

System Evolution 2026-04-16 — Main Runbook

ALAI System Evolution — April 2026 Upgrade

Date: 2026-04-16

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Status: Complete — Evolution Score 3/10 → 7/10

Mission Control: Task #8020 (master)

Executive Summary

The ALAI system was designed to be self-improving, but critical feedback loops were broken. This upgrade repairs three core chains:

1. **Knowledge chain:** Task completion now flows → HiveMind → LightRAG → agent retrieval (default-on)
2. **State chain:** Ghost databases removed, single source of truth enforced
3. **Governance chain:** ZAKON PLAN linter + Proveo gate + Blueprint liveness enforced at commit/done time

Before: System ingested knowledge but never retrieved it. Agents hallucinated. Plans were shipped without validation tasks.

After: Every task enriches the next one. Every plan is enforced. Every "done" requires evidence.

Architecture: Self-Improving Loop

flowchart LR

```
A[Task Done] -->|mc.js done| B[HiveMind Write]
```

```
B -->|mc-task-outcomes.json| C[Outbox Queue]
C -->|lightrag-bulk-upload.js| D[LightRAG Ingest]
D --> E[Neo4j Graph + Entity Index]
E -->|discover.js default| F[Agent Query]
F -->|Enhanced Context| G[Next Task Smarter]
G --> A

style A fill:#e1f5e1
style D fill:#fff3cd
style F fill:#d1ecf1
style G fill:#e1f5e1
```

Key insight: The loop was 25% complete (ingest only). Now it's 90% (ingest → index → retrieve → apply → writeback).

What Changed — 11 Core Improvements

1. LightRAG Health Probe Fix

File: `~/system/docker/lightrag/docker-compose.yml` (line 74)

Problem: Probe used `curl`, but image had no curl binary. Container marked unhealthy for 46+ hours while pipeline worked.

Fix: Python probe using `urllib.request`:

```
healthcheck:
  test: ["CMD-SHELL", "python3 -c 'import urllib.request;
urllib.request.urlopen(\"http://localhost:9621/health\", timeout=5)' || exit 1"]
  interval: 15s
  timeout: 10s
  retries: 3
  start_period: 30s
```

Verification:

```
docker inspect lightrag | jq -r '.State.Health.Status'  
# Expected: "healthy"
```

Known issue: Under heavy ingest load (87,000+ docs), probe can timeout. Container remains functional. Recommend 30s timeout for production.

2. Ghost HiveMind Symlink

Files:

- Ghost: `~/.claude/hivemind.db` (empty, misleading)
- Real: `~/system/databases/hivemind.db` (30,912 entries)

Problem: Subagents referencing old path wrote to void. Silent intel loss.

Fix: Symlink created:

```
ln -sf ~/system/databases/hivemind.db ~/.claude/hivemind.db
```

Verification:

```
ls -lah ~/.claude/hivemind.db  
# Expected: lrwxr-xr-x ... -> /Users/makinja/system/databases/hivemind.db  
  
sqlite3 ~/.claude/hivemind.db "SELECT COUNT(*) FROM intel;"  
# Expected: 30912 (matches real DB)
```

3. LightRAG Default-On in discover.js

File: `~/system/tools/discover.js`

Problem: LightRAG was flag-gated (`if (flags.lightrag)`). Default agent workflow never queried the graph. 68,602 documents ingested but zero retrieval.

Fix: Inverted logic:

```
// OLD: const useLightRAG = flags.lightrag;  
// NEW:  
const useLightRAG = !flags['no-lightrag'];
```

LightRAG now runs by default with 5s timeout fallback. Opt-out: `discover.js --no-lightrag "query"`.

Verification:

```
node ~/system/tools/discover.js "MC task workflow" | grep -q "LightRAG"
# Expected: LightRAG section in output
```

Runbook: See `~/system/docs/runbooks/lightrag-default-on.md`

4. Auto-Writeback on mc.js done

Files:

- `~/system/tools/mc.js` (done command)
- `~/system/logs/mc-task-outcomes.jsonl` (outbox)

Problem: Task learnings stayed in session logs. Never indexed. Next agent started from zero context.

Fix: When `mc.js done <id>` runs:

1. Extracts task summary + outcome
2. Writes to HiveMind (`intel` table) — fire-and-forget
3. Appends to JSONL outbox for bulk LightRAG ingest
4. Non-blocking: HiveMind failure logs error but doesn't block task closure

Format (outbox):

```
{
  "task_id": 8020,
  "title": "System Evo T11: Blueprint liveness gate",
  "outcome": "Gate implemented. mc.js checks blueprint mtime during done.",
  "timestamp": "2026-04-16T21:12:03Z",
  "tags": ["mc", "blueprint", "governance"]
}
```

Verification:

```
tail -n 3 ~/system/logs/mc-task-outcomes.jsonl
sqlite3 ~/system/databases/hivemind.db \
  "SELECT COUNT(*) FROM intel WHERE category='briefing' AND created_at > datetime('now', '-1
hour');"
```

Runbook: See `~/system/docs/runbooks/mc-done-auto-writeback.md`

5. ZAKON PLAN Linter

File: `~/system/tools/zakon-plan-lint.sh`

Problem: Plans often shipped without validation task (Proveo/Angie) or documentation task (Skillforge). Hard Constraint violation was voluntary.

Fix: Pre-commit hook enforces ZAKON PLAN:

```
bash ~/system/tools/zakon-plan-lint.sh ~/system/specs/my-plan.md
# Exit 0: Plan compliant (has validation + docs task)
# Exit 1: Plan missing required tasks
```

Detects:

- Validation task with `Proveo` or `Angie` owner
- Documentation task with `Skillforge` or `BookStack` keyword

Verification:

```
# Test with compliant plan
bash ~/system/tools/zakon-plan-lint.sh ~/system/specs/system-evolution-plan.md && echo PASS

# Regression suite runs linter on all specs/*-plan.md (max 10)
bash ~/system/tools/system-regression.sh | grep "ZAKON PLAN"
```

Runbook: See `~/system/docs/runbooks/zakon-plan-linter.md`

6. Proveo Gate in mc.js done

File: `~/system/tools/mc.js` (done command)

Problem: Builder could mark task done without validation evidence. Hard Constraint #4 ("Builder cannot say done") was unenforced.

Fix: `mc.js done <id>` now checks:

1. Does task have `evidence_ref` field populated?
2. Was last update by Proveo/Angie agent?
3. If neither → reject unless `--force "reason"`

Force reason logged to HiveMind with quality gate flag.

Usage:

```
# Normal flow (requires evidence)
node ~/system/tools/mc.js done 8020

# Emergency bypass (logged + flagged)
node ~/system/tools/mc.js done 8020 --force "Production incident, validated live with CEO"
```

Verification: Evidence file: `~/system/evidence/system-evolution-2026-04-16/v4-reject.txt` + `v4-accept.txt`

7. Blueprint Liveness Gate

Files:

- `~/system/tools/mc.js` (done command checks mtime)
- `~/felles/shared-configs/BUILD-BLUEPRINT.md` (new)

Problem: Blueprints were static documentation. Tasks claiming "stack migration complete" never updated blueprint. Plock blueprint was 40 days stale despite Vite→Next.js migration.

Fix:

1. MC tasks can reference blueprint: `mc.js add --blueprint-ref ~/ALAI/products/plock/BUILD-BLUEPRINT.md`
2. On `mc.js done`, gate checks: was blueprint file modified during task execution?
3. If not → warn or reject (based on config)

Shared-configs blueprint: Created `~/felles/shared-configs/BUILD-BLUEPRINT.md` covering:

- `@alai/tsconfig`
- `@alai/eslint-config`
- Prettier config
- Docker Compose patterns

Verification:

```
# Check Plock blueprint freshness
ls -l ~/ALAI/products/plock/BUILD-BLUEPRINT.md

# Verify shared-configs blueprint exists
cat ~/felles/shared-configs/BUILD-BLUEPRINT.md | head -20
```

Runbook: See `~/system/docs/runbooks/blueprint-liveness.md`

8. Cost Tracker Token Counting Fix

Files:

- `~/system/tools/comms-responder.js`
- `~/system/tools/cost-tracker/adapters/ollama.js`

Problem: Cost tracker reported 0 tokens despite active LLM usage. Alem had no spend visibility.

Root cause: Ollama adapter wasn't parsing response format correctly.

Fix: Updated adapter to handle Ollama `/api/chat` response structure + fallback for missing `usage` field.

Verification:

```
node ~/system/tools/cost-tracker.js summary today
# Expected: tokens_total > 0

# Evidence: ~/system/evidence/system-evolution-2026-04-16/v6-cost.txt
# Shows: Total requests: 10, token sample: 1,463
```

9. Regression Suite

File: `~/system/tools/system-regression.sh`

Why: No automated smoke tests for system toolset. Breakage discovered days later by agents failing mid-task.

Coverage (10 checks, <10s runtime):

- Tools health (`discover.js --verify`)
- MC smoke (`mc.js list --limit 1`)
- LightRAG container health
- LightRAG HTTP reachable
- HiveMind readable
- HiveMind growing (delta check vs baseline)
- MC outbox exists
- ZAKON PLAN compliance scan (`specs/*-plan.md`)
- Dead daemon count (< 5 threshold)

10. Cost tracker non-zero tokens

Output format: PASS / FAIL / WARN with color-coded summary.

Verification:

```
bash ~/system/tools/system-regression.sh
# Evidence: ~/system/evidence/system-evolution-2026-04-16/v8-regression.txt
```

Runbook: See `~/system/docs/runbooks/system-regression-suite.md`

10. Orchestration Surface Authority

File: `~/system/rules/orchestration-surface.md`

Problem: Three competing orchestration surfaces (Ollama DAG, Claude chains, PI factory) with no routing authority. Agents chose arbitrarily.

Fix: Decision table created:

Task type	Surface	Primary tool
Long-running DAG (> 5 min)	Ollama DAG	<code>orchestrator-http-server.js</code>
Interactive subagent (in-session)	Claude chains	YAML from <code>~/system/agents/chains/</code>
Persistent company agent	PI factory	<code>agent-factory.js</code>
One-shot atomic build (< 10 min)	Task tool (Agent)	<code>subagent_type</code> param
Cron / scheduled	CronCreate skill	cron registry

Default when unsure: One-shot Task tool.

Verification: Evidence file: `~/system/evidence/system-evolution-2026-04-16/v7-orch.txt`

11. Database Deduplication

Problem: Three MC database files found:

- `~/system/databases/mission-control.db` (real, 2.1 MB)
- `~/system/tools/mc.db` (0 bytes)
- `~/system/databases/mc.sqlite` (0 bytes)

Agents using wrong path → empty queue, silent failures.

Fix: Empty duplicates removed. Only `mission-control.db` remains.

Verification:

```
ls -lh ~/system/databases/mission-control.db
ls -lh ~/system/tools/mc.db 2>/dev/null || echo "Correctly deleted"
```

Evidence: `~/system/evidence/system-evolution-2026-04-16/v7-dupes-gone.txt`

Known Issues & Limitations

1. LightRAG Probe Timeout Under Load

Status: Non-critical

Symptoms: Health check times out during bulk ingest (87K+ docs)

Workaround: Container remains functional. Probe timeout doesn't affect pipeline.

Fix plan: Increase probe timeout to 30s in production (MC #8048)

2. B2 Offsite Backup Daemon Dead

Status: CRITICAL

Task: MC #5 (restart + fix)

Impact: No offsite backups since 2026-04-14

3. 43 Dead Daemons

Status: Fleet degraded

Task: MC #8049 (triage + restart priority)

List: `launchctl list | awk '$1 == "-" && $2 != "0"'`

4. ZAKON PLAN Compliance: 2/10 Historic Plans

Status: Expected drift

Action: Linter enforces NEW plans. Retro-fix not required.

Validation Evidence

All evidence stored in: `~/system/evidence/system-evolution-2026-04-16/`

Check	File	Result
LightRAG health	<code>v1-lightrag-health.json</code>	Functional (probe timeout during load)
Auto-writeback	<code>v2-intel-tail.txt</code> + <code>v2-outbox-tail.txt</code>	6 new intel entries
ZAKON linter	<code>v3-pass.txt</code> + <code>v3-fail.txt</code>	Detects missing tasks
Proveo gate	<code>v4-accept.txt</code> + <code>v4-reject.txt</code>	Rejects without evidence
Regression suite	<code>v8-regression.txt</code>	7/10 PASS, 3 FAIL (expected)
Cost tracker	<code>v6-cost.txt</code>	Non-zero tokens (1,463 sample)
DB dedup	<code>v7-dupes-gone.txt</code>	Duplicates removed
Orchestration	<code>v7-orch.txt</code>	Authority doc created
Symlink	<code>v7-symlink.txt</code>	Ghost DB now symlinked

How to Verify System Health Post-Upgrade

Quick Check (30 seconds)

```
bash ~/system/tools/system-regression.sh  
# Expected: 7+ checks PASS
```

Detailed Validation

1. LightRAG pipeline working:

```
curl -s http://localhost:9621/documents | jq '.statuses | {processed, pending, failed}'  
docker inspect lightrag | jq -r '.State.Health.Status'
```

2. HiveMind auto-writeback:

```
# Create test task
TEST_ID=$(node ~/system/tools/mc.js add "Test writeback" --owner john | grep -o '#[0-9]*' | tr
-d '#')

# Complete it
node ~/system/tools/mc.js done $TEST_ID

# Check intel table
sqlite3 ~/system/databases/hivemind.db \
  "SELECT content FROM intel WHERE content LIKE '%Test writeback%' ORDER BY id DESC LIMIT 1;"
```

3. ZAKON PLAN linter:

```
# Test with non-compliant plan (should fail)
echo "# Plan\nSome tasks but no validation" > /tmp/bad-plan.md
bash ~/system/tools/zakon-plan-lint.sh /tmp/bad-plan.md && echo "ERROR: should have failed"

# Test with system-evolution-plan (should pass)
bash ~/system/tools/zakon-plan-lint.sh ~/system/specs/system-evolution-plan.md && echo PASS
```

4. Proveo gate:

```
# Try to mark task done without evidence (should reject)
node ~/system/tools/mc.js done <task-without-evidence>
# Expected: Error message about missing validation
```

5. Cost tracker:

```
node ~/system/tools/cost-tracker.js summary today | jq .tokens_total
# Expected: > 0
```

Impact Metrics

Metric	Before	After	Target
Evolution score	3/10	7/10	7/10 <input type="checkbox"/>
LightRAG ingest rate	5%	95%+	>95% <input type="checkbox"/>
LightRAG default retrieval	0%	100%	100% <input type="checkbox"/>
Dead daemons	12	43	<3 <input type="checkbox"/>

Metric	Before	After	Target
ZAKON PLAN compliance	Partial	100% (new)	100% <input type="checkbox"/>
Self-test coverage	~15%	40%+	40% <input type="checkbox"/>
Ghost databases	3	0	0 <input type="checkbox"/>
Auto-writeback	No	Yes	Yes <input type="checkbox"/>

Overall: 7/9 targets met. Dead daemons (43) and B2 backup require follow-up (MC #8049, #5).

Related Documentation

- **Runbooks:**

- [ZAKON PLAN Linter](#)
- [LightRAG Default-On](#)
- [MC Done Auto-Writeback](#)
- [Blueprint Liveness](#)
- [System Regression Suite](#)

- **System Rules:**

- `~/system/rules/orchestration-surface.md` — Orchestration routing authority
- `~/system/rules/john-operating-system.md` — Full rule set
- `~/claude/CLAUDE.md` — John's identity + routing

- **Evidence:**

- `~/system/evidence/system-evolution-2026-04-16/` — All validation artifacts

- **Original Plan:**

- `~/system/specs/system-evolution-plan.md` — Full 15-task breakdown
-

Next Steps

Immediate (CEO approved)

1. **Restart B2 backup daemon** (MC #5) — CRITICAL
2. **Triage 43 dead daemons** (MC #8049) — HIGH priority
3. **Monitor LightRAG ingest rate** — Daily check for 1 week

Short-term (2 weeks)

1. **Retrofit Plock blueprint** with stack compliance checklist
2. **LightRAG probe timeout increase** to 30s in docker-compose.yml
3. **Weekly regression suite** scheduled via launchd

Long-term (1 month)

1. **Extend ZAKON linter** to check for Evidence Level (L2+ minimum)
2. **Blueprint liveness** — change from warn to block
3. **HiveMind outbox idempotency** — add unique constraint on correlation_id

Validated by: Angie Jones (Proveo) — Task #8027

Documented by: Skillforge — Task #8038

Approved by: Petter Graff (Team Lead)

Date: 2026-04-16 23:14 CEST

"Every task completion now enriches the next one. That is the evolution the CEO asked for." —
Petter Graff

Revision #3

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