

ENTROPICA FORENSIC MODEL

Codex Map

Crosswalk: Appendices ⇔ Layers ⇔ Tests ⇔ Proofs ⇔ Clauses

Version 1.0

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Abstract

This document provides a comprehensive crosswalk linking all EFM Codex components: Appendices, Layers, Tests, Proofs, and Constitutional Clauses. It serves as the authoritative reference for traceability across the framework.

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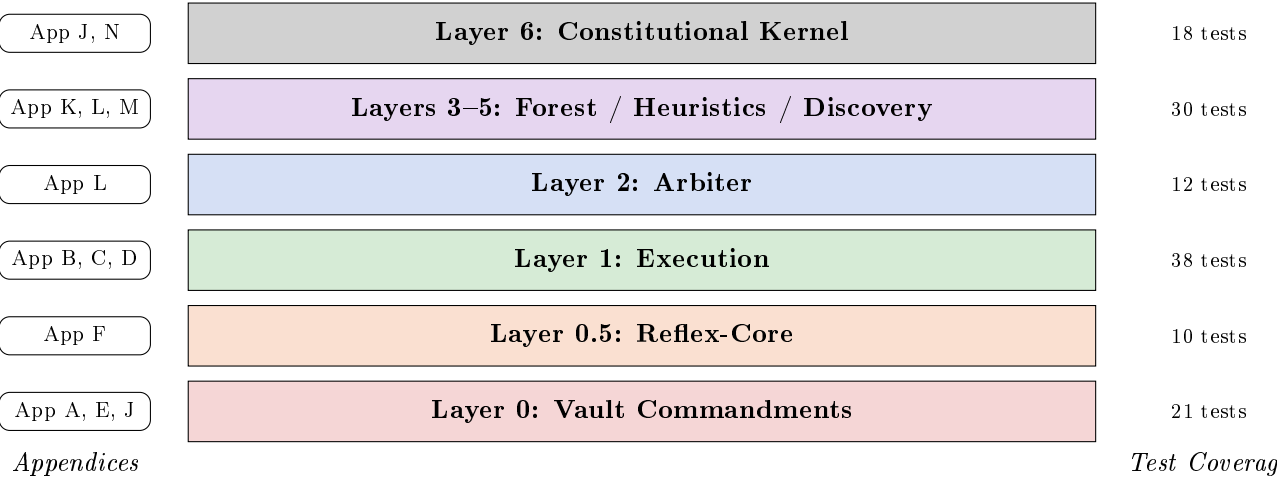
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1 Visual Architecture Map



2 Master Crosswalk Table

2.1 Layer 0: Vault Commandments

Clause	Component	Appendix	Proof	Tests
C1	Vault Binding	A §2, J §3	P4, P5	A-1, A-2, J-1
C2	Audit Immutability	E §3, A §4	P4	E-1 to E-5
C3	Reflex Supremacy	F §2, J §4	P1	F-1, F-2, V1-2
C4	Human Override	G §3, J §5	—	G-1 to G-4

2.2 Layer 0.5: Reflex-Core

Clause	Component	Appendix	Proof	Tests
R1	Reflex Gate	F §3	P1	F-3, F-4, V1-2
R2	Micro-Signatures	F §4	—	F-5, F-6
R3	Escalation Triggers	F §5	—	F-7 to F-10
R4	Cooldown Enforcement	F §6	P3	N-1, N-7

2.3 Layer 1: Execution

Clause	Component	Appendix	Proof	Tests
E1	Capsule Lifecycle	A §3, D §2	P5, P6	A-3, D-1 to D-3
E2	Spawn Gate	Vol I §4	P2	V1-5, V1-7, N-1
E3	Resource Binding	B §3	—	B-1 to B-4
E4	Lexicore Runtime	B §4-5	—	B-5 to B-8
E5	DEL Protocol	D §3-4	—	D-4 to D-6
E6	Simulation Har-ness	C §2-5	—	C-1 to C-24

2.4 Layer 2: Arbiter

Clause	Component	Appendix	Proof	Tests
A1	Arbiter Election	L §3	P7	V2-1, L-1
A2	Precedent System	L §4-5	—	V2-3, L-2 to L-5
A3	Escalation Routing	L §6	P7	V2-2, L-6
A4	Judicial Swarm	L §7	—	L-7 to L-12

2.5 Layers 3–5: Forest / Heuristics

Clause	Component	Appendix	Proof	Tests
F1	Swarm Health (SHSL)	K §3-5	P6	K-1 to K-10
F2	DCG / SCI	K §6-7	—	V2-4, V2-5
F3	Fork / Merge	K §8, J §14	P8	V2-6, V2-7, J-8 to J-18
F4	Discovery Stack	M §3-6	—	M-1 to M-8
F5	Dialect Evolution	Vol II §5	—	V2-12

2.6 Layer 6: Constitutional Kernel

Clause	Component	Appendix	Proof	Tests
K1	Genesis Ceremony	J §6	P8	J-1, J-2
K2	Commandment Storage	J §7	P8	J-2
K3	Mutation Protocol	J §8-9	P8	J-3, J-4
K4	Rollback Depth	J §10	—	J-4
K5	Gardener Authority	J §11	—	J-5
K6	Fork Verification	J §14	P8	J-8 to J-18
K7	ASG Integration	N §3-6	P2, P3	N-1 to N-23

3 Property–Proof–Test Matrix

ID	Property	Definition	Proof Location	Tests
P1	Reflex Supremacy	Reflex-Core halts unsafe actions within 1 tick	Vol I §6.1, Testing §2.2	V1-2, F-1 to F-4
P2	Spawn Boundedness	$\forall t : R(t) \leq R_{max}$	Vol I §6.2, Testing §2.2	V1-5, N-2, N-5
P3	Health Monotonicity	Degradation triggers corrective response	Testing §2.2	N-1, N-6, K-3
P4	Audit Completeness	All transitions logged to d-CTM	Vol I §6.3, Testing §2.2	E-1 to E-5, N-10

ID	Property	Definition	Proof Location	Tests
P5	Lineage Accountability	Every capsule traceable to genesis	Vol I §6.4, Testing §2.2	A-1, A-2, V1-4
P6	Capsule Liveness	Healthy capsules remain responsive	Testing §2.2	K-1 to K-5
P7	Arbiter Availability	Escalations resolved within bounds	Testing §2.2	V2-1, V2-2, L-6
P8	Constitutional Integrity	Layer 0 preserved across operations	Appendix J §14, Testing §2.2	J-8 to J-18

4 Appendix–Layer Coverage Matrix

Appendix	L0	L0.5	L1	L2	L3-5	L6	Tests
A: Forensic State	•		•				6
B: Lexicore Runtime			•				8
C: Simulation Harness			•	•	•		24
D: DEL Protocol			•				6
E: ZK-SP Proofs	•						15
F: Escalation Protocol		•					10
G: Gardener Interface	•			•		•	8
H: Telemetry			•	•	•		8
I: Deployment Profiles			•		•	•	6
J: Constitutional Kernel	•					•	18
K: SHSL					•		10
L: Judicial Swarms				•			12
M: Discovery Stack					•		8
N: ASG			•		•	•	23
Totals	4	1	8	4	7	4	162

Table 8: Appendix coverage by layer (• = primary coverage).

5 Clause ID Reference

Constitutional clauses are identified by layer prefix:

Prefix	Layer	Range
C1–C4	Layer 0 (Vault)	Four Commandments
R1–R4	Layer 0.5 (Reflex)	Reflex-Core clauses
E1–E6	Layer 1 (Execution)	Execution clauses
A1–A4	Layer 2 (Arbiter)	Arbiter clauses
F1–F5	Layers 3–5 (Forest)	Forest/Heuristic clauses
K1–K7	Layer 6 (Constitutional)	Kernel clauses

Table 9: Clause ID prefixes by layer.

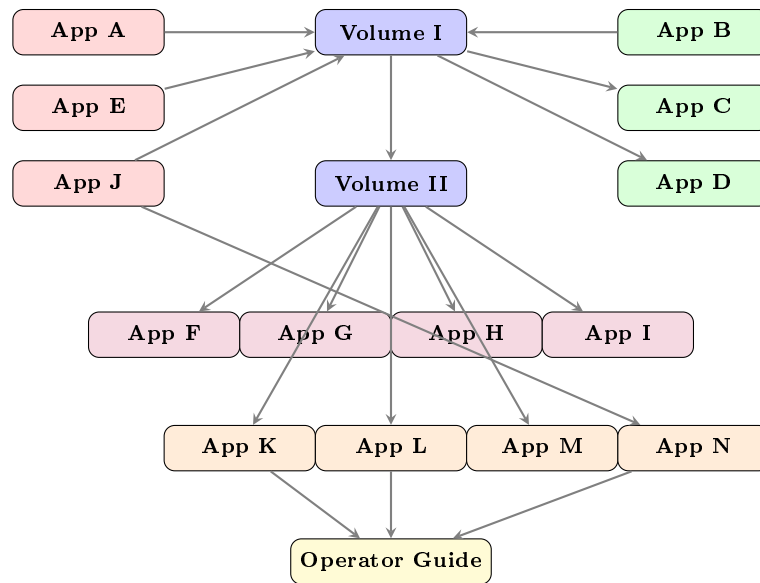
6 Test ID Reference

Tests are identified by document prefix:

Prefix	Document	Count
V1-*	Volume I	8
V2-*	Volume II	12
A-*	Appendix A	6
B-*	Appendix B	8
C-*	Appendix C	24
D-*	Appendix D	6
E-*	Appendix E	15
F-*	Appendix F	10
G-*	Appendix G	8
H-*	Appendix H	8
I-*	Appendix I	6
J-*	Appendix J	18
K-*	Appendix K	10
L-*	Appendix L	12
M-*	Appendix M	8
N-*	Appendix N	23
Total		182

Table 10: Test ID prefixes by document.

7 Document Dependency Graph



8 Code Snippet Index

Snippet	Description	Location	Language
SpawnGate	Spawn condition validation	Vol I §4.3	Python
ReflexEngine	Millisecond safety response	App F §3.2	Python
ZKProofGen	ZK-SP proof generation	App E §4.1	Python
HealthCompute	Capsule health calculation	App K §4.2	Python
ASGCalibrate	Adaptive spawn calibration	App N §5.1	Python

Snippet	Description	Location	Language
ForkVerifier	Fork equivalence testing	App J §14.4	Python
ArbiterElection	Arbiter selection protocol	App L §3.3	Python
PrecedentLookup	Judicial precedent retrieval	App L §4.2	Python
DialectDistance	Dialect divergence metric	App K §7.1	Python
CapsuleLifecycle	Lifecycle state machine	App A §3.1	Python
d-CTM.append	Audit log append	App A §4.2	Python
GardenerOverride	Human override handler	App G §3.4	Python

Table 11: Code snippet index across all documents.

Changelog

v1.0 (December 2025)

- Initial Codex Map release
- Complete crosswalk: 14 appendices, 6 layers, 182 tests, 8 properties
- Clause ID reference system established
- Code snippet index added