

# Contents

<b>RADIANT Glossary &amp; Cheat Sheet</b>	<b>1</b>
Table of Contents . . . . .	1
1. AI & Machine Learning Terms . . . . .	1
2. RADIANT Core Subsystems . . . . .	2
3. Think Tank Features . . . . .	4
4. AWS Services Used . . . . .	5
5. Acronyms & Abbreviations . . . . .	6
6. Database & Storage Terms . . . . .	8
7. Security & Compliance Terms . . . . .	9
8. API & Protocol Terms . . . . .	9
9. UI/UX Terms . . . . .	9
Quick Reference: CDK Stacks . . . . .	10
Quick Reference: AI Providers . . . . .	10
Quick Reference: Governance Presets . . . . .	11
Document History . . . . .	11

# RADIANT Glossary & Cheat Sheet

Quick Reference for AI Terms, Subsystems, AWS Services, and Acronyms

Version: 1.0.0 | Last Updated: January 29, 2026

---

## Table of Contents

1. AI & Machine Learning Terms
  2. RADIANT Core Subsystems
  3. Think Tank Features
  4. AWS Services Used
  5. Acronyms & Abbreviations
  6. Database & Storage Terms
  7. Security & Compliance Terms
  8. API & Protocol Terms
  9. UI/UX Terms
- 

## 1. AI & Machine Learning Terms

Term	Definition
<b>Active Inference</b>	Post-RLHF safety approach using Free Energy minimization instead of reward maximization
<b>Attention Mechanism</b>	Neural network component that weighs input importance dynamically
<b>BERT</b>	Bidirectional Encoder Representations from Transformers - NLP model for text classification

Term	Definition
<b>Chain-of-Thought (CoT)</b>	Prompting technique that makes LLMs show reasoning steps
<b>Embedding</b>	Dense vector representation of text/data in high-dimensional space
<b>Few-Shot Learning</b>	Teaching models with minimal examples
<b>Fine-Tuning</b>	Adapting a pre-trained model to specific tasks
<b>Foundation Model</b>	Large pre-trained model (GPT-4, Claude, Gemini) used as base
<b>Hallucination</b>	When AI generates plausible but factually incorrect information
<b>Inference</b>	Running a trained model to generate predictions/outputs
<b>LLM</b>	Large Language Model - AI trained on massive text data
<b>LoRA</b>	Low-Rank Adaptation - efficient fine-tuning technique that trains small adapter layers
<b>NLI</b>	Natural Language Inference - determining logical relationships between text
<b>Prompt Engineering</b>	Crafting inputs to optimize LLM outputs
<b>RAG</b>	Retrieval-Augmented Generation - combining search with LLM generation
<b>RLHF</b>	Reinforcement Learning from Human Feedback - aligning AI with human preferences
<b>Semantic Search</b>	Search based on meaning, not just keywords
<b>Temperature</b>	Controls randomness in LLM outputs (0=deterministic, 1=creative)
<b>Token</b>	Basic unit of text processing (roughly 4 characters or 0.75 words)
<b>Top-K / Top-P</b>	Sampling parameters controlling output diversity
<b>Transformer</b>	Neural architecture using self-attention (basis of modern LLMs)
<b>Vector Database</b>	Database optimized for similarity search on embeddings
<b>Zero-Shot Learning</b>	Model performs tasks without specific training examples

## 2. RADIANT Core Subsystems

### AGI & Cognition Systems

Subsystem	Description	Key Files
<b>AGI Brain</b>	Central AI planning and orchestration engine	<code>agi-brain-planner.service.ts</code>
<b>Blackboard</b>	Shared memory space for multi-agent coordination	<code>semantic-blackboard.service.ts</code>
<b>Cato</b>	Global AI consciousness service with persistent memory	<code>cato/ services</code>
<b>Cognitive Router</b>	Intelligent model selection and routing	<code>cognitive-router.service.ts</code>
<b>Consciousness Loop</b>	State machine (IDLE→PROCESSING→REFLECTING→DREAMING)	<code>consciousness-loop.service.ts</code>
<b>Cortex</b>	Three-tier memory system (Hot/Warm/Cold)	<code>cortex/ services</code>

Subsystem	Description	Key Files
<b>Ego System</b>	AI emotional state (confidence, frustration, curiosity)	<code>ego.service.ts</code>
<b>Genesis</b>	Boot sequence and developmental gates for Cato	<code>genesis.service.ts</code>
<b>Ghost Vectors</b>	4096-dimensional hidden states capturing relationship “feel”	<code>ghost-manager.service.ts</code>
<b>Graph-RAG</b>	Knowledge graph + retrieval augmented generation	<code>cortex-graph-rag.service.ts</code>
<b>SOFAI Router</b>	System 1/System 2 dynamic routing (60%+ cost reduction)	<code>sofai-router.service.ts</code>
<b>Twilight Dreaming</b>	Offline learning during low-traffic periods (2-6 AM)	<code>dream-scheduler.service.ts</code>

### Pipeline & Orchestration

Subsystem	Description	Key Files
<b>Cato Pipeline</b>	Modular AI task execution with governance	<code>cato-pipeline-orchestrator.service.ts</code>
<b>Checkpoint System</b>	Human-in-the-loop approval gates (CP1-CP5)	<code>cato-checkpoint.service.ts</code>
<b>Compensation</b>	SAGA pattern rollback for failed operations	<code>cato-compensation.service.ts</code>
<b>Method Executor</b>	Executes pipeline methods (Observer, Proposer, etc.)	<code>cato-method-executor.service.ts</code>
<b>Sovereign Mesh</b>	Distributed execution infrastructure	<code>sovereign-mesh.service.ts</code>
<b>Workflow Engine</b>	70+ orchestration methods for task automation	<code>orchestration-methods/</code>

### Safety & Verification

Subsystem	Description	Key Files
<b>CBF (Control Barrier Functions)</b>	9 safety barriers that never relax	<code>cato-cbf.service.ts</code>
<b>ECD Scoring</b>	Entity-Context Divergence verification (99.5% accuracy)	<code>ecd-scorer.service.ts</code>
<b>Empiricism Loop</b>	Autonomous skill verification and learning	<code>empiricism-loop.service.ts</code>
<b>Ethics Pipeline</b>	Multi-layer ethical content filtering	<code>ethics-pipeline.service.ts</code>
<b>Reflexion Loop</b>	Self-correction when artifacts fail validation	<code>artifact-pipeline.service.ts</code>
<b>Truth Engine™</b>	Source verification system for all responses	<code>ecd-verification.service.ts</code>

## Memory & Storage

Subsystem	Description	Key Files
<b>Flash Facts</b>	Quick knowledge capture and retrieval	<code>flash-facts.service.ts</code>
<b>Grimoire</b>	Procedural memory (learned spells/patterns)	<code>grimoire.service.ts</code>
<b>Stub Nodes</b>	Zero-copy pointers to external data lakes	<code>stub-nodes.service.ts</code>
<b>Time Machine</b>	Conversation forking and replay	<code>time-travel.service.ts</code>
<b>UDS</b>	User Data Service - tiered storage for user content	<code>uds/ services</code>

## Economic & Governance

Subsystem	Description	Key Files
<b>Economic Governor</b>	Cost optimization and model tier routing	<code>economic-governor.service.ts</code>
<b>HITL</b>	Human-in-the-Loop approval workflows	<code>hitl-orchestration.service.ts</code>
<b>Mission Control</b>	Admin interface for HITL approvals	<code>mission-control/</code>
<b>RAWS</b>	RADIANT Adaptive Weighted Scoring for model selection	<code>raws.service.ts</code>

## 3. Think Tank Features

Feature	Description
<b>Artifact Engine</b>	GenUI pipeline for interactive outputs
<b>Brain Plan</b>	Execution plan showing how AI will answer
<b>Breathing UI</b>	Visual elements that pulse to show confidence
<b>Concurrent Execution</b>	2-4 simultaneous AI conversations in split panes
<b>Confidence Terrain</b>	3D visualization (elevation=confidence, color=risk)
<b>Council of Experts</b>	Multi-persona consultation with 8 viewpoints
<b>Council of Rivals</b>	Multi-model deliberation for important decisions
<b>Curator</b>	Knowledge graph curation and fact verification app
<b>Debate Arena</b>	Adversarial exploration for stress-testing ideas
<b>Decision Record</b>	Auditable capture of AI reasoning and evidence
<b>Delight System</b>	AI personality and engagement customization
<b>Domain Mode</b>	Specialized configuration for different knowledge areas
<b>Ghost Path</b>	Translucent overlay showing rejected alternatives
<b>Living Ink</b>	Typography that varies weight based on confidence
<b>Living Parchment</b>	Decision intelligence suite with sensory UI

Feature	Description
<b>Magic Carpet</b>	Intent-based navigation system
<b>My Rules</b>	User-defined preferences that customize AI
<b>Polymorphic UI</b>	Interface that adapts based on query type
<b>Sentinel Agent</b>	Background monitors that trigger on conditions
<b>Sniper Mode</b>	Fast, low-cost single-model execution
<b>Spell</b>	Learned pattern in Grimoire that improves responses
<b>Steel-Man</b>	AI-generated strongest version of opposing argument
<b>Timeline</b>	Branch in Time Machine representing conversation path
<b>War Room</b>	Strategic Decision Theater for high-stakes decisions

## 4. AWS Services Used

### Compute

Service	RADIANT Usage
<b>Lambda</b>	Serverless API handlers (62+ admin, 41+ Think Tank)
<b>SageMaker</b>	Self-hosted AI model inference (56 models)
<b>Batch</b>	Long-running batch processing jobs
<b>ECS/Fargate</b>	Container orchestration for LiteLLM gateway

### Database & Storage

Service	RADIANT Usage
<b>Aurora PostgreSQL</b>	Primary database with pgvector for embeddings
<b>DynamoDB</b>	Hot-tier caching, session state
<b>ElastiCache (Redis)</b>	Distributed caching, rate limiting
<b>S3</b>	Object storage (uploads, artifacts, backups)
<b>S3 Glacier</b>	Cold storage for compliance archives (7+ years)

### Networking & API

Service	RADIANT Usage
<b>API Gateway</b>	REST/WebSocket API endpoints
<b>CloudFront</b>	CDN for static assets and admin dashboards
<b>Route 53</b>	DNS management
<b>VPC</b>	Network isolation with public/private subnets
<b>ALB/NLB</b>	Load balancing for high availability

### Security & Identity

Service	RADIANT Usage
<b>Cognito</b>	User authentication and authorization
<b>IAM</b>	Access control for AWS resources
<b>KMS</b>	Encryption key management
<b>Secrets Manager</b>	API keys and credentials storage
<b>WAF</b>	Web Application Firewall protection

## Messaging & Events

Service	RADIANT Usage
<b>EventBridge</b>	Event-driven architecture triggers
<b>Kinesis</b>	Real-time streaming data processing
<b>SNS</b>	Push notifications and alerts
<b>SQS</b>	Message queues for async processing

## Monitoring & Operations

Service	RADIANT Usage
<b>CloudWatch</b>	Logs, metrics, dashboards, alarms
<b>X-Ray</b>	Distributed tracing
<b>CloudTrail</b>	API audit logging
<b>Cost Explorer</b>	Cost monitoring and optimization

## AI/ML Services

Service	RADIANT Usage
<b>Bedrock</b>	Foundation model access (Claude, Titan)
<b>Textract</b>	Document text extraction
<b>Comprehend</b>	NLP for language detection
<b>Transcribe</b>	Speech-to-text for voice input

## 5. Acronyms & Abbreviations

### General

Acronym	Full Form
<b>A2A</b>	Agent-to-Agent (Google protocol for AI agent communication)
<b>AGI</b>	Artificial General Intelligence
<b>API</b>	Application Programming Interface
<b>AWS</b>	Amazon Web Services

Acronym	Full Form
<b>CDK</b>	Cloud Development Kit (AWS infrastructure-as-code)
<b>CDN</b>	Content Delivery Network
<b>CLI</b>	Command Line Interface
<b>CRDT</b>	Conflict-free Replicated Data Type (for real-time collab)
<b>CRUD</b>	Create, Read, Update, Delete
<b>DNS</b>	Domain Name System
<b>ECS</b>	Elastic Container Service
<b>FTS</b>	Full-Text Search
<b>GUI</b>	Graphical User Interface
<b>HTTP</b>	Hypertext Transfer Protocol
<b>IDE</b>	Integrated Development Environment
<b>JSON</b>	JavaScript Object Notation
<b>JWT</b>	JSON Web Token
<b>MCP</b>	Model Context Protocol (Anthropic's tool protocol)
<b>MFA</b>	Multi-Factor Authentication
<b>ORM</b>	Object-Relational Mapping
<b>REST</b>	Representational State Transfer
<b>SDK</b>	Software Development Kit
<b>SQL</b>	Structured Query Language
<b>SSE</b>	Server-Sent Events (streaming)
<b>SSL/TLS</b>	Secure Sockets Layer / Transport Layer Security
<b>UI</b>	User Interface
<b>URL</b>	Uniform Resource Locator
<b>UUID</b>	Universally Unique Identifier
<b>VPC</b>	Virtual Private Cloud
<b>WebSocket</b>	Full-duplex communication protocol
<b>YAML</b>	YAML Ain't Markup Language

## RADIANT-Specific

Acronym	Full Form
<b>CBF</b>	Control Barrier Function (safety guardrails)
<b>CP1-CP5</b>	Checkpoint gates 1-5 (HITL approval points)
<b>DIA</b>	Decision Intelligence Artifacts
<b>ECD</b>	Entity-Context Divergence (verification scoring)
<b>HITL</b>	Human-in-the-Loop
<b>OODA</b>	Observe-Orient-Decide-Act (agent loop)
<b>RADIANT</b>	Rapid AI Deployment Infrastructure for Applications with Native Tenancy
<b>RAWS</b>	RADIANT Adaptive Weighted Scoring
<b>RLS</b>	Row-Level Security (PostgreSQL tenant isolation)
<b>SOFAI</b>	System 1/System 2 routing framework
<b>SSF</b>	Shared Signals Framework (identity federation)
<b>UDS</b>	User Data Service

Acronym	Full Form
---------	-----------

## Compliance

Acronym	Full Form
<b>CCPA</b>	California Consumer Privacy Act
<b>COPPA</b>	Children's Online Privacy Protection Act
<b>DSAR</b>	Data Subject Access Request
<b>FDA 21 CFR Part 11</b>	FDA regulation for electronic records
<b>GDPR</b>	General Data Protection Regulation (EU)
<b>HIPAA</b>	Health Insurance Portability and Accountability Act
<b>PHI</b>	Protected Health Information
<b>PII</b>	Personally Identifiable Information
<b>SOC 2</b>	Service Organization Control Type 2
<b>TOTP</b>	Time-based One-Time Password (MFA)

## AI Models & Providers

Acronym	Full Form
<b>GPT</b>	Generative Pre-trained Transformer (OpenAI)
<b>LLaMA</b>	Large Language Model Meta AI
<b>Mixtral</b>	Mistral AI's mixture-of-experts model
<b>o1/o3</b>	OpenAI reasoning models
<b>Qwen</b>	Alibaba's LLM family

## 6. Database & Storage Terms

Term	Definition
<b>Aurora</b>	AWS managed PostgreSQL/MySQL service
<b>Cold Tier</b>	Long-term storage (S3 Iceberg, 90d-7y retention)
<b>Connection Pooling</b>	Reusing database connections for efficiency
<b>Hot Tier</b>	Fast access layer (ElastiCache + DynamoDB, 0-24h)
<b>Materialized View</b>	Pre-computed query results for dashboard metrics
<b>Migration</b>	Versioned database schema change
<b>Partitioning</b>	Splitting tables by time/tenant for performance
<b>pgvector</b>	PostgreSQL extension for vector similarity search
<b>RDS Proxy</b>	Connection pooling for Lambda
<b>Warm Tier</b>	Active storage (Aurora PostgreSQL, 1-90 days)
<b>Zero-Copy Mount</b>	Access external data without duplication

## 7. Security & Compliance Terms

Term	Definition
<b>AES-256-GCM</b>	Encryption standard used for data at rest
<b>Audit Trail</b>	Immutable log of all system actions
<b>Break Glass</b>	Emergency admin access with full logging
<b>Data Sovereignty</b>	Per-tenant data region configuration
<b>Erasure Request</b>	GDPR right-to-be-forgotten compliance
<b>Legal Hold</b>	Prevent data deletion for litigation
<b>Merkle Chain</b>	Tamper-evident audit log using hash chains
<b>RBAC</b>	Role-Based Access Control
<b>Row-Level Security</b>	PostgreSQL tenant isolation mechanism
<b>Tenant Isolation</b>	Complete separation of customer data

## 8. API & Protocol Terms

Term	Definition
<b>A2A Protocol</b>	Google's Agent-to-Agent communication standard
<b>CAEP</b>	Continuous Access Evaluation Profile
<b>Envelope</b>	CatoMethodEnvelope - wrapper for all pipeline outputs
<b>GraphQL</b>	Query language for flexible API access
<b>LiteLLM</b>	Unified gateway for 100+ AI model APIs
<b>MCP</b>	Model Context Protocol - Anthropic's tool invocation standard
<b>OAuth 2.0</b>	Authorization framework for third-party access
<b>OpenAPI</b>	REST API specification standard
<b>SSE</b>	Server-Sent Events for streaming responses
<b>WebSocket</b>	Bidirectional real-time communication
<b>Yjs</b>	CRDT library for real-time collaboration

## 9. UI/UX Terms

Term	Definition
<b>Apple Glass</b>	RADIANT's design system based on macOS aesthetics
<b>Breathing Scrollbar</b>	Heatmap visualization showing trust topology
<b>Gearbox</b>	Polymorphic UI's elastic compute indicator
<b>GenUI</b>	Generative UI - AI-created interactive components
<b>Liquid Interface</b>	Morphable UI system that adapts to context
<b>Presence Indicator</b>	Shows who's in a collaborative session
<b>Shadcn/ui</b>	Component library used for admin dashboards
<b>Tailwind CSS</b>	Utility-first CSS framework
<b>Toast</b>	Temporary notification message

---

Term	Definition
<b>Zustand</b>	State management library for React

---

## Quick Reference: CDK Stacks

---

Stack	Purpose
admin-stack	Admin API handlers
ai-stack	AI model configuration
api-stack	Main API Gateway + Lambda
auth-stack	Cognito authentication
batch-stack	AWS Batch jobs
brain-stack	AGI Brain services
cato-genesis-stack	Cato boot sequence
cato-redis-stack	Cato caching layer
cato-tier-transition-stack	Memory tier management
cognition-stack	Cognitive services
collaboration-stack	Real-time collaboration
consciousness-stack	Consciousness loop services
data-stack	Database and storage
dia-stack	Decision Intelligence Artifacts
formal-reasoning-stack	Logic and reasoning services
gateway-stack	API Gateway configuration
grimoire-stack	Procedural memory
library-execution-stack	External library execution
library-registry-stack	Library management
litellm-gateway-stack	LiteLLM proxy
mission-control-stack	HITL approval UI
monitoring-stack	CloudWatch dashboards
multi-region-stack	Multi-region deployment
networking-stack	VPC and networking
scheduled-tasks-stack	Cron jobs and schedulers
security-monitoring-stack	Security alerts
security-stack	WAF and security
sovereign-mesh-stack	Distributed execution
storage-stack	S3 buckets
thinktank-admin-api-stack	Think Tank admin API
thinktank-auth-stack	Think Tank auth
tms-stack	Time Machine services
user-registry-stack	User management
webhooks-stack	Webhook handlers

---

## Quick Reference: AI Providers

Provider	Models	Type
<b>Anthropic</b>	Claude 3.5, Claude 3 Opus/Sonnet/Haiku	External
<b>OpenAI</b>	GPT-4o, GPT-4 Turbo, o1, o3	External
<b>Google</b>	Gemini 2.0, Gemini Pro	External
<b>xAI</b>	Grok-2	External
<b>DeepSeek</b>	DeepSeek V3, DeepSeek R1	External
<b>Meta</b>	LLaMA 3.2	Self-hosted
<b>Mistral</b>	Mistral 8x7B, Mistral Large	External + Self-hosted
<b>Alibaba</b>	Qwen 2.5	Self-hosted
<b>AWS</b>	Titan, Claude via Bedrock	External

---

## Quick Reference: Governance Presets

---

Preset	Auto-Execute Threshold	Veto Threshold	Use Case
<b>COWBOY</b>	0.7	0.95	Maximum autonomy
<b>BALANCED</b>	0.5	0.85	Standard operations
<b>PARANOID</b>	0.2	0.6	High-stakes/regulated

---

## Document History

---

Version	Date	Changes
1.0.0	Jan 29, 2026	Initial comprehensive glossary

---

*This document serves as a quick reference cheat sheet for the RADIANT platform. For detailed documentation, see the specific admin guides and engineering documentation.*