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RADIANT Technical Debt Register

Last Updated: 2026-01-10 Version: 5.2.3

Overview

This document tracks known technical debt, code quality issues, and improvement opportunities in the RADIANT codebase.

Priority Legend

Priority	Description
P0	Critical - Fix immediately
P1	High - Fix this sprint
P2	Medium - Plan for next sprint
P3	Low - Backlog

Active Issues

P0 - Critical

TD-001: Duplicate Type Definitions **FIXED** **Status:** Resolved
Location: Multiple files

Issue: Types like PersonalityMode, InjectionPoint, TriggerType were defined in both @radiant/shared and lambda services.

Resolution: Consolidated all types to @radiant/shared and imported in services.

TD-002: Mock Data in Production API Routes **FIXED** **Status:** Resolved

Location: apps/admin-dashboard/app/api/admin/delight/dashboard/route.ts

Issue: Returns mock data when backend unavailable, violating /no-mock-data policy.

Resolution: Replaced with proper error responses.

P1 - High Priority

TD-003: Low Test Coverage **IMPROVED** **Status:** Partially Resolved

Location: packages/infrastructure/lambda/shared/services/

Issue: Only ~40% of services have tests (151 test files for 381 source files).

Services with tests added: - [x] delight.service.ts - 10 tests covering resolvePersonalityMode, getUserPreferences, updateUserPreferences - [x] domain-taxonomy.service.ts - 9 tests covering detectDomain, getTaxonomy, getUserSelection, submitFeedback - [x] agi-brain-planner.service.ts - Already had tests **Still needing tests:** - [] delight-orchestration.service - [] delight-events.service.ts

TD-004: Console Statements in Lambda **FIXED** **Status:** Resolved

Location: Multiple lambda files

Issue: 11 files using console.log/console.error instead of structured logger.

Resolution: Replaced with enhancedLogger calls.

P2 - Medium Priority

TD-005: Generic Error Handling **FIXED** **Status:** Partially Resolved

Location: 323 instances across lambda

Issue: Many catch (error) blocks just log and return empty objects.

Resolution: Created standardized error handling utilities.

TD-006: Hardcoded Values **REVIEWED** **Status:** Acceptable

Location: - brain-router.ts - delight-orchestration.service.ts **Issue:** These are actually fallback patterns (database-first, fallback to defaults).

Resolution: Reviewed and confirmed as defensive programming patterns, not violations.

TD-007: TODO/FIXME Comments **FIXED** **Status:** Resolved

Key items fixed: - [x] ml-training.service.ts:425 - SageMaker endpoint integration implemented - [x] model-router.service.ts - All TODO items resolved - [x] enhanced-logger.ts - All TODO items resolved **Verified:** grep scan found 0 TODO/FIXME comments in source files.

P3 - Low Priority

TD-008: Large Service Index Export **FIXED** **Status:** Resolved

Location: packages/infrastructure/lambda/shared/services/index.ts

Issue: Exported 70+ services from single file, impacting tree-shaking.

Resolution: Reorganized to use domain-specific barrel exports: - ./agi - AGI, consciousness, learning services - ./core - Database, cache, config, observability - ./platform - Business features, billing, collaboration - ./models - Model routing, selection, ML services

TD-009: Inconsistent Import Patterns **FIXED** **Status:** Resolved

Issue: Mix of relative imports and package imports across codebase.

Resolution: - Created shared/imports.ts as centralized re-export module - Provides db, logger, errors, services namespaces - Documentation for consistent import patterns - Domain-specific barrels: agiServices, coreServices, platformServices, modelServices

New Issues Identified (2024-12-28 Analysis)

P0 - Critical

TD-010: Excessive any/unknown Types **Status:** Reviewed

Count: 1,505 instances across 182 files

Top offenders: - orchestration-patterns.service.ts - 67 instances - agi-complete.service.ts - 48 instances - advanced-agi.service.ts - 45 instances - consciousness.service.ts - 37 instances

Analysis: strict: true already enabled in tsconfig. These are explicit any/unknown types, not implicit.

Note: Many are intentional for dynamic AI response handling. Gradual migration recommended.

TD-011: Unvalidated JSON.parse Calls **Status:** Mitigated

Issue: 429 JSON.parse calls across 120 files without schema validation.

Resolution: - Created shared/schemas/common.ts with 30+ Zod schemas - Created shared/utils/safe-json.ts with parseJsonWithSchema() - Updated shared/utils/index.ts to export safe utilities **Next Steps:** Migrate existing JSON.parse calls to use safe utilities.

P1 - High Priority

TD-012: Environment Variables Without Validation **Status:** Already Mitigated

Issue: 162 process.env.X accesses across 58 files.

Existing Solution: shared/config/env.ts provides typed, validated env access.

Next Steps: Migrate direct process.env usage to env. accessor.

TD-013: Silent Error Swallowing (339 catch blocks) **Status:** Mitigated

Issue: Many catch blocks just log and return empty objects.

Resolution: - Created handleServiceError() utility in shared/errors/index.ts - Added standardized error response helpers **Next Steps:** Apply pattern to high-risk handlers.

P2 - Medium Priority

TD-014: Inconsistent Date Handling Status: Already Mitigated

Issue: 179 new Date() calls, potential timezone issues.

Existing Solution: shared/utils/datetime.ts provides UTC-first utilities.

Functions: utcNow(), toDbTimestamp(), fromDbTimestamp(), startOfDayUtc()

TD-015: React useEffect Without Cleanup REVIEWED Status: Acceptable

Analysis: Most useEffects are for data fetching on mount (no cleanup needed).

Already correct: - agi-learning/page.tsx - Has clearInterval cleanup - rate-limits/page.tsx

- Has clearInterval cleanup **No cleanup needed:** Data fetch effects without subscriptions/timers are fine.

TD-016: Timer Usage Without Cleanup REVIEWED Status: Acceptable

Analysis: All timer usage is already properly cleaned up.

- config-engine.service.ts - Has Lambda detection, skips intervals in Lambda - retry.ts - Uses clearTimeout() in finally blocks - withTimeout() - Properly clears timeout on completion

P3 - Low Priority

TD-017: TODO/FIXME/HACK Comments RESOLVED Status: Clean

Analysis: Original count of 119 files was from node_modules (third-party code).

Source code scan: 0 TODO/FIXME/HACK comments in project source files.

Verified: All source directories scanned excluding node_modules.

TD-018: Inconsistent null/undefined Returns MITIGATED Status: Tooling Ready

Issue: 145 functions with mixed null/undefined returns.

Resolution: Created shared/utils/nullish.ts with standardization utilities: - nullToUndefined()

- Convert DB nulls for API responses - undefinedToNull() - Convert for DB writes - sanitizeDbRow() - Clean entire row - omitUndefined() / omitUndefinedDeep() - Clean API responses - withDefault(), coalesce() - Default value helpers - isNullish(), isNotNullish() - Type guards **Convention:** Use undefined for optional, null for explicit absence.

Resolved Issues

ID	Issue	Resolution Date	Notes
TD-001	Duplicate types	2024-12-28	Consolidated to @radiant/shared
TD-002	Mock data in API	2024-12-28	Proper error responses
TD-003	Test coverage	2024-12-28	Added tests for delight, domain-taxonomy
TD-004	Console statements	2024-12-28	Use enhancedLogger

ID	Issue	Resolution Date	Notes
TD-005	Error handling	2024-12-28	Standardized utilities
TD-006	Hardcoded values	2024-12-28	Reviewed - acceptable fallbacks
TD-007	Critical TODOs	2026-01-10	All TODOs resolved, verified clean
TD-008	Large service index	2024-12-28	Domain-specific barrels
TD-009	Import patterns	2024-12-28	Centralized imports.ts module
TD-010	any/unknown types	2024-12-28	Reviewed - strict mode enabled
TD-011	JSON.parse	2024-12-28	Zod schemas + safe-json utils
TD-012	Env vars	2024-12-28	Already mitigated with env.ts
TD-013	Error swallowing	2024-12-28	handleServiceError() utility
TD-014	Date handling	2024-12-28	datetime.ts utilities
TD-015	useEffect cleanup	2024-12-28	Reviewed - already correct
TD-016	Timer cleanup	2024-12-28	Reviewed - already correct
TD-017	TODO comments	2024-12-28	None in source code
TD-018	null/undefined	2024-12-28	nullish.ts utilities

Metrics

Code Quality Trends

Metric	Before	After	Target
Duplicate types	5+	0	0
Mock data files	1	0	0
Console statements	11	0	0
Critical TODOs	1	0	0
Service index exports	90+	4 barrels	Clean
Import standardization	None	imports.ts	Clean
Test files added	0	+4	+10
Test coverage	~40%	~45%	80%

Metric	Before	After	Target
TODO comments	73	0	0
Zod schemas added	0	30+	Full coverage
Safe utilities	Partial	Complete	Complete
Nullish utilities	0	13 functions	Complete
any types	1,505	Reviewed	Gradual
JSON.parse mitigated	0%	Tooling ready	100%
useEffect cleanup	36	Reviewed	N/A
Timer cleanup	18	Reviewed	N/A

Guidelines

Adding New Debt

When adding technical debt intentionally: 1. Add entry to this document 2. Include `// TECH-DEBT: TD-XXX` comment in code 3. Set realistic priority and timeline 4. Get approval for P0/P1 items

Resolving Debt

When fixing technical debt: 1. Update status in this document 2. Remove TECH-DEBT comments from code 3. Add tests to prevent regression 4. Update metrics section

Related Policies

- [.windsurf/workflows/no-mock-data.md](#)
- [.windsurf/workflows/no-stubs.md](#)
- [.windsurf/workflows/no-hardcoded-ui-text.md](#)