ
- **Created**: 2025-01-13
- **Last Updated**: 2026-02-11
- **Related RFCs**: RFC-0001, RFC-0002, RFC-0027, RFC-0029

Defines a declarative policy engine governing when and how agentic actions are permitted to affect the Git repository.

- Policy Model
- Policy Sources (Normative)
- Rule Identity (Normative)
- Policy Composition (Normative)
- Explicit Disable Semantics (Normative)
- No-Relaxation-by-Default (Normative)
- Policy Inputs
- Policy Outputs
- Human-in-the-Loop
- Auditability
- Access Control
- Threat Model

RFC-0004: Provenance & Ingestion Model

- **Status**: Living
- **Owner**: RJ
- **Created**: 2025-01-13
- **Last Updated**: 2026-02-10
- **Related RFCs**: RFC-0001, RFC-0002, RFC-0006, RFC-0009, RFC-0023, RFC-0035

Defines how human and agent-generated artifacts are ingested, indexed, and attributed.

- Provenance Model (Normative)
- Repo Scoping (Normative)
- Linkage Requirements (Normative)
- Record Types (Normative)
- Ingestion Pipeline (Normative)
- Human Edits
- Offline and Local Operation (Normative)
- Idempotency and Dedupe (Normative)
- Storage

- Integrity and Append-Only Requirements (Normative)
- Boundaries (Normative)
- Query Use Cases

RFC-0005: Agent Schema

- **Status**: Living
- **Owner**: RJ
- **Created**: 2025-01-13
- **Last Updated**: 2026-02-10
- **Related RFCs**: RFC-0001, RFC-0002, RFC-0013, RFC-0031

Defines the standard schema for AI agents participating in the agentic SDLC platform.

- Agent Identity (Normative)
- Capabilities and Declarations (Normative)
- Execution Contract (Normative)
- Configuration Example
- Lifecycle (Normative)
- Long-Running Agents (Normative)
- Agent Composition (Normative)
- Open Questions

RFC-0006: Repository Event & Trigger Model

- **Status**: Living
- **Owner**: RJ
- **Created**: 2025-01-13
- **Last Updated**: 2026-02-10
- **Related RFCs**: RFC-0001, RFC-0002, RFC-0003, RFC-0004

Defines how changes to the Git repository—whether made by humans or agents—emit events that trigger agentic workflows within the MCP platform.

- Design Principles
- Event Sources
- Tracked Refs (Normative)
- Event Schema (Normative)
- Event Types (Normative)
- Submodules (Normative)
- Event Classification
- Trigger Rules
- Cross-Repo Triggers (Signal-Only Default)
- Trigger Evaluation Semantics (Normative)

- Cross-Repo Linkage (Normative)
- Human-Initiated Changes

RFC-0007: Context Assembly & Prompt Composition

- **Status**: Living
- **Owner**: RJ
- **Created**: 2025-01-13
- **Last Updated**: 2026-02-10
- **Related RFCs**: RFC-0001, RFC-0002, RFC-0004, RFC-0006, RFC-0009, RFC-0030, RFC-0034, RFC-0035

Defines how the MCP server assembles contextual information and composes final prompts before invoking LLMs.

- Design Principles
- Context Sources
- Retrieval & Ranking (Normative)
- Context Budgeting (Normative)
- Prompt Composition Order
- Provenance Annotation (Normative)
- Determinism & Reproducibility (Normative)
- Security Considerations (Normative)
- Open Questions

RFC-0008: Model & Runtime Abstraction

- **Status**: Living
- **Owner**: RJ
- **Created**: 2025-01-13
- **Last Updated**: 2026-02-10
- **Related RFCs**: RFC-0001, RFC-0002, RFC-0005, RFC-0007, RFC-0009, RFC-0027, RFC-0035, RFC-0025

Defines an abstraction layer between agents and model runtimes, allowing MCP to select, configure, and invoke models (generation and embeddings) without coupling agents to a specific backend.

- Design Principles
- Runtime Types
- Model Registry
- Agent-to-Model Binding
- Runtime Resolution
- Configuration & Overrides
- Failure Modes

- Security Considerations
- Open Questions

RFC-0009: Agent Execution Semantics

- **Status**: Living
- **Owner**: RJ
- **Created**: 2025-12-22
- **Last Updated**: 2026-02-14
- **Related RFCs**: RFC-0001, RFC-0002, RFC-0003, RFC-0005, RFC-0007, RFC-0008

Defines how agents are executed, scheduled, retried, and terminated within the MCP platform.

- Execution Modes
- Lifecycle States
- Inputs & Outputs
- Failure Handling
- Retries & Idempotency
- Cancellation & Timeouts
- Long-Running Agents
- Pause/Resume (Metadata Gate) (Normative)
- Security Considerations
- Observability
- Agent Chaining Semantics
- Cross-Agent Shared State

RFC-0010: CI/CD Integration Model

- **Status**: Living
- **Owner**: RJ
- **Created**: 2025-01-13
- **Last Updated**: 2026-02-10
- **Related RFCs**: RFC-0001, RFC-0002, RFC-0003, RFC-0006, RFC-0009

Defines how agentic workflows integrate with Continuous Integration and Continuous Delivery (CI/CD) systems to validate, gate, promote, and release artifacts.

- Design Principles
- Governance Posture Alignment (Normative)
- Integration Points
- Agent Interaction with CI/CD
- Gating & Promotion Rules

- Feedback Loops
- CI Callback Events (Normative)
- Artifact Promotion
- Multi-Environment Promotion (Normative)
- Rollbacks & Recovery
- Security Considerations
- Observability

RFC-0011: Observability, Telemetry & Drift

- **Status**: Living
- **Owner**: RJ
- **Created**: 2025-01-13
- **Last Updated**: 2026-02-10
- **Related RFCs**: RFC-0002, RFC-0004, RFC-0006, RFC-0007, RFC-0008, RFC-0009, RFC-0010, RFC-0023

Defines the observability framework for the agentic SDLC platform, covering logging, metrics, tracing, and drift detection across agents, models, prompts, and outcomes.

- Design Principles
- Telemetry Domains
- Telemetry Record Envelope (Normative)
- Logging
- Metrics
- Tracing
- Trace Propagation (Normative)
- Drift Detection
- Drift Inputs (Normative)
- Replay & Debugging
- Alerting
- Security Considerations

RFC-0012: Secrets & Credential Management

- **Status**: Living
- **Owner**: RJ
- **Created**: 2025-01-13
- **Last Updated**: 2026-02-10
- **Related RFCs**: RFC-0002, RFC-0003, RFC-0008, RFC-0009, RFC-0010, RFC-0011

Defines how secrets, credentials, and identities are managed across MCP, agents, CI/CD systems, and integrations (e.g., Git, Slack, email).

- Design Principles
- Identity Model
- Secret Types
- Secret Descriptor (Normative)
- Secret Scoping (Normative)
- Storage & Backends
- Injection & Access
- Per-Execution Secret Access (Normative)
- CI/CD Integration
- Auditing & Rotation
- Secret Audit Envelope (Normative)
- Emergency Controls

RFC-0013: Multi-Agent Coordination & Chaining

- **Status**: Living
- **Owner**: RJ
- **Created**: 2025-01-13
- **Last Updated**: 2026-02-10
- **Related RFCs**: RFC-0002, RFC-0005, RFC-0006, RFC-0007, RFC-0009, RFC-0010, RFC-0011

Defines how multiple agents collaborate within a single workflow, including sequencing, fan-out/fan-in patterns, dependency management, and deadlock prevention.

- Design Principles
- Coordination Patterns
- Execution Graphs
- Repo Scope (Normative)
- Workflow Graph Artifact (Normative)
- Data Passing & Contracts
- Execution Linkage (Normative)
- Approval Boundaries
- Workflow-Level Bounds (Normative)
- Failure Propagation
- Deadlock & Loop Prevention
- Observability

RFC-0014: Risk Classification & Bloom Classes

- **Status**: Living
- **Owner**: RJ

- **Created**: 2025-01-13
- **Last Updated**: 2026-02-10
- **Related RFCs**: RFC-0003, RFC-0006, RFC-0007, RFC-0009, RFC-0010, RFC-0011, RFC-0013, RFC-0020

Defines a unified risk model used across the agentic SDLC platform to govern approvals, execution semantics, context limits, CI/CD gates, and human oversight.

- Design Principles
- Risk Dimensions
- Bloom Classes
- Enforcement Matrix
- Pruning (Human Overrides)
- Agent Constraints by Bloom Class
- Risk Computation Inputs (Normative)
- Authority and Timing (Normative)
- Override Semantics (Normative)
- Dynamic Reclassification
- Security Considerations
- Observability

RFC-0015: Human Interfaces & Control Surfaces

- **Status**: Living
- **Owner**: RJ
- **Created**: 2026-01-18
- **Last Updated**: 2026-02-10
- **Related RFCs**: RFC-0002, RFC-0003, RFC-0009, RFC-0014, RFC-0021

Defines required human control surfaces for Anthesis, including approval interactions, visibility, and safe intervention boundaries.

- Motivation
- Goals
- Non-Goals
- Core Control Surfaces
- Repo Scoping (Normative)
- Approval & Pruning Model
- Kill Switches & Emergency Controls
- Explainability & Transparency
- Visualization & Canonical Projections (Normative, v1)
- Replay & Forensics
- Roles & Access Control
- Security Considerations

RFC-0016: Dormancy & Disaster Recovery

- **Status**: Living
- **Owner**: Anthesis Core Team
- **Created**: 2025-12-18
- **Last Updated**: 2026-02-10
- **Related RFCs**: RFC-0003, RFC-0004, RFC-0009, RFC-0010, RFC-0011, RFC-0012, RFC-0014, RFC-0015, RFC-0021, RFC-0023

This RFC defines how Project Anthesis behaves under failure, interruption, corruption, or emergency conditions. It introduces Dormancy as a first-class system state and establishes standards for backup, recovery, replay, and graceful degradation.

- Boundaries (Normative)
- Motivation
- Definitions
- Failure Classes
- Dormancy Triggers
- Dormancy Behavior
- Backup Strategy
- Recovery & Replay
- Cold Start Guarantees
- Required Governance Dependencies (Normative)
- Observability Requirements
- Security Considerations

RFC-0017: Governance, Ownership & RFC Lifecycle

- **Status**: Living
- **Owner**: Anthesis Core Team
- **Created**: 2025-12-18
- **Last Updated**: 2026-02-10
- **Related RFCs**: RFC-0003, RFC-0004, RFC-0014, RFC-0015, RFC-0021, RFC-0023, CHARTER.md

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This RFC defines how Project Anthesis governs itself. It establishes ownership models, decision authority, and the lifecycle for RFCs, agents, policies, and models.

- Motivation
- Governance Principles
- Ownership Model
- Roles & Authority
- RFC Lifecycle

- Constitutional vs Extension RFCs (Normative, v1)
- When an RFC Is Required
- Agent Interaction with Governance
- Change Approval
- Conflict Resolution
- Audit & Transparency
- Non-Goals

RFC-0018 — Anthesis Tooling & Project Bootstrap

- **Status**: Living
- **Owner**: Anthesis Core
- **Created**: 2025-12-18
- **Last Updated**: 2026-02-12
- **Related RFCs**: RFC-0000, RFC-0001, RFC-0002, RFC-0003, RFC-0006, RFC-0010, RFC-0014, RFC-0015, RFC-0016, RFC-0017, RFC-0021, RFC-0023

This RFC defines the tooling layer that applies Anthesis to new and existing projects. It introduces a CLI-driven bootstrap and adoption model that standardizes governance while preserving project autonomy.

- Purpose
- Scope
- Design Principles
- Canonical Tooling Components
- Integration with n8n and MCP
- CI/CD Tooling Integration
- Git Hook Enforcement (Local)
- Multi-Project Operation
- Safety, Risk, and Governance
- Security Considerations
- Failure Modes & Recovery
- Open Questions

RFC-0019: Anthesis Core Distribution & Update Strategy

- **Status**: Living
- **Owner**: Anthesis Core
- **Created**: 2025-12-18
- **Last Updated**: 2026-02-10
- **Related RFCs**: RFC-0000, RFC-0003, RFC-0014, RFC-0017, RFC-0018, RFC-0021, RFC-0023

This RFC defines how Anthesis Core (shared agents, policies, profiles, and templates) is distributed, versioned, and updated across multiple projects while preserving local autonomy and auditability.

- Motivation
- Boundaries (Normative)
- Definitions
- Distribution Models
- Consumer Repository Layout (Normative, v1)
- Versioning Strategy
- Update Workflow
- Partial Core Consumption (Normative, v1)
- Local Overrides & Divergence
- Provenance & Audit
- Security Considerations
- Non-Goals

RFC-0020: Anthesis State Machine (Formal Specification)

- **Status**: Living
- **Owner**: Anthesis Core
- **Created**: 2025-12-18
- **Last Updated**: 2026-02-10
- **Related RFCs**: RFC-0000, RFC-0003, RFC-0007, RFC-0009, RFC-0014, RFC-0016

This RFC formally specifies the Anthesis State Machine, defining the canonical workflow phases, transitions, invariants, and failure behavior for agentic workflows.

- Motivation
- Boundaries (Normative)
- Canonical Workflow Phases
- State Invariants
- State Transitions
- Transition Conditions
- Bloom Classes & State Constraints
- Concurrency Rules
- Replay Semantics
- Observability Requirements
- Security Considerations
- Non-Goals

RFC-0021: Anthesis CLI UX & Command Semantics

- **Status**: Living

- **Owner**: Anthesis Core
- **Created**: 2025-01-05
- **Last Updated**: 2026-02-12
- **Related RFCs**: RFC-0000, RFC-0009, RFC-0015, RFC-0018, RFC-0020, RFC-0027, RFC-0035

This RFC specifies the command-line interface (CLI) for Project Anthesis. The CLI is a first-class human control surface providing deterministic, scriptable access to Anthesis workflows while preserving governance, approvals, and safety invariants.

- Design Principles
- Command Taxonomy
- Global Flags
- Core Commands
- Exit Codes
- Output Contracts
- Workflow Phase vs Execution State (Normative)
- CLI User Flow Map (Reference)
- Security Considerations
- Non-Goals
- Open Questions
- Plugin Command Namespaces

RFC-0022: External Integrations & MCP Federation

- **Status**: Living
- **Owner**: Anthesis Core
- **Created**: 2025-12-18
- **Last Updated**: 2026-02-10
- **Related RFCs**: RFC-0000, RFC-0002, RFC-0006, RFC-0015, RFC-0017, RFC-0018, RFC-0020, RFC-0021, RFC-0023

This RFC defines how Project Anthesis integrates with external systems and how multiple MCP servers may federate securely.

- Motivation
- Boundaries (Normative)
- Integration Principles
- Integration Classes
- MCP Federation Model
- Federation Topologies
- Federation Contracts
- Trust & Identity
- Failure & Isolation

- Observability
- Security Considerations
- Non-Goals

RFC-0023: Audit, Compliance & Evidence Export

- **Status**: Living
- **Owner**: Anthesis Core
- **Created**: 2025-12-18
- **Last Updated**: 2026-02-10
- **Related RFCs**: RFC-0000, RFC-0004, RFC-0011, RFC-0014, RFC-0016, RFC-0020, RFC-0022

This RFC defines how Project Anthesis produces, preserves, and exports audit evidence suitable for internal review, incident forensics, and external compliance frameworks (e.g., SOC 2, ISO 27001).

- Motivation
- Evidence Principles
- Evidence Domains
- Evidence Records
- Tamper Evidence & Integrity
- Boundaries (Normative)
- Sigstore/Cosign Signing (Optional)
- WORM Storage Backends (Optional, Posture-Gated)
- Audit Views
- Evidence Export Formats
- Compliance Mapping
- Access Control

RFC-0024: Anthesis UI & Visualization Standards

- **Status**: Living
- **Owner**: Anthesis Core
- **Created**: 2025-12-18
- **Last Updated**: 2026-02-10
- **Related RFCs**: RFC-0000, RFC-0009, RFC-0011, RFC-0013, RFC-0015, RFC-0020, RFC-0021, RFC-0023

This RFC defines user interface (UI) and visualization standards for Project Anthesis. It specifies how system state, agent behavior, policies, risk, and evidence are rendered for humans in a way that is accurate, explainable, and safe.

- Design Principles
- Workflow Phase vs Execution State (Normative)

- Canonical Visual Metaphors
- Primary Views
- Interaction Constraints
- Accessibility & Safety
- Observability Integration
- Bloom Class Visualization (Normative, v1)
- Embeddable Read-Only Dashboards (Normative, v1)
- Security Considerations
- Non-Goals
- Open Questions

RFC-0025: Model Evaluation, Benchmarking & Drift Budgets

- **Status**: Living
- **Owner**: Anthesis Core
- **Created**: 2025-12-18
- **Last Updated**: 2026-02-10
- **Related RFCs**: RFC-0000, RFC-0007, RFC-0008, RFC-0011, RFC-0014, RFC-0020, RFC-0021, RFC-0023

This RFC defines how Project Anthesis evaluates language models, benchmarks their performance, and enforces drift budgets to ensure reliability, safety, and cost control over time.

- Motivation
- Boundaries (Normative)
- Design Principles
- Evaluation Domains
- Benchmark Suites
- Baselines & Comparisons
- Drift Budgets
- Drift Evaluation Rules (Normative, v1)
- Drift Breach Actions (Normative, v1)
- Benchmark Dataset Governance (Normative, v1)
- Promotion Rules
- Continuous Monitoring

RFC-0026: Anthesis Plugin & Extension Model

- **Status**: Living
- **Owner**: Anthesis Core
- **Created**: 2025-12-18
- **Last Updated**: 2026-02-10

- **Related RFCs**: RFC-0000, RFC-0002, RFC-0003, RFC-0014, RFC-0015, RFC-0017, RFC-0018, RFC-0021, RFC-0022

This RFC defines a plugin and extension model for Project Anthesis, enabling third-party and internal extensions while preserving governance, safety, and auditability.

- Motivation
- Boundaries (Normative)
- Design Principles
- Extension Types
- Plugin Packaging
- Registration & Discovery
- CLI Exposure
- Execution Constraints
- Agent Interaction
- Security Model
- Observability & Audit
- Update & Deprecation

RFC-0027: Configuration Model

- **Status**: Living
- **Owner**: RJ
- **Created**: 2025-12-28
- **Last Updated**: 2026-02-14
- **Related RFCs**: RFC-0002, RFC-0003, RFC-0012, RFC-0018, RFC-0021

Defines how Anthesis services load configuration across multiple processes and environments, with explicit precedence and security guarantees.

- Motivation
- Scope
- Non-goals
- Configuration Sources
- File Layout and Environment Profiles
- Shared vs Process-Specific Settings
- Security and Sensitive Values
- Validation and Auditability
- Encryption and Secret Managers
- Override Lock Policy (Normative, v1)
- Mode/Topology Transition Configuration Contract (Normative, v1)
- Open Questions

RFC-0028: Repo Registry & Identity Resolution

- **Status**: Living
- **Owner**: Anthesis Core
- **Created**: 2026-02-11
- **Last Updated**: 2026-02-19
- **Related RFCs**: RFC-0002, RFC-0006, RFC-0010, RFC-0029, RFC-0035

Defines how Anthesis identifies repositories (repo_id) and resolves multiple aliases (https://, ssh://, file://, local paths) to one canonical identity.

- Motivation
- Scope
- Out of Scope
- Assumptions
- v1 Decisions (Normative)
- Open Questions

RFC-0029: Policy Composition & Override Resolution

- **Status**: Living
- **Owner**: Anthesis Core
- **Created**: 2026-02-11
- **Last Updated**: 2026-02-19
- **Related RFCs**: RFC-0002, RFC-0003, RFC-0027, RFC-0028, RFC-0033, RFC-0035

Defines how Anthesis composes policy from organization baseline controls and repo-level overrides, including fail-closed conflict handling.

- Motivation
- Scope
- Out of Scope
- Assumptions
- v1 Decisions (Normative)
- Open Questions

RFC-0030: Approval-Artifact Mapping

- **Status**: Living
- **Owner**: RJ
- **Created**: 2025-01-13
- **Last Updated**: 2026-02-10
- **Related RFCs**: RFC-0002, RFC-0003, RFC-0004, RFC-0007, RFC-0023, RFC-0033

Defines how approval decisions map to specific artifacts (path + commit) so that context blocks can report deterministic, auditable approval_status metadata.

- Motivation
- Scope
- Definitions
- Data Model (Logical)
- Mapping Rules
- Context Assembly Usage (RFC-0007)
- Provenance & Audit Alignment (RFC-0004 / RFC-0023)
- Security Considerations
- Non-Goals
- Open Questions
- Command Proposal Strategy (Normative, v1)

RFC-0031: Agent Classes & Trust Model

- **Status**: Living
- **Owner**: Anthesis Core
- **Created**: 2026-01-17
- **Last Updated**: 2026-02-10
- **Related RFCs**: RFC-0003, RFC-0005, RFC-0013, RFC-0014, RFC-0023

Defines canonical Anthesis agent classes and trust boundaries, separating authority from execution with explicit non-escalation constraints.

- Intent
- Design Axioms (High Stability)
- Agent Classes
- Action Authority Matrix (Normative, v1)
- Authority Flow (Hard Rule)
- Open Questions
- Change Log

RFC-0032: External Tool Integration & Admission

- **Status**: Living
- **Owner**: Anthesis Core
- **Created**: 2026-01-17
- **Last Updated**: 2026-02-10
- **Related RFCs**: RFC-0003, RFC-0014, RFC-0022, RFC-0023, RFC-0026, RFC-0031

Defines admission controls and governance requirements for external tools and agent integrations, including policy, auditability, and trust-boundary constraints.

- Intent
- Stable Principles
- Tool Participation Model
- Admission Contract (Normative, v1)
- Tool Categories
- Relationship to Integrations & Plugins
- Admission Contract
- Admission Lifecycle (Normative, v1)
- Revocation & Dormancy
- Provenance Requirements
- Open Questions
- Change Log

RFC-0033: Proposal Taxonomy & Approval Scoping Strategy

- **Status**: Living
- **Owner**: Anthesis Core
- **Created**: 2026-02-05
- **Last Updated**: 2026-02-19
- **Related RFCs**: RFC-0002, RFC-0003, RFC-0007, RFC-0020, RFC-0023, RFC-0030

This RFC defines a minimal, normative proposal taxonomy and the rules that govern approval scoping in Anthesis.

- Boundaries (Normative)
- Motivation
- Scope
- Definitions
- Proposal Taxonomy (Normative)
- Approval Scoping Rules (Normative)
- Evidence Requirements (By Reference)
- Security Considerations
- Open Questions

RFC-0034: Sessions & Prompt Context Governance

- **Status**: Living
- **Owner**: Anthesis Core
- **Created**: 2026-01-26
- **Last Updated**: 2026-02-11

- **Related RFCs**: RFC-0000, RFC-0004, RFC-0007, RFC-0009, RFC-0021, RFC-0023, RFC-0027, RFC-0030

This RFC defines sessions and the governance rules for prompt context in Anthesis. It introduces a machine-readable session declaration, the Core Invariant vs Session Overlay model, and provenance expectations required to reconstruct the Effective Prompt after execution.

- Motivation
- Definitions
- Non-Goals
- Boundaries (Normative)
- Session Model
- Prompt Composition & Governance Rules
- Machine-Readable Session Declaration
- Audit & Provenance
- CLI Integration (Normative Reference)
- Security Considerations
- Open Questions

RFC-0035: Operating Modes (Offline / Local / Remote)

- **Status**: Living
- **Owner**: RJ
- **Created**: 2026-01-29
- **Last Updated**: 2026-02-14
- **Related RFCs**: None

This RFC defines Anthesis operating modes—offline, local, and remote—and the constraints, service dependencies, and governance expectations that apply to each. The goal is to make runtime posture explicit, predictable, and auditable while preserving RFC-level invariants (policy enforcement, auditability, and safe defaults).

- Motivation
- Scope
- Definitions
- Runtime Axes (Normative, v1)
- Operating Modes
- Service Availability Matrix
- Ingestion & Provenance Implications
- Disabling Services (e.g., Message Queues)
- Mode Detection & Guardrails
- Offline Caching & Deferred Delivery
- Governance & Policy Alignment

- Governance Requirements by Mode (Normative)

RFC-0036: QART Engineering

- **Status**: Living
- **Owner**: Governance Layer
- **Created**: 2026-02-21
- **Last Updated**: 2026-02-23
- **Related RFCs**: RFC-0037, RFC-0038, RFC-0099

This RFC defines QART Engineering as the required pre-decision governance discipline for significant architectural intent.

- Abstract
- Foundational Premise
- Governance Positioning
- Applicability Matrix
- Four Phases (Normative)
- Reversibility Doctrine
- Escalation Rules
- Auditability Requirements

RFC-0037: Drift Loop Engineering

- **Status**: Living
- **Owner**: Governance Layer
- **Created**: 2026-02-21
- **Last Updated**: 2026-02-23
- **Related RFCs**: RFC-0036, RFC-0038, RFC-0099

This RFC defines Drift Loop Engineering as the governed control loop for detecting, classifying, reconciling, and auditing drift between canonical intent and implementation reality.

- Abstract
- Motivation
- Terminology
- System Model
- Normative Requirements
- Enforcement
- Failure Modes
- QART Interaction

RFC-0038: Unified Governance Control Doctrine

- **Status**: Living
- **Owner**: Governance Layer
- **Created**: 2026-02-21
- **Last Updated**: 2026-02-23
- **Related RFCs**: RFC-0036, RFC-0037, RFC-0099

This RFC defines Unified Governance Control as the meta-doctrine that binds QART pre-decision governance with Drift Loop post-decision governance.

- Abstract
- Governance Architecture
- Core Thesis
- System Model
- Governance Layers
- Control Properties
- Escalation Architecture
- Compliance Model

RFC-0039: MCP Transport Profiles (`http`, `stdio`, `sse`)

- **Status**: Living
- **Owner**: TBD
- **Created**: 2026-02-22
- **Last Updated**: 2026-02-22
- **Related RFCs**: RFC-0002, RFC-0003, RFC-0017, RFC-0021, RFC-0027, RFC-0035, RFC-0099

This RFC defines governed MCP transport profile support in Phloem across `http`, `stdio`, and `sse` with explicit mode and security constraints.

- Summary
- Motivation
- Scope and Non-Goals
- Transport Profiles (Normative)
- Security Requirements (Normative)
- Mode and Topology Constraints (Normative)
- Configuration Contract (Normative)
- Compatibility and Migration
- Audit and Evidence Requirements

RFC-0099: Anthesis v1 Unfreeze & Amendment Rules

- **Status**: Living

- **Owner**: Anthesis Core
- **Created**: 2025-12-19
- **Last Updated**: 2026-02-11
- **Related RFCs**: RFC-0000, RFC-0003, RFC-0020, RFC-0023, RFC-0030, RFC-0033

This RFC transitions Anthesis v1 from Frozen to Active (Amendments Allowed).

Calyx: Policy and Approval Governance

Calyx is Anthesis' **policy and approval governance system**. It defines how changes are classified by risk, which actions require human approval, and how the system maintains accountability over all agentic decisions.

Purpose

Calyx exists to answer:

> *Is this action allowed? Who must approve it? Can we prove they did?*

Calyx is the **enforcement mechanism** that ensures agents operate only within explicitly defined boundaries, with transparent audit trails.

Core Concepts

Bloom Classes Bloom Classes are **risk tiers** assigned to artifacts and changes:

Class	Label	Definition	Approval Required
0	Read-Only	Documentation, analysis	No
1	Low Risk	Prompts, tests, minor refactors	No
2	Medium Risk	Application code, workflows	Yes (reviewer)

Class	Label	Definition	Approval Required
3	High Risk	Infrastructure, CI/CD, security	Yes (reviewer)
4	Critical	Production deploys, secrets, access	Yes (admin)

Bloom Classes are determined by:

- **File path** (mapped in `bloom-classes.yaml`)
- **Change type** (refactor vs new feature vs delete)
- **Scope** (single file vs repository-wide)

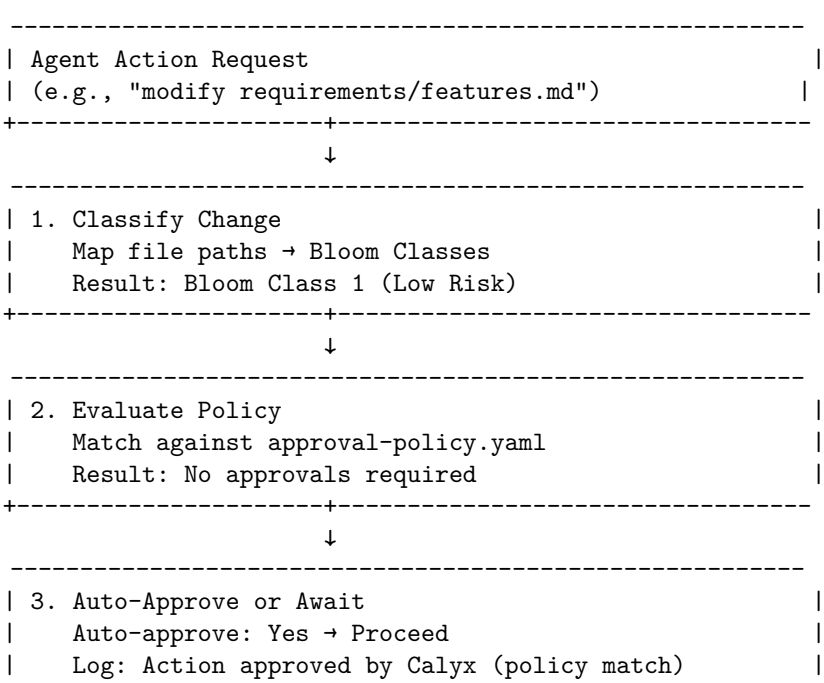
Approval Policy Approval policies **declare when and how approvals are required**:

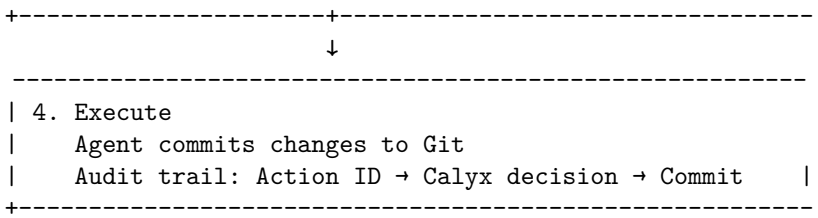
Policies are evaluated for every agent action:

1. **Classify** the change (Bloom Class)
2. **Match** against rules
3. **Require** approvals if rule specifies
4. **Halt** until approvals collected
5. **Audit** decision and approver

Execution Flow

When an agent action is submitted to Phloem:





Policy Evaluation Outcomes

Outcome	Description	Next Step
Auto-Approve	No approvals required	Execute immediately
Await Approval	Human approval needed	Halt; wait for approver
Reject	Policy forbids action	Fail; log reason
Escalate	Route to higher authority	Forward to admin channel

Approval Channels

Approvals can be collected from:

1. **GitHub PR Reviews** - Reviewer approves PR
2. **CLI Confirmation** - Human confirms in terminal
3. **n8n Workflows** - Approval action in workflow
4. **MCP API** - Programmatic approval submission

All approvals are **logged immutably** with:

- Approver identity
- Timestamp
- Action ID
- Decision rationale (if provided)

Example Scenarios

Scenario 1: Low-Risk Change (Auto-Approve)

```
Agent: "Update prompts/system-message.md"
File: prompts/system-message.md
Bloom Class: 1 (Low Risk)
Policy Match: default_low_risk
Approvals Required: []
Result:  Auto-approved → Execute
```

Scenario 2: Medium-Risk Change (Require Review)

```
Agent: "Refactor src/lib/domain/agent.ts"
File: src/lib/domain/agent.ts
```

```
Bloom Class: 2 (Medium Risk)
Policy Match: default_medium_plus
Approvals Required: [reviewer]
Result:  Awaiting Approval → Notify reviewers
```

Scenario 3: Critical Change (Require Admin)

```
Agent: "Update .env with new API key"
File: secrets/.env.production
Bloom Class: 4 (Critical)
Policy Match: critical_secrets
Approvals Required: [admin]
Result:  Admin approval only → Escalate to admin channel
```

Audit Logs Every Calyx decision is logged to:

- **MCP Event Log** - Structured JSON
- **Git Commit** - Approval metadata in commit message
- **External SIEM** - Via audit sink (if configured)

This ensures a **verifiable audit trail** for compliance and review.

Inflorescence: Multi-Agent Coordination

Inflorescence is Anthesis' **multi-agent coordination system**. It defines how multiple agents collaborate within workflow graphs, enabling complex, observable, and safe agent-to-agent coordination.

Purpose

Inflorescence answers:

> *How can multiple agents work together on a single problem safely?*
> *Who depends on whom? What happens when something fails?*

Inflorescence is the **orchestration layer** that turns individual agents into a coordinated team.

Core Concepts

Coordination Graphs Coordination graphs are **directed acyclic graphs (DAGs)** where:

- **Nodes** represent agent executions
- **Edges** represent data flow or approval dependencies
- **Workflows** describe task sequences, fan-out/fan-in, and failure strategies

Graphs are declarative, versioned in Git, and enforced by Anthesis at runtime.

Coordination Patterns Inflorescence supports standard workflow patterns:

Pattern	Description	Use Case
Sequential	A → B → C	Linear workflows
Fan-out	One agent spawns many	Parallel analysis
Fan-in	Multiple agents → aggregator	Consolidate results
Map/Reduce	Partition → analyze → synthesize	Large-scale tasks
Supervisor/Worker	Controller delegates scoped tasks	Distributed execution
Conditional	Branch on intermediate results	Decision trees

Execution States Each node in a graph transitions through states:

```
Pending → Running → Awaiting Approval → Completed
  ↓          ↓           ↓                  ↓
(not yet)  (active)    (blocked)      (done/failed)
```

Workflow Format

Inflorescence workflows are **YAML files** that define nodes, edges, and execution parameters.

Example 1: Simple Sequential Three agents run in sequence:

1. Agent A: Gather Requirements
2. Agent B: Validate Requirements
3. Agent C: Finalize Documentation

Example 2: Fan-Out / Fan-In One trigger spawns multiple parallel agents, then aggregate.

1. Read Specification file
2. Fanout: Three parallel agents analyze different sections
   - Agent A: Analyze Performance
   - Agent B: Analyze Security
   - Agent C: Analyze Usability
3. Fan-in: Aggregator agent synthesizes findings into a report

Example 3: With Approval Gate Workflow with human approval checkpoint:

1. Agent A: Deployment Planner
2. Agent B: Deployment Review Requires Approval
3. Agent C: Execute Deployment (only if approved)

Example 4: Failure Handling Workflow that continues if some nodes fail

1. Agent A: File Analysis (must succeed)
2. Agent B: File Analysis (must succeed)
3. Agent C: File Analysis with leniency (if it fails, log and continue)

Validation & Safety

Inflorescence enforces:

- **DAG constraint**: No cycles allowed
- **Acyclic graphs**: Prevent infinite loops
- **Execution limits**: Max depth, max nodes per execution
- **Timeouts**: Per-node and global workflow timeouts
- **No shared state**: Agents communicate only via edges
- **Immutable history**: All executions logged and replayed

Agents Agents are nodes in workflows. They:

- Receive inputs via templated substitution
- Produce JSON output
- Can specify approval requirements
- Respect Calyx policies

Inflorescence + Calyx Workflows are subject to Calyx policies:

```
Workflow → Node Execution → Calyx Classification → Approval Gate
```

Monitoring & Observability

Every state transition emits an event that is queriable via MCP.

Metrics

- Workflow execution time
- Node success/failure rates
- Approval wait time
- Data flow volume
- Approval decision distribution

Best Practices

1. **Keep workflows simple** - Fewer than 10 nodes per workflow
2. **Name nodes clearly** - Use descriptive, actionable IDs
3. **Document inputs/outputs** - Specify data contracts
4. **Set appropriate timeouts** - Prevent hung executions
5. **Plan failure strategies** - Decide at design time
6. **Version workflows** - Increment version on changes
7. **Test locally** - Use workflow simulator before deploying

8. **Monitor execution** - Watch approval and failure metrics
9. **Iterate** - Refine workflows based on real-world usage

Reference

Related RFCs

- RFC-0013: Multi-Agent Coordination - Coordination patterns
- RFC-0009: Execution Semantics - Execution states
- RFC-0005: Agent Schema - Agent definitions

Services: The Execution Layer of Anthesis

Microservices that power Anthesis: Phloem (MCP server & orchestration) and Xylem (worker execution service).

Service Architecture

```
Services (Tier 3: Execution)
|
+-- Phloem (Orchestration & API)
|   +-- MCP Server implementation
|   +-- Request routing and validation
|   +-- Policy integration (Calyx)
|   +-- Proposal management
|   +-- Outbox execution queue
|   +-- State management
|   +-- Audit logging
|
+-- Xylem (Worker Execution)
|   +-- Message queue consumer
|   +-- Agent execution
|   +-- Context assembly
|   +-- Output validation
|   +-- Result collection
|   +-- Error handling
|   +-- Queue initialization (scripts/)
|
+-- Xylem (Embedded Execution)
    +-- Local execution mode for CLI
    +-- Same execution logic as worker
    +-- Runs in-process with CLI for low-latency operations
```

Service Communication

Request Flow

```
1. Client → Phloem: Request
2. Phloem → Calyx: Classification
3. Phloem → Xylem: Dispatch
4. Xylem → Phloem: Claim
5. Xylem → Phloem: Dispatch/Execute
6. Response to Client
```

Service SLOs

Target service level objectives:

Metric	Target
Availability	99.9% (9h/month downtime)
Latency (p50)	< 500ms
Latency (p99)	< 5s
Error Rate	$< 0.1\%$
Queue Latency	< 1s (p95)

Phloem Service: The Anthesis MCP Server and Orchestration Hub

Phloem is the Anthesis MCP server implementation. It exposes the orchestration API, enforces policy via Calyx, and records execution/audit data for governed workflows.

Purpose: Central orchestration hub, MCP server, policy enforcement

Responsibilities:

- Receive and parse incoming requests
- Classify requests with Calyx
- Route work to executors
- Aggregate and return results
- Record audit trail
- Handle approvals and callbacks

Configuration

Runtime Posture The runtime posture is modeled as four axes:

- `operating_mode`: `offline | local | remote`
- `execution_topology`: `embedded | worker`
- `relay_mode`: `embedded | process`
- `deployment_scope`: `single | distributed`

Canonical runtime profiles and configuration overlays can be defined as combinations of these axes. See Configuration for details on how to configure these profiles and overlays.

Queue Backend Configuration Phloem uses a vendor-agnostic queue abstraction layer. Configure via environment variables.

Xylem Service: The Anthesis Execution Agent and Queue Consumer

Xylem is the execution agent for Anthesis. It consumes dispatch messages from the Xylem message queue, claims executions from the Phloem MCP server, and relays dispatch notifications back to the API.

Xylem has two operating modes depending on runtime configuration:

1. **Queue Consumer Mode** (default) - Subscribes to configured queue backend, consumes dispatch messages, claims executions, and relays notifications.
2. **Embedded Mode** - Runs as a standalone process without queue consumption, useful for testing or environments without queue backends.

Xylem operates with Phloem (MCP server) to claim and execute tasks/workflows and relay notifications. It also supports health monitoring, reporting, and graceful shutdown.

Responsibilities:

- Subscribe and initialize work queues
- Load execution context
- Execute agents with scoped access
- Validate output
- Handle errors gracefully
- Report results back
- Health monitoring

Worker Types:

- **Agent Worker** - Executes agents
- **Tool Worker** - Executes external tools
- **Approval Worker** - Handles approval callbacks
- **Notification Worker** - Sends notifications

Execution Flow

1. Worker receives dispatch message from queue backend
2. Extracts `execution_id` from payload
3. Claims execution: `POST /v1/executions/{id}/claim`
4. Executes agent or workflow with context from MCP

5. Relays dispatch: `POST /v1/executions/{id}/dispatch`
6. Acknowledges message to queue backend
7. Reports status to provenance queue (if enabled)
8. Handles errors and retries according to policy

Scaling:

- Horizontal scaling (add more workers)
- Different worker pools for different task types
- Prefetching and batching for efficiency
- Auto-restart on failure
- Graceful shutdown on signals

Tooling: Building, Testing, and Deploying Anthesis

Development tools and utilities for Anthesis: CLI, AI client library, templating system, and test infrastructure. Everything needed to build, test, and deploy the platform.

Included Tools

1. CLI (Command-Line Interface) Anthesis CLI is the local control surface for governed workflows, providing scriptable commands that mirror MCP operations while enforcing Anthesis policy and plugin contracts.

2. Embedded Runtime Anthesis Embedded Runtime is a lightweight execution environment for running agents and workflows without a worker deployment. It provides a direct API to the Phloem MCP server and manages context in-memory, making it ideal for testing, development, and environments without queue backends.

3. AI Client Library ai_client is a shared Python library providing OpenAI-compatible client helpers for AI runtime integration. It manages model discovery, configuration loading, context, and chat completion requests across Anthesis services and plugins. It supports multiple backends (Ollama, LM Studio, etc.) and provides a consistent interface for AI interactions.

4. Observability & Logging Standardized logging and observability utilities for consistent instrumentation across services and agents. Provides structured logging, OpenTelemetry integration, and centralized configuration for log levels and formats. This ensures that all components of Anthesis emit consistent, queryable logs that can be easily integrated with monitoring and alerting systems.

5. Message Queue Abstraction Vendor-agnostic message queue abstraction layer supporting RabbitMQ, Redis Streams, Apache Kafka, and AWS SQS.

Provides a consistent interface for enqueueing and consuming messages, allowing Phloem and Xylem to operate with different queue backends based on deployment needs. Configuration is handled via environment variables, enabling flexibility without code changes.

6. Templates Shared Jinja2 templates for Anthesis tooling, distribution packaging, and test scaffolding. Templates ensure consistency in generated artifacts, such as agent definitions, workflow graphs, and plugin manifests. They can be extended by plugins to provide domain-specific templates for various use cases.

Template Types:

- **Workflow templates** - Assemble execution context for agents
- **Artifact templates** - Format changes as commits or diffs
- **Context templates** - Build agent input from previous outputs
- **Output templates** - Format agent output for downstream use

7. Test Infrastructure Mainly focused on integration testing between control surfaces, data, and services. Tests are split into **unit** and **integration**. Integration testing happens through services and the CLI in docker compose. Coverage is tracked and CI/CD pipelines enforce minimum thresholds.

Tools Overview

Tool	Purpose	Status
CLI	Command-line interface	Active
Embedded Runtime	Local execution environment	Active
ai_client	AI runtime library	Active
templates	Jinja2 templating	Active
message_queue	Message queue abstraction	Active
observability	Logging and instrumentation	Active
tests	Test infrastructure	Active

Anthesis CLI: The Local Control Surface for Governed Workflows

Anthesis CLI is the local control surface for governed workflows, providing scriptable commands that mirror MCP operations while enforcing Anthesis policy and plugin contracts.

Features

- Sessions for invariant and overlay prompts, context, and configuration
- Plugin command execution with policy enforcement

- Execution of agents and workflows
- Agent management
- Model governance and configuration
- RFC management
- AI client library for model interactions
- Observability utilities for consistent logging and instrumentation
- System runtime profiles for different environments (local, staging, production)
- Tool for integration testing

Plugin registry loading

The CLI loads plugins from a registry configured in user or project scope. The registry defines available plugins, their sources (local or release), and configuration.

Configuration hierarchy

Anthesis CLI configuration is loaded from multiple sources with the following precedence (highest to lowest):

1. CLI arguments
2. Environment variables
3. User config file (`~/.config/anthesis/config.yaml`)
4. Project config file (`anthesis/config.yaml`)

Session Profiles Session profiles allow prompt configurations, context, and artifacts to be defined.

Runtime Profiles Runtime profiles define the configuration to access the various services and resources in different environments (local, staging, production). This includes API endpoints, authentication, model configurations, and plugin settings.

Configuration: Design and Documentation

Anthesis configuration is designed to be hierarchical, environment-aware, and security-conscious. It supports multiple layers of configuration (project, user, environment) with clear precedence rules. Sensitive information is handled securely with support for secrets management and encryption. Configuration can be dynamically reloaded to reflect changes without restarting services. This design allows for flexible and secure management of Anthesis across different environments and use cases.

Configuration Layers

1. **Project Configuration** - `anthesis/config.yaml` (optional, version-controlled)
2. **User Configuration** - `~/.config/anthesis/config.yaml` (optional, user-specific)
3. **Environment Variables** - `ANTHESIS_*` (optional, overrides file configs)
4. **CLI Arguments** - `--config` and other flags (optional, highest precedence)

Security Considerations

- Sensitive information (API keys, credentials) should be stored in environment variables or secrets management systems, not in version-controlled files.
- Configuration files should have appropriate permissions to restrict access.
- Support for encrypted configuration values can be implemented for added security.

Dynamic Reloading

Anthesis services can be designed to watch configuration files for changes and reload them dynamically without requiring a restart. This allows for seamless updates to configuration in production environments.

Profiles & Overlays

Configuration profiles can be defined for different environments (local, staging, production) with specific settings. Overlays can be used to apply environment-specific overrides on top of base configurations. This allows for flexible management of configuration across different deployment targets.

Architecture: Decision Records and Design Notes

Architecture decision records, system design notes, and technical diagrams. This section captures the architectural decisions, design patterns, and system structure of Anthesis. It includes documentation on component interactions, data flows, integration patterns, and non-functional requirements such as performance, reliability, and security. The architecture documentation serves as a reference for developers and stakeholders to understand the technical design and rationale behind key decisions in the Anthesis system.

Scope

- ADRs and architectural trade-offs
- System diagrams and component boundaries
- Integration patterns and data flows

- Non-functional requirements (performance, reliability, security)

Conventions

- Use ADRs for decisions that affect long-term structure.
- Link to related RFCs and specs.
- Keep diagrams source-backed (Mermaid, draw.io, etc.).

Requirements: Defining the "What" of Anthesis

Anthesis requirements define the necessary conditions, capabilities, and constraints that must be met for the successful implementation and operation of the Anthesis system. These requirements encompass functional aspects such as agent behavior, workflow execution, plugin interactions, and session management, as well as non-functional aspects like performance, scalability, security, and maintainability. By establishing clear requirements, stakeholders can ensure that the development process is aligned with the intended goals and use cases of Anthesis, facilitating effective design decisions and prioritization throughout the project lifecycle.

Requirement Categories

1. **Functional Requirements** - Define specific behaviors, features, and interactions that the Anthesis system must support, such as agent capabilities, workflow orchestration, plugin functionality, and session management.
2. **Non-Functional Requirements** - Specify performance, scalability, security, reliability, and maintainability criteria that the Anthesis system must meet to ensure a robust and efficient operation.
3. **Governance Requirements** - Outline policies, rules, and constraints for agent behavior, workflow execution, and plugin interactions to ensure responsible and ethical use of AI capabilities.
4. **Integration Requirements** - Detail the necessary interfaces, protocols, and data formats for seamless integration between Anthesis components (MCP, Phloem, Xylem) and external systems or services.
5. **Testing & Validation Requirements** - Define the criteria and methodologies for testing the functionality, performance, and security of the Anthesis system to ensure it meets the specified requirements.
6. **Documentation Requirements** - Specify the necessary documentation for users, developers, and administrators to effectively utilize, extend, and maintain the Anthesis system.

Specifications: The Technical Blueprints of Anthesis

Anthesis specifications define the expected technical structure, behavior, and interfaces for various components of the Anthesis system. These specifications serve as a blueprint for development, ensuring consistency, interoperability, and adherence to design principles across different modules and plugins. Specifications cover areas such as configuration formats, plugin interfaces, API contracts, data models, and communication protocols. By following these specifications, developers can create compatible components that integrate seamlessly within the Anthesis ecosystem, facilitating extensibility and maintainability.

Specification Categories

1. **Governance Specifications** - Define policies, rules, and constraints for agent behavior, workflow execution, and plugin interactions.
2. **Plugin Specifications** - Outline the expected interfaces, lifecycle, and capabilities for plugins within the Anthesis system.
3. **Session Specifications** - Describe the structure and management of sessions, including context, prompts, and artifacts.
4. **Runtime Specifications** - Detail the expected behavior and interfaces for runtime components such as the MCP server and worker.
5. **API Specifications** - Define the endpoints, request/response formats, and authentication for Anthesis APIs.
6. **Data Model Specifications** - Describe the structure and relationships of data entities used across the system, such as agents, workflows, executions, and artifacts.
7. **Communication Protocol Specifications** - Outline the expected message formats, queues, and protocols for communication between components like Phloem and Xylem.

Plugins: Extending Capabilities with Governance

Plugins extend platform capabilities while preserving governance, policy enforcement, and auditability. They add agents, tools, integrations, and workflows without bypassing Calyx or expanding authority.

Philosophy

Plugins follow a core principle:

> **Plugins extend capability, never authority.**

- Plugins cannot bypass Calyx policies
- Plugins cannot modify approval requirements
- Plugins cannot access privileged operations
- Plugins are **fully auditable** and **replayable**
- Plugins have a manifest and an execution model
- Plugins are signed with certificates auditable

Types

Anthesis supports four plugin categories, each with specific constraints and use cases:

- Agent plugins
- Tool plugins
- Integration plugins
- UI plugins

Document Publisher Plugin: Building Anthesis Documentation from Markdown

This plugin builds Anthesis documentation artifacts from Markdown sources. It converts Markdown files into HTML and PDF formats, integrating with the MCP for artifact storage and retrieval. The plugin is configurable, allowing users to specify source and output paths, as well as custom templates and styling for the generated documentation.

Git Plugin: Local Git Utilities for Anthesis

Local-only git utilities for Anthesis. Provides commit message generation, diff analysis, and integration with the MCP for commit and diff-based workflows. This plugin is designed to assist agents in understanding code changes, generating meaningful commit messages, and analyzing diffs to inform decision-making processes. It can be used in workflows that involve code review, automated commits, or any scenario where understanding code changes is beneficial.

Task Plugin: Local Task Management and Governance Tracking

Task plugin for intended for local task management and governance tracking. This plugin provides capabilities for creating, assigning, and tracking tasks within the Anthesis system, integrating with the MCP for task execution and notifications. It also includes features for governance tracking and reporting on task outcomes, ensuring that all tasks are executed in accordance with defined policies and that their results are properly documented and accessible for review.

SAFE-MCP: Structured Security Analysis for MCP-Based Systems in Anthesis

Anthesis adopts SAFE-MCP as a security analysis framework to structure threat modeling, control verification, and detection planning for MCP-based systems. This document describes how SAFE-MCP is used across Anthesis components to maintain a consistent security posture without altering governance or implementation.

Background and Rationale

Anthesis is an agentic SDLC platform with a multi-surface attack profile: MCP server endpoints, CLI clients, multi-agent coordination, plugins, and federated integrations. SAFE-MCP provides a standardized taxonomy of MCP-specific threats and mitigations. Anthesis uses this taxonomy to align security controls with clear evidence and to avoid ad hoc, inconsistent security reviews.

Scope of Application

SAFE-MCP is applied across the full stack:

- MCP server boundary (Phloem): authentication, authorization, tool exposure, and request validation.
- Client and CLI flows: prompt injection risks, unsafe tool invocation, and approval gates.
- Plugin ecosystem: tool poisoning and supply chain style risks in manifests and install paths.
- Policy and risk tiers: approval policy enforcement, least privilege, and bloom class constraints.
- Observability and audit: detection coverage, provenance logging, and audit trails.
- Federation and integrations: trust boundaries and cross-system access constraints.

Method of Use

Anthesis uses SAFE-MCP in three structured modes:

1. Threat Modeling: Map SAFE-MCP techniques to Anthesis surfaces, identify gaps, and document assumptions.
2. Control Verification: Validate that approvals, allowlists, and enforcement points exist and are auditable.
3. Test Design: Convert techniques into adversarial test cases for MCP routes, tool calls, and plugin workflows.

Outputs and Evidence

The primary artifact is the SAFE-MCP coverage matrix in `docs/security/safe-mcp-analysis.md`. It documents:

- Threat class to component mappings
- Expected controls and detections
- Evidence locations in the repository
- Status labels to track coverage and gaps

Governance Alignment

This summary is informational and does not modify RFCs, tasks, or runtime behavior. It is intended to support governance review by grounding security discussions in a common taxonomy and evidence trail.

Security Policies: Governance and Incident Response

Security Policy

- **Scope:** Applies to Anthesis services (Phloem, Xylem, CLI, plugins), all environments, personnel, and third-party integrations.
- **Principles:** Human sovereignty, defense-in-depth, least privilege, traceability, security by design, fail securely.
- **Core Requirements:** Authn/z for all API access, input validation, secrets management, data protection in transit/at rest, monitoring and alerting, secure SDLC practices, incident response adherence, and explicit third-party risk controls.
- **Roles:** Security team owns policy and incident response; engineering and DevOps implement controls; management approves changes.
- **Review Cadence:** Annual review or after P0/P1 incidents.

Incident Response Policy

- **Severity Levels:**
  - P0: Critical, immediate response (<15 minutes), all hands, executive notification.
  - P1: High, response within 1 hour, security lead + DevOps lead + on-call, management notified.
  - P2: Medium, response within 4 hours, on-call + security reviewer.
  - P3: Low, response within 24 hours, standard on-call.
- **Phases:** Detection & triage, containment, investigation, eradication, recovery, and post-incident review.
- **Key Actions:** Credential rotation, system isolation, evidence preservation, patching, staged recovery, and formal postmortem with owners and due dates.
- **Communication:** War room for P0/P1, regular status updates, decisions logged; coordinate external notices with Legal/Compliance as needed.