

AgentRegenService

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AgentRegenService

Kind: Service

Source: `atloria-monorepo/apps/api/src/docs-pr/agent-regen.service.ts`

Rung-2 — behavior-aware regeneration. For a change that alters BEHAVIOR without altering the

public signature (a new guard clause → 409, a changed default, a new error path) — which the

deterministic Rung-1 renderer can't see — an autonomous agent reads the actual changed code and

rewrites the page to reflect current behavior; a verifier then scores confidence.

Guardrails (this writes behavioral claims into real PRs, so it is conservative):

- OFF by default (env `DOCS_PR_RUNG2` `!== 'true'`) → returns null, caller uses Rung-1.
- confidence below τ , empty output, or ANY error → returns null (fall back to Rung-1).

Mirrors the proven doc-automation agent-writer/verifier pattern (agent-core AgentSession).

NOT yet wired into the live docs-pr path — that needs Phase A (escalation trigger + a clone at PR time) and the Phase C eval before turn-on. See docs/rung-2-investigate-spec.md.

`AgentRegenService` provides an optional, behavior-aware documentation regeneration path for docs PRs. When enabled, it uses an autonomous agent to inspect changed implementation code, rewrite documentation for behavior changes that signature-based rendering cannot detect, and verify the generated result against a confidence threshold. It is deliberately fail-safe: disabled mode, low confidence, empty output, or any error returns `null` so callers can fall back to deterministic Rung-1 rendering.

Methods

Method	Signature	Returns
regenerate	regenerate(input: AgentRegenInput, optedIn: unknown)	`Promise<AgentRegenResult

Dependencies

- ConfigService

Where it refuses work

- AgentRegenService stops the work with an early return when !this.enabled && !optedIn .
- AgentRegenService stops the work with an early return when !after .

When something fails

- AgentRegenService handles failure in 1 place: it turns it into a return value in all 1.

Diagram

```
sequenceDiagram
    participant Caller as Docs PR Pipeline
    participant Regen as AgentRegenService
    participant Agent as AgentSession Writer
    participant Verifier as AgentSession Verifier
    participant Rung1 as Deterministic Rung-1

    Caller->>Regen: regenerate(...)
    Regen->>Regen: Check DOCS_PR_RUNG2

    alt Rung-2 disabled
        Regen-->>Caller: null
        Caller->>Rung1: Render deterministic docs
    else Rung-2 enabled
        Regen->>Agent: Read changed code and rewrite page
        Agent-->>Regen: Proposed documentation

        alt Empty output or agent error
            Regen-->>Caller: null
            Caller->>Rung1: Render deterministic docs
        else Valid proposal
            Regen->>Verifier: Score generated behavioral claims
            Verifier-->>Regen: Confidence score

            alt Confidence below threshold or verifier error
```

```

    Regen-->>Caller: null
    Caller->>Rung1: Render deterministic docs
  else Confidence accepted
    Regen-->>Caller: AgentRegenResult
  end
end
end
end

```

Usage

```

import { AgentRegenService } from './agent-regen.service';

async function regenerateDocs(
  agentRegenService: AgentRegenService,
  input: Parameters<AgentRegenService['regenerate']>[0],
) {
  const rung2Result = await agentRegenService.regenerate(input);

  if (rung2Result) {
    // Use the verified behavior-aware page rewrite.
    return rung2Result;
  }

  // Rung-2 is disabled, failed, or lacked sufficient confidence.
  // Continue with the deterministic renderer.
  return renderRung1Documentation(input);
}

```

AI Coding Instructions

- Keep `regenerate()` fail-safe: return `null` for disabled configuration, invalid or empty agent output, low verifier confidence, and all unexpected errors.
- Treat generated behavioral claims as untrusted until verification succeeds; do not bypass the confidence threshold for convenience.
- Preserve the Rung-1 fallback contract—callers must be able to continue deterministic rendering whenever this service returns `null`.
- Gate all Rung-2 execution behind `DOCS_PR_RUNG2 === 'true'`; this capability is intentionally off by default.
- Do not wire this directly into the live docs-PR path without the required escalation trigger, PR-time clone support, and Phase C evaluation.

Relationships

- `DEPENDS_ON` → `configservice`

Referenced By

- `DocsPrModule` (`MODULE_PROVIDES`)
- `DocsPrService` (`DEPENDS_ON`)