



Regulatory Audit Report

Independent review of a cryptographically signed agent-session audit bundle

INTEGRITY VERIFIED

all 22 executed checks passed (1 skipped, reasons in Section 5); 97/97 artifact signatures valid.

Session bce43369-d6f0-4b72-b022-9b1c5fcd53dc
Bundle 82ef4a440a8b · preset full · 8 sealed turn(s)

2026-10-29T07:59:10Z | regulator-portal v0.1.0

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1. Purpose and scope

This report presents an independent technical review of a recorded AI agent session, exported by the operating portal as a self-describing audit bundle. It is prepared for regulatory supervision, law enforcement, and conflict resolution: the evidence and verification results below allow a third party to assess what happened in the session, who participated, and whether the record is complete and untampered, without access to the operator's systems.

Every statement in Sections 2 through 7 is derived from the bundle file identified in Section 2 and from the trust anchors configured on the reviewing application, listed in Section 2. The bundle carries cryptographically signed artifact chains; the reviewing application re-verifies them with the Aqua Protocol SDK, independently of the producing system and without access to its database.

What this report asserts: the integrity verdict of Section 5 (hash chains, round seals, Merkle roots, signatures, identity attribution, template ancestry, compositional links), the identity attribution of Section 4, and the faithful reproduction of disclosed content in Sections 6 and 7. What this report does not assert: the factual truth of statements made by the human or the agent inside the conversation, and the content of fields withheld by the producer's disclosure policy, which appear as REDACTED and remain verifiable by hash only.

2. Chain of custody and provenance

Bundle file	darlene-contractor-payment.full.zip
SHA-256 (bundle)	82ef4a440a8b81a4654c4eb27da540f2365ced7d89d871f901c9 50ea731a1bb5
Bundle ID	82ef4a440a8b
Disclosure preset	full
Bundle generated (producer)	2026-10-29T02:58:59.618Z
Imported into review portal	2026-10-29T03:00:46Z
Report generated	2026-10-29T07:59:10Z
Reviewing tool	regulator-portal v0.1.0
Verification SDK	aqua-rs-sdk v7.0.0 (pinned to producer lineage)
Trust anchors (configured)	did:key:z6MkwBkUQEutgK3JdkWYuEL4bMgaMjz72vE24eG2ThaZ 3ujq
Independence	verification re-computed from the ZIP bytes above and the configured trust anchors; no access to the producing portal or its database

3. Session overview

Session ID	bce43369-d6f0-4b72-b022-9b1c5fcd53dc
Sealed turns (manifest)	8

Turns in bundle	8
Evidence artifacts	60 (OP 8, T1 8, T2 8, T3 8, T4 2, T5 9, T6 8, T7 1, T8 8)
Artifact signatures	97/97 valid
Participating identities	6
Session close seal	present

4. Participating identities

Identities are established by the signed identity claims of the session preamble (portal server, user, user session, agent, API attester). Any other signer is listed as an authorized signer when the bundle's trust assertions authorize it under the configured trust anchors (the rule of check 12), otherwise as an observed signer. Signature verdicts are re-computed by this tool.

Portal Server (server)

DID	did:key:z6MkwBkUQEutgK3JdkWYuEL4bMgaMjz72vE24eG2ThaZ 3ujq
Key algorithm	Ed25519
Claim signature	valid
Valid signatures in bundle	2
Claim field: dns	agentic.inblock.io
Claim field: ip	142.93.168.4
Claim field: service_kind	server
Claim field: valid_from	2026-10-20 01:03:56 UTC (unix 1792458236)

User (user)

DID	did:key:zDnaemyR5ZndvitDaLWx8PWPRYsD8Q43uR5SVvTFDFwA btBTK
Key algorithm	P-256
Claim signature	valid
Valid signatures in bundle	3
Portal attestation	trusted (binds this claim; attester trusted under the configured trust anchors)
Delegated to (session key)	did:key:z6MkvA6bA6fJu4h6eAepyHC8Ue9hhbu3w6kW5YRbYDFG 8hDn
Delegated scope	scope:user_input:sign
Delegation valid until	2026-10-30 02:50:04 UTC (unix 1793328604)
Claim field: email	agentic_portal_test@dev.matrix.inblock.io
Claim field: valid_from	2026-10-19 12:53:38 UTC (unix 1792414418)

User Session (user_session)

DID	did:key:z6MkvA6bA6fJu4h6eAepyHC8Ue9hhbu3w6kW5YRbYDFG 8hDn
Key algorithm	Ed25519
Claim signature	valid
Valid signatures in bundle	9
Portal attestation	trusted (binds this claim; attester trusted under the configured trust anchors)
Acts on behalf of	did:key:zDnaemyR5ZndvitDaLWx8PWPRYsD8Q43uR5SVvTFDFwA btBTK
Claim field: delegator_did	did:key:zDnaemyR5ZndvitDaLWx8PWPRYsD8Q43uR5SVvTFDFwA btBTK
Claim field: service_kind	user_session
Claim field: session_token	bce43369-d6f0-4b72-b022-9b1c5fcd53dc
Claim field: valid_from	2026-10-29 02:50:04 UTC (unix 1793242204)

Agent (agent)

DID	did:key:z6MktMKcuEvgocSgYB5T6oe9rR4PRCMQ3Niy65tziQtw MDJ6
Key algorithm	Ed25519
Claim signature	valid
Valid signatures in bundle	35
Portal attestation	trusted (binds this claim; attester trusted under the configured trust anchors)
Claim field: account	unspecified
Claim field: container_id	63db0230aea5
Claim field: model	claude-haiku-4-5
Claim field: service_kind	agent
Claim field: valid_from	2026-10-29 02:50:03 UTC (unix 1793242203)

API Attestor (api_attestor)

DID	did:key:z6MkoGz9ra2hCdcbrpnsFwbARLFiMHYvLGLH3hYExJGZ oHkD
Key algorithm	Ed25519
Claim signature	valid
Valid signatures in bundle	10
Portal attestation	trusted (binds this claim; attester trusted under the configured trust anchors)
Claim field: attested_origin	https://api.gusto-demo.com
Claim field: base_url	https://api.gusto-demo.com
Claim field: sandbox_id	gusto-sandbox
Claim field: service_kind	api_attestor

Claim field: valid_from 2026-10-29 02:50:03 UTC (unix 1793242203)

Authorized Signer (trust_authorized)

DID	did:key:z6MktmbZ3sjuizna8ayXNQUKzHBZr1vPd3tsFk6jV37Q iaCW
Key algorithm	Ed25519
Signatures	all valid
Signatures in bundle	38

5. Integrity verification

The 23-point checklist below is re-executed by this application from the bundle bytes and the trust anchors configured on this application (Section 2); each check is named by its protocol label, followed by what it checks. Check 16 (PII canary sweep) needs pre-disclosure plaintext and therefore runs producer-side only. The producer's own verification output ships in the bundle and is reproduced in Appendix C.

Status	Check	Result detail
Passed	0. bundle structure matches manifest What it checks: The bundle's files match its manifest: format version, number of sealed turns, one seal per turn, the session-close seal and the template list.	8 rounds, 81 artifact files, 26 templates consistent with manifest
Passed	1. session_close artifact exists What it checks: The bundle contains the session-close seal, which marks the end of the session.	exactly one session_close seal found
Passed	2. session_close.last_turn_id resolves to T1 What it checks: The last turn named by the session-close seal is present in the bundle.	last_turn_id found in turn list
Passed	3. T1 chain reaches turn_index=0 What it checks: Following each turn marker back to its predecessor leads, without a gap, to a first turn that has no predecessor link.	chain walks cleanly from turn 7 back to turn 0
Passed	4. turn count matches session_close.total_turns What it checks: The number of turns in the bundle equals the total the session-close seal records.	chain has exactly 8 T1 markers
Passed	5. inter-round hash-chain link What it checks: Each turn marker links by hash	passed in 8 round(s)

to the marker of the turn before it; the first turn has no predecessor.

Passed	6. T1 tree contains seal Anchor What it checks: Each turn has been sealed: its turn marker carries a seal revision.	passed in 8 round(s)
Passed	7. Anchor links match round artifacts What it checks: Each turn's seal covers exactly the evidence shipped for that turn: everything it seals is present, and every shipped evidence file is sealed.	passed in 8 round(s)
Passed	8. merkle_root verification What it checks: The hash of every tree-method revision in each turn's seal and evidence, disclosed or field-redacted, is recomputed from its content.	passed in 8 round(s)
Passed	9. artifact turn_id association What it checks: Every evidence artifact that discloses its turn ID names the turn it is filed under.	passed in 8 round(s)
Passed	10. intra-round artifact chain What it checks: Within each turn, every artifact links by hash to the one before it. Human approvals are checked separately (check 20).	artifact chains valid across 8 rounds (60 artifacts total)
Passed	11. signature validity What it checks: Every evidence artifact carries at least one signature, and every signature on them verifies cryptographically.	68 signatures cryptographically valid
Passed	12. signer_did attested by preamble What it checks: Every evidence artifact names as its signer (signer_did) an authorized key: one whose identity claim carries a trusted portal attestation, or one the bundle's trust assertions authorize under the trust anchors configured here.	60 artifacts have authorized signer_dids
Passed	13. template ancestry terminates at audit_artifact What it checks: Every evidence artifact uses a recognized template (an audit template, an SDK built-in or a template listed in the manifest). Field-redacted artifacts whose template reference is withheld are counted, not checked.	60 artifacts have valid template ancestry

Passed	14. compositional link targets exist in bundle What it checks: Every link from one artifact to another points to an artifact present in the bundle.	all 473 compositional link targets resolved
Passed	15. SelectiveTree envelopes verify What it checks: Every artifact file verifies as a selective-disclosure envelope: the disclosed fields and the hashes of withheld fields recompute the signed revision hashes.	all 81 artifact files parse as SelectiveTree envelopes and verify
Skipped	16. redacted values absent from bundle bytes What it checks: No withheld value appears anywhere in the bundle. This needs the original plaintext, so only the producer can run it; its result is in the producer's verify.txt.	full preset discloses every value by design; no redacted paths to sweep
Passed	17. email claim attested by anchored attester What it checks: The user's email claim carries a portal attestation that binds exactly that claim and whose attester is trusted under the configured trust anchors.	email attestation anchors exactly the claim object and its attester is trusted under the configured anchors
Passed	18. delegation binds root to session key What it checks: The delegation record names the user's root key as delegator and this session's key as delegate, and its expiry is not before the session key's start.	delegator=root, delegate=session, expiry covers the session
Passed	19. T7 approval signer == email claim signer What it checks: Every human approval is signed by the user's root key (the email claim's signer) and countersigns the tool call it approves.	1 T7 receipt(s) carry a user-root signature over an aqua:countersigns-anchored tool-call
Passed	20. T7 side-attachment turn membership What it checks: Every human approval belongs to its turn: the tool call it approves is in the bundle, in the same turn.	1 T7 side-attachment(s) countersign a shipped same-turn target
Passed	21. sealed turn ships evidence + genesis artifact What it checks: Every sealed turn ships evidence, including the artifact that opens the turn and links back to its turn marker.	passed in 8 round(s)
Passed	22. trust completeness (anchored)	1 trust tree(s) fully disclosed and effective, server claim

What it checks: The bundle's trust assertions are fully disclosed and complete, the portal server's claim is signed by a trust anchor configured here, and every attestation is signed by a trusted key. signed by a configured anchor, 4 attestation(s) signed by anchored subjects

6. Conversation record

The human-visible exchange, reproduced from the signed T2 (user prompt), T7 (human approval), and T8 (agent response) artifacts of each sealed turn. Times are the artifacts' recorded timestamps in UTC; a turn is dated by its earliest entry. REDACTED marks fields withheld by the disclosure policy; the underlying hashes remain part of the verified chains.

Turn 0 · 0x16206465 · 2026-10-29 02:50:22 UTC

User · 2026-10-29 02:50:22 UTC: Bring on Bright Oak Consulting LLC as a contractor. Darlene Alderson is the contact, email darlene@brightoak.io. Business entity, EIN 91-1246096, hourly rate \$40, starting August 29, 2026. Ask me for any details you need.

evidence: audit_trees/01_turn_0x16206465/0002_1620a9_audit_user_prompt.aqua.json

Agent · 2026-10-29 02:50:34 UTC: Done. Bright Oak Consulting LLC is in the system. Darlene Alderson is set up as the contact with an hourly rate of 40 dollars per hour, starting August 29, 2026. The contractor is ready for onboarding. Would you like me to set up an address and complete the onboarding now, or do you need anything else?

evidence: audit_trees/01_turn_0x16206465/0269_1620a9_audit_agent_response.aqua.json

Turn 1 · 0x1620c663 · 2026-10-29 02:50:37 UTC

User · 2026-10-29 02:50:37 UTC: Yes, go ahead.

evidence: audit_trees/02_turn_0x1620c663/0273_1620ee_audit_user_prompt.aqua.json

Agent · 2026-10-29 02:50:41 UTC: I need the contractor's business address to complete onboarding. What's the street, city, state, and zip code for Bright Oak Consulting LLC?

evidence: audit_trees/02_turn_0x1620c663/0410_1620ee_audit_agent_response.aqua.json

Turn 2 · 0x16203cf4 · 2026-10-29 02:50:44 UTC

User · 2026-10-29 02:50:44 UTC: Yes, go ahead.

evidence: audit_trees/03_turn_0x16203cf4/0414_16203c_audit_user_prompt.aqua.json

Agent · 2026-10-29 02:50:46 UTC: I need the business address for Bright Oak Consulting LLC to move forward. Can you give me the street address, city, state, and zip code?

evidence: audit_trees/03_turn_0x16203cf4/0469_16203c_audit_agent_response.aqua.json

Turn 3 · 0x1620471b · 2026-10-29 02:50:49 UTC

User · 2026-10-29 02:50:49 UTC: Yes, go ahead.

evidence: audit_trees/04_turn_0x1620471b/0473_162096_audit_user_prompt.aqua.json

Agent · 2026-10-29 02:50:51 UTC: I appreciate your patience, but I'm stuck without the business address. To complete the onboarding, I need to know where Bright Oak Consulting LLC is located. Can you provide the street address, city, state, and zip code?

evidence: audit_trees/04_turn_0x1620471b/0545_162096_audit_agent_response.aqua.json

Turn 4 · 0x162033ac · 2026-10-29 02:50:57 UTC

User · 2026-10-29 02:50:57 UTC: Set up Darlene's bank account for direct deposit. Routing number 102001017, account number 9998887776, Checking account.

evidence: audit_trees/05_turn_0x162033ac/0549_1620c5_audit_user_prompt.aqua.json

Agent · 2026-10-29 02:51:13 UTC: Perfect. Darlene's bank account is set up for direct deposit. The account ending in 7776 is configured and ready to receive payments. Now, do you have the business address for Bright Oak Consulting LLC? I still need that to complete the contractor onboarding.

evidence: audit_trees/05_turn_0x162033ac/0856_1620c5_audit_agent_response.aqua.json

Turn 5 · 0x16209e34 · 2026-10-29 02:51:28 UTC

User · 2026-10-29 02:51:28 UTC: Pay Darlene for 40 hours of consulting work, dated November 5, 2026, via Direct Deposit.

evidence: audit_trees/06_turn_0x16209e34/0860_162004_audit_user_prompt.aqua.json

Agent · 2026-10-29 02:51:38 UTC: I'll create a payment to Bright Oak Consulting LLC for 40 hours at 40 dollars per hour, dated November 5, 2026, via Direct Deposit. That's 1600 dollars total. Shall I proceed?

evidence: audit_trees/06_turn_0x16209e34/1147_162004_audit_agent_response.aqua.json

Turn 6 · 0x1620a619 · 2026-10-29 02:51:53 UTC

User · 2026-10-29 02:51:53 UTC: Yes, go ahead.

evidence: audit_trees/07_turn_0x1620a619/1151_162084_audit_user_prompt.aqua.json

Agent · 2026-10-29 02:51:59 UTC: I need to complete Darlene's onboarding before I can process the payment. The contractor onboarding requires the business address. Once you provide the street address, city, state, and zip code for Bright Oak Consulting LLC, I can finish onboarding and then process the payment right away.

evidence: audit_trees/07_turn_0x1620a619/1307_162084_audit_agent_response.aqua.json

Turn 7 · 0x1620a362 · 2026-10-29 02:52:16 UTC

User · 2026-10-29 02:52:16 UTC: Darlene's US mailing address is 42 Sample Street, Springfield, IL 62701.

evidence: audit_trees/08_turn_0x1620a362/1311_1620c3_audit_user_prompt.aqua.json

Human approval (T7) · 2026-10-29 02:52:37 UTC: approved

evidence: audit_trees/08_turn_0x1620a362/1615_1620c3_audit_hitl_approval.aqua.json

Agent · 2026-10-29 02:52:58 UTC: Perfect. Done. Darlene's payment of 1600 dollars for 40 hours has been funded and will be sent via Direct Deposit on November 5, 2026.

evidence: audit_trees/08_turn_0x1620a362/1647_1620c3_audit_agent_response.aqua.json

7. Artifact inventory

Every artifact of every sealed turn, with its signer attribution and re-computed signature verdict.

Signer: the role in parentheses in Section 4; unattested = the signer is not disclosed, or is none of the five preamble roles and is not authorized by the trust assertions. Sig: ok = all signatures verified, FAIL = at least one invalid, n/a = no signature revision. Disclosure: see glossary (Appendix D).

Turn 0 · 0x16206465 – 7 artifact(s)

Type	Summary	Signer	Sig	Disclosure
T1	Turn 0 opened	trust_authorized	ok	disclosed
T2	User prompt – Bring on Bright Oak Consulting LLC as a contractor. Darlene Alderson is the cont...	user_session	ok	disclosed
OP	Operational record –	agent	ok	disclosed
T5	API response – POST /v1/companies/{company_id}/contractors → 200	api_attestor	ok	disclosed
T6	Tool result – gusto_contractor_create	agent	ok	disclosed
T3	Agent reasoning – The user wants to add a contractor. Let me break down what they've provided: - C...	agent	ok	disclosed
T8	Agent response – Done. Bright Oak Consulting LLC is in the system. Darlene Alderson is set up as ...	agent	ok	disclosed

Turn 1 · 0x1620c663 – 4 artifact(s)

Type	Summary	Signer	Sig	Disclosure
T1	Turn 1 opened	trust_authorized	ok	disclosed
T2	User prompt – Yes, go ahead.	user_session	ok	disclosed
T3	Agent reasoning – The user wants me to complete the onboarding for Bright Oak Consulting LLC (Darl...	agent	ok	disclosed
T8	Agent response – I need the contractor's business address to complete onboarding. What's the stre...	agent	ok	disclosed

Turn 2 · 0x16203cf4 – 4 artifact(s)

Type	Summary	Signer	Sig	Disclosure
T1	Turn 2 opened	trust_authorized	ok	disclosed
T2	User prompt – Yes, go ahead.	user_session	ok	disclosed
T3	Agent reasoning – The user is saying "Yes, go ahead" again, but I've just asked for the business a...	agent	ok	disclosed
T8	Agent response – I need the business address for Bright Oak Consulting LLC to move forward. Can y...	agent	ok	disclosed

Turn 3 · 0x1620471b — 4 artifact(s)

Type	Summary	Signer	Sig	Disclosure
T1	Turn 3 opened	trust_authorized	ok	disclosed
T2	User prompt — Yes, go ahead.	user_session	ok	disclosed
T3	Agent reasoning — The user is saying "Yes, go ahead" but I've asked twice for the business address...	agent	ok	disclosed
T8	Agent response — I appreciate your patience, but I'm stuck without the business address. To compl...	agent	ok	disclosed

Turn 4 · 0x162033ac — 12 artifact(s)

Type	Summary	Signer	Sig	Disclosure
T1	Turn 4 opened	trust_authorized	ok	disclosed
T2	User prompt — Set up Darlene's bank account for direct deposit. Routing number 102001017, acco...	user_session	ok	disclosed
T4	Tool call — gusto_query_contractors	agent	ok	disclosed
T5	API response — GET → 200	api_attestor	ok	disclosed
OP	Operational record —	agent	ok	disclosed
T5	API response — POST /v1/contractors/{contractor_id}/bank_accounts → 200	api_attestor	ok	disclosed
T6	Tool result — gusto_bank_account_create_contractor	agent	ok	disclosed
OP	Operational record —	agent	ok	disclosed
T5	API response — PUT /v1/contractors/{contractor_id}/payment_method → 200	api_attestor	ok	disclosed
T6	Tool result — gusto_payment_method_update_contractor	agent	ok	disclosed
T3	Agent reasoning — The user is asking me to set up a bank account for Darlene Alderson (the contrac...	agent	ok	disclosed
T8	Agent response — Perfect. Darlene's bank account is set up for direct deposit. The account ending...	agent	ok	disclosed

Turn 5 · 0x16209e34 — 4 artifact(s)

Type	Summary	Signer	Sig	Disclosure
T1	Turn 5 opened	trust_authorized	ok	disclosed
T2	User prompt — Pay Darlene for 40 hours of consulting work, dated November 5, 2026, via Direct ...	user_session	ok	disclosed
T3	Agent reasoning — The user wants to pay Darlene (Bright Oak Consulting LLC contractor) for 40 hour...	agent	ok	disclosed

T8	Agent response — I'll create a payment to Bright Oak Consulting LLC for 40 hours at 40 dollars pe...	agent	ok	disclosed
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Turn 6 · 0x1620a619 — 6 artifact(s)

Type	Summary	Signer	Sig	Disclosure
T1	Turn 6 opened	trust_authorized	ok	disclosed
T2	User prompt — Yes, go ahead.	user_session	ok	disclosed
OP	Operational record —	agent	ok	disclosed
T6	Tool result — gusto_contractor_payment_create	agent	ok	disclosed
T3	Agent reasoning — The user wants to pay Darlene (Bright Oak Consulting LLC) for 40 hours of work a...	agent	ok	disclosed
T8	Agent response — I need to complete Darlene's onboarding before I can process the payment. The co...	agent	ok	disclosed

Turn 7 · 0x1620a362 — 19 artifact(s)

Type	Summary	Signer	Sig	Disclosure
T1	Turn 7 opened	trust_authorized	ok	disclosed
T2	User prompt — Darlene's US mailing address is 42 Sample Street, Springfield, IL 62701.	user_session	ok	disclosed
T4	Tool call — gusto_query_contractor	agent	ok	disclosed
T5	API response — GET /v1/contractors/3db47a15-b8b9-481e-93cd-8cd1234ac4a6 → 200	api_attestor	ok	disclosed
OP	Operational record —	agent	ok	disclosed
T5	API response — PUT /v1/contractors/{contractor_id}/address → 200	api_attestor	ok	disclosed
T6	Tool result — gusto_contractor_address_update	agent	ok	disclosed
OP	Operational record —	agent	ok	disclosed
T5	API response — PUT /v1/contractors/{contractor_id}/onboarding_status → 200	api_attestor	ok	disclosed
T6	Tool result — gusto_contractor_onboarding_complete	agent	ok	disclosed
OP	Operational record —	agent	ok	disclosed
T5	API response — POST /v1/companies/{company_id}/contractor_payments → 200	api_attestor	ok	disclosed
T6	Tool result — gusto_contractor_payment_create	agent	ok	disclosed
T7	Human approval — approved	user	ok	disclosed
OP	Operational record —	agent	ok	disclosed

T5	API response — PUT /v1/contractor_payments/{contractor_payment_id}/fund → 200	api_attestor	ok	disclosed
T6	Tool result — gusto_contractor_payment_fund	agent	ok	disclosed
T3	Agent reasoning — The user has provided the business address for Bright Oak Consulting LLC: - Stre...	agent	ok	disclosed
T8	Agent response — Perfect. Done. Darlene's payment of 1600 dollars for 40 hours has been funded an...	agent	ok	disclosed

Appendix A. Bundle file inventory

File	Kind	Size
audit_trees/0001_1620a9_round_seal.aqua.json	round_seal	9181 B
audit_trees/0002_1620ee_round_seal.aqua.json	round_seal	8888 B
audit_trees/0003_16203c_round_seal.aqua.json	round_seal	8888 B
audit_trees/0004_162096_round_seal.aqua.json	round_seal	8888 B
audit_trees/0005_1620c5_round_seal.aqua.json	round_seal	10176 B
audit_trees/0006_162004_round_seal.aqua.json	round_seal	8888 B
audit_trees/0007_162084_round_seal.aqua.json	round_seal	9210 B
audit_trees/0008_1620c3_round_seal.aqua.json	round_seal	11127 B
audit_trees/01_turn_0x16206465/0001_1620a9_audit_use r_turn_marker.aqua.json	evidence	4451 B
audit_trees/01_turn_0x16206465/0002_1620a9_audit_use r_prompt.aqua.json	evidence	5806 B
audit_trees/01_turn_0x16206465/0215_1620a9_0x1620035 1a27bcd8c853f5e25b5f1e4aa3b6713ad64a868ade79a99930fd 491a6bcd.c.aqua.json	evidence	6954 B
audit_trees/01_turn_0x16206465/0216_1620a9_audit_api _response.aqua.json	evidence	9811 B
audit_trees/01_turn_0x16206465/0217_1620a9_audit_too l_result.aqua.json	evidence	6105 B
audit_trees/01_turn_0x16206465/0268_1620a9_audit_age nt_thinking.aqua.json	evidence	7332 B
audit_trees/01_turn_0x16206465/0269_1620a9_audit_age nt_response.aqua.json	evidence	6255 B
audit_trees/02_turn_0x1620c663/0272_1620ee_audit_use r_turn_marker.aqua.json	evidence	4465 B
audit_trees/02_turn_0x1620c663/0273_1620ee_audit_use r_prompt.aqua.json	evidence	5599 B
audit_trees/02_turn_0x1620c663/0409_1620ee_audit_age nt_thinking.aqua.json	evidence	7356 B
audit_trees/02_turn_0x1620c663/0410_1620ee_audit_age nt_response.aqua.json	evidence	6092 B
audit_trees/03_turn_0x16203cf4/0413_16203c_audit_use r_turn_marker.aqua.json	evidence	4465 B
audit_trees/03_turn_0x16203cf4/0414_16203c_audit_use r_prompt.aqua.json	evidence	5599 B

audit_trees/03_turn_0x16203cf4/0468_16203c_audit_age nt_thinking.aqua.json	evidence	6520 B
audit_trees/03_turn_0x16203cf4/0469_16203c_audit_age nt_response.aqua.json	evidence	6089 B
audit_trees/04_turn_0x1620471b/0472_162096_audit_use r_turn_marker.aqua.json	evidence	4465 B
audit_trees/04_turn_0x1620471b/0473_162096_audit_use r_prompt.aqua.json	evidence	5599 B
audit_trees/04_turn_0x1620471b/0544_162096_audit_age nt_thinking.aqua.json	evidence	6604 B
audit_trees/04_turn_0x1620471b/0545_162096_audit_age nt_response.aqua.json	evidence	6173 B
audit_trees/05_turn_0x162033ac/0548_1620c5_audit_use r_turn_marker.aqua.json	evidence	4465 B
audit_trees/05_turn_0x162033ac/0549_1620c5_audit_use r_prompt.aqua.json	evidence	5705 B
audit_trees/05_turn_0x162033ac/0740_1620c5_audit_age nt_tool_call.aqua.json	evidence	6313 B
audit_trees/05_turn_0x162033ac/0741_1620c5_audit_api _response.aqua.json	evidence	7445 B
audit_trees/05_turn_0x162033ac/0790_1620c5_0x1620c91 e063717826a309e2a1224da20d2db68de7638bcb577016eec6d9 39c444009.aqua.json	evidence	6405 B
audit_trees/05_turn_0x162033ac/0791_1620c5_audit_api _response.aqua.json	evidence	7097 B
audit_trees/05_turn_0x162033ac/0792_1620c5_audit_too l_result.aqua.json	evidence	6118 B
audit_trees/05_turn_0x162033ac/0813_1620c5_0x1620843 d67fd28b92523d59e5b6e094f69f5f6c6bff30a340fec2623bf4 4452e4821.aqua.json	evidence	6882 B
audit_trees/05_turn_0x162033ac/0814_1620c5_audit_api _response.aqua.json	evidence	7548 B
audit_trees/05_turn_0x162033ac/0815_1620c5_audit_too l_result.aqua.json	evidence	6120 B
audit_trees/05_turn_0x162033ac/0855_1620c5_audit_age nt_thinking.aqua.json	evidence	7960 B
audit_trees/05_turn_0x162033ac/0856_1620c5_audit_age nt_response.aqua.json	evidence	6211 B
audit_trees/06_turn_0x16209e34/0859_162004_audit_use r_turn_marker.aqua.json	evidence	4465 B

audit_trees/06_turn_0x16209e34/0860_162004_audit_use r_prompt.aqua.json	evidence	5673 B
audit_trees/06_turn_0x16209e34/1146_162004_audit_age nt_thinking.aqua.json	evidence	8309 B
audit_trees/06_turn_0x16209e34/1147_162004_audit_age nt_response.aqua.json	evidence	6127 B
audit_trees/07_turn_0x1620a619/1150_162084_audit_use r_turn_marker.aqua.json	evidence	4465 B
audit_trees/07_turn_0x1620a619/1151_162084_audit_use r_prompt.aqua.json	evidence	5599 B
audit_trees/07_turn_0x1620a619/1280_162084_0x1620b44 3a1b13bb8769aedeb912354d1783e7e794e9e08597287e591c42 440045f22.aqua.json	evidence	6378 B
audit_trees/07_turn_0x1620a619/1281_162084_audit_too l_result.aqua.json	evidence	6106 B
audit_trees/07_turn_0x1620a619/1306_162084_audit_age nt_thinking.aqua.json	evidence	7082 B
audit_trees/07_turn_0x1620a619/1307_162084_audit_age nt_response.aqua.json	evidence	6241 B
audit_trees/08_turn_0x1620a362/1310_1620c3_audit_use r_turn_marker.aqua.json	evidence	4465 B
audit_trees/08_turn_0x1620a362/1311_1620c3_audit_use r_prompt.aqua.json	evidence	5657 B
audit_trees/08_turn_0x1620a362/1514_1620c3_audit_age nt_tool_call.aqua.json	evidence	6461 B
audit_trees/08_turn_0x1620a362/1515_1620c3_audit_api _response.aqua.json	evidence	9833 B
audit_trees/08_turn_0x1620a362/1534_1620c3_0x1620057 523a34dc07096123faa2d811f416b29aab741487168ada956d6f 0065773fc.aqua.json	evidence	6742 B
audit_trees/08_turn_0x1620a362/1535_1620c3_audit_api _response.aqua.json	evidence	8018 B
audit_trees/08_turn_0x1620a362/1536_1620c3_audit_too l_result.aqua.json	evidence	6113 B
audit_trees/08_turn_0x1620a362/1553_1620c3_0x1620477 3257ffd8c7b170381231bcb26172ec47ec2b29e1f58420ed836 bd208cfed.aqua.json	evidence	6175 B
audit_trees/08_turn_0x1620a362/1554_1620c3_audit_api _response.aqua.json	evidence	10495 B
audit_trees/08_turn_0x1620a362/1555_1620c3_audit_too	evidence	6118 B

l_result.aqua.json		
audit_trees/08_turn_0x1620a362/1589_1620c3_0x1620b443a1b13bb8769aedeb912354d1783e7e794e9e08597287e591c42440045f22.aqua.json	evidence	6378 B
audit_trees/08_turn_0x1620a362/1590_1620c3_audit_api_response.aqua.json	evidence	7861 B
audit_trees/08_turn_0x1620a362/1591_1620c3_audit_tool_result.aqua.json	evidence	6114 B
audit_trees/08_turn_0x1620a362/1615_1620c3_audit_hit_l_approval.aqua.json	evidence	4707 B
audit_trees/08_turn_0x1620a362/1617_1620c3_0x1620c2c3b8c2878afe8bd09261038609813b45719fcaec634ec7a1a16e561f92fab9.aqua.json	evidence	6042 B
audit_trees/08_turn_0x1620a362/1618_1620c3_audit_api_response.aqua.json	evidence	7866 B
audit_trees/08_turn_0x1620a362/1619_1620c3_audit_tool_result.aqua.json	evidence	6111 B
audit_trees/08_turn_0x1620a362/1646_1620c3_audit_agent_thinking.aqua.json	evidence	8192 B
audit_trees/08_turn_0x1620a362/1647_1620c3_audit_agent_response.aqua.json	evidence	6086 B
audit_trees/1620d3_session_close.aqua.json	session_close	6686 B
identity/162008_email.aqua.json	identity_artifact	5088 B
identity/16200d_api_attestor_attestation.aqua.json	identity_artifact	3434 B
identity/162025_trust_operational.aqua.json	identity_artifact	5359 B
identity/16205f_email_attestation.aqua.json	identity_artifact	3427 B
identity/162060_user_session.aqua.json	identity_artifact	6104 B
identity/162065_delegation.aqua.json	identity_artifact	8754 B
identity/16206c_operational.aqua.json	identity_artifact	5349 B
identity/162081_agent_attestation.aqua.json	identity_artifact	3427 B
identity/162091_user_session_attestation.aqua.json	identity_artifact	3434 B
identity/16209c_agent.aqua.json	identity_artifact	6354 B
identity/1620e6_api_attestor.aqua.json	identity_artifact	6449 B
identity/1620ef_server.aqua.json	identity_artifact	6137 B
templates/0c5f42_audit_agent_response.aqua.json	template	2184 B
templates/0fffd7_audit_tool_result.aqua.json	template	2012 B
templates/162003_0x16200351a27bcd8c853f5e25b5f1e4aa3b6713ad64a868ade79a99930fd491a6bcd.c.aqua.json	template	5902 B

templates/162005_0x1620057523a34dc07096123faa2d811f4 16b29aab741487168ada956d6f0065773fc.aqua.json	template	4152 B
templates/162047_0x16204773257ffd8c7b170381231bcb26 172ec47ec2b29e1f58420ed836bd208cfed.aqua.json	template	2904 B
templates/162084_0x1620843d67fd28b92523d59e5b6e094f6 9f5f6c6bff30a340fec2623bf44452e4821.aqua.json	template	4692 B
templates/1620b4_0x1620b443a1b13bb8769aede912354d17 83e7e794e9e08597287e591c42440045f22.aqua.json	template	4755 B
templates/1620c2_0x1620c2c3b8c2878afe8bd092610386098 13b45719fcaec634ec7a1a16e561f92fab9.aqua.json	template	2908 B
templates/1620c9_0x1620c91e063717826a309e2a1224da20d 2db68de7638bcb577016eec6d939c444009.aqua.json	template	3664 B
templates/39c91b_service_claim_api_attestor.aqua.json	template	2522 B
templates/42137e_email_claim.aqua.json	template	1557 B
templates/719f3e_service_claim.aqua.json	template	1848 B
templates/7ce830_audit_agent_thinking.aqua.json	template	2270 B
templates/7e3b6c_service_claim_server.aqua.json	template	2379 B
templates/8ae036_trust_assertion.aqua.json	template	2566 B
templates/8e7619_audit_hitl_approval.aqua.json	template	2033 B
templates/9e8003_service_claim_user_session.aqua.json	template	2272 B
templates/a791b9_attestation.aqua.json	template	5665 B
templates/acd9c7_service_claim_agent.aqua.json	template	2466 B
templates/b2f392_audit_user_prompt.aqua.json	template	2782 B
templates/b83ef8_delegation.aqua.json	template	5721 B
templates/b9313b_audit_artifact.aqua.json	template	1545 B
templates/c6cc0d_audit_session_close.aqua.json	template	2531 B
templates/db9488_audit_agent_tool_call.aqua.json	template	2087 B
templates/e4a0f8_audit_user_turn_marker.aqua.json	template	1797 B
templates/e8711a_audit_api_response.aqua.json	template	2694 B

Appendix B. Template registry

Template name to revision-hash bindings from the bundle manifest; artifact template ancestry is verified against these (check 13).

0x16200351a27bcd8c853f5e25b5f1e4aa3b6713ad64a868ade7
9a99930fd491a6bcd

0x1620057523a34dc07096123faa2d811f416b29aab741487168

	ada956d6f0065773fc
	0x16204773257ffd8c7b170381231bcbc26172ec47ec2b29e1f5 8420ed836bd208cfed
	0x1620843d67fd28b92523d59e5b6e094f69f5f6c6bff30a340f ec2623bf44452e4821
	0x1620b443a1b13bb8769aede912354d1783e7e794e9e085972 87e591c42440045f22
	0x1620c2c3b8c2878afe8bd09261038609813b45719fcaec634e c7a1a16e561f92fab9
	0x1620c91e063717826a309e2a1224da20d2db68de7638bcb577 016eec6d939c444009
attestation	0xa791b9fc64c39ad37e762b9ec4dc54be3fe161a17168ca54b4 12cf0dc0699791
audit_agent_response	0x0c5f42b4bda77d62fc8bcc20847ecd1c8bec16c29b0ea16bd1 d8175fcb40018b
audit_agent_thinking	0x7ce83040cb912b1e1c909f04b626e54dec115ec77429da2c3b 2c7d9397ec6920
audit_agent_tool_call	0xdb9488b6756fc1ee49b127c440c330ffbd325aae32cefeb12f a8e95fd405f831
audit_api_response	0xe8711aaa0aeaa8e4cc642a66aa5e6759e6f55a635050a5da8d 047ad0fa4ec8e1
audit_artifact	0xb9313ba257dc26a63b7432a93c2a74a79ca16f5559013ca343 f17967c68bb1ba
audit_hitl_approval	0x8e761910013ae38409435a5ec94c038c3a60542136b4f60d1c 7e03e6d5f55252
audit_session_close	0xc6cc0db5f2f40ed2e479f2d8826345a78cbc0cd4c43dd0f48a a259ca9671a909
audit_tool_result	0x0fffd7e25e3d4ebdc56b4761953441a243a8f85356ec741c7f cd9916893054d2
audit_user_prompt	0xb2f39273822c74e687f40b887b15fddd87b1ac14286911b482 3df0836d777df2
audit_user_turn_marker	0xe4a0f8a929cfcd017a90551c5301873029e8bde1ba11ffe8c6 9ea300029760c8
delegation	0xb83ef83d89ea45b9e2db9916debb0a93d6bfde4f987d44ab6f 9a759937325fec
email_claim	0x42137e6eb6aa87d1a2566e43a1da08cbd47ee4cc1faf9861b4 864a3a64059551
service_claim	0x719f3e77b74fc7036072081f607f6cf5cd901b43f685516403

	cc4a8a0d58cd5c
service_claim_agent	0xacd9c75e871ca1098e1819ae874e3ee0ab5cfc0bf44b17b116 185fea3b70d332
service_claim_api_attestor	0x39c91b954bb2b431c3ff2bff75592e5bf3abda982050e9f6f6 508b476f908214
service_claim_server	0x7e3b6c5887ac93d69e3107643506f56a30d35afb86135ce29a 5400c240faf55c
service_claim_user_session	0x9e8003df3e1e38f9f5399c01abf5e314a905c35a52597e38be 765bb4d47ec6a5
trust_assertion	0x8ae036b2f769e9002d667597b1e63c360139f10e0a34776833 a4e62cb608ac0d

Appendix C. Producer verification output (verify.txt)

audit-bundle.zip v2

bundle_format: 4

generated_at_utc: 2026-10-29T02:58:59.483Z

session_id: bce43369-d6f0-4b72-b022-9b1c5fcd53dc

preset: full

--- Bundle structure ---

```
identity/      Identity: WHO participated (server, user, agent, attestor, delegation)
  <name>_genN  A superseded identity generation (container respawn or re-sign);
               the un-suffixed name is always the CURRENT generation
audit_trees/   Round seal chain: one file per turn, genesis-hash named
  <hash>.aqua.json 5-revision chain: anchor -> T1 marker -> sig -> seal anchor -> sig
  session_close  Capstone: references last turn, server-signed
  NN_turn_*/    Per-turn evidence directories (T2-T8 artifacts)
```

The seal anchor in each turn references:

- This turn's artifacts via `compositional_link role=aqua:seals_artifact`
- Previous turn's T1 sig via `role=prov:wasDerivedFrom:prev_user_turn`

Removing any turn or artifact breaks the chain.

identity claims:

```
agent          did:key:z6MktMKcuEvgocSgYB5T6oe9rR4PRCMQ3Niy65tziQtwMDJ6
agent_attestation did:key:z6MktmbZ3sjuizna8ayXNQUKzHBZr1vPd3tsFk6jV37QiaCW
api_attestor    did:key:z6MkoGz9ra2hCdcbrpnsFwbARLFiMHYvLGLH3hYExJGZohKD
api_attestor_attestation did:key:z6MktmbZ3sjuizna8ayXNQUKzHBZr1vPd3tsFk6jV37QiaCW
delegation      did:key:zDnaemyR5ZndvitDaLWx8PWPRYsD8Q43uR5SVvTFDFwAbtBTK
email           did:key:zDnaemyR5ZndvitDaLWx8PWPRYsD8Q43uR5SVvTFDFwAbtBTK
email_attestation did:key:z6MktmbZ3sjuizna8ayXNQUKzHBZr1vPd3tsFk6jV37QiaCW
operational     did:key:z6MktmbZ3sjuizna8ayXNQUKzHBZr1vPd3tsFk6jV37QiaCW
```

```
server          did:key:z6MkwBkUQEutgK3JdkWYuEL4bMgaMjz72vE24eG2ThaZ3ujq
trust_operational did:key:z6MkwBkUQEutgK3JdkWYuEL4bMgaMjz72vE24eG2ThaZ3ujq
user_session     did:key:z6MkvA6bA6fJu4h6eAepyHC8Ue9hhbu3w6kW5YRbYDFG8hDn
user_session_attestation did:key:z6MktmbZ3sjuizna8ayXNQUKzHBZr1vPd3tsFk6jV37QiaCW
```

round seal chain:

```
turn 0 | chain: 0x1620a965.aqua.json | evidence: 01_turn_0x16206465 (7 artifacts)
turn 1 | chain: 0x1620ee87.aqua.json | evidence: 02_turn_0x1620c663 (4 artifacts)
turn 2 | chain: 0x16203ce3.aqua.json | evidence: 03_turn_0x16203cf4 (4 artifacts)
turn 3 | chain: 0x16209656.aqua.json | evidence: 04_turn_0x1620471b (4 artifacts)
turn 4 | chain: 0x1620c58c.aqua.json | evidence: 05_turn_0x162033ac (12 artifacts)
turn 5 | chain: 0x162004eb.aqua.json | evidence: 06_turn_0x16209e34 (4 artifacts)
turn 6 | chain: 0x16208445.aqua.json | evidence: 07_turn_0x1620a619 (6 artifacts)
turn 7 | chain: 0x1620c355.aqua.json | evidence: 08_turn_0x1620a362 (19 artifacts)
```

```
session_close_seal: 0x1620d3298902ce022d43f7ea47e7b255a55082f0b3dc0bbc10a23970e27976e40d2d
reason: user_ended
```

templates: 26 included

```
audit_artifact
0xb9313ba257dc26a63b7432a93c2a74a79ca16f5559013ca343f17967c68bb1ba
audit_user_turn_marker
0xe4a0f8a929cfcdd017a90551c5301873029e8bde1ba11ffe8c69ea300029760c8
audit_user_prompt
0xb2f39273822c74e687f40b887b15fddd87b1ac14286911b4823df0836d777df2
audit_agent_thinking
0x7ce83040cb912b1e1c909f04b626e54dec115ec77429da2c3b2c7d9397ec6920
audit_agent_tool_call
0xdb9488b6756fc1ee49b127c440c330ffbd325aae32cefeb12fa8e95fd405f831
audit_api_response
0xe8711aaa0aeaa8e4cc642a66aa5e6759e6f55a635050a5da8d047ad0fa4ec8e1
audit_tool_result
0x0ffffd7e25e3d4ebdc56b4761953441a243a8f85356ec741c7fcd9916893054d2
audit_hitl_approval
0x8e761910013ae38409435a5ec94c038c3a60542136b4f60d1c7e03e6d5f55252
audit_agent_response
0x0c5f42b4bda77d62fc8bcc20847ecd1c8bec16c29b0ea16bd1d8175fcb40018b
audit_session_close
0xc6cc0db5f2f40ed2e479f2d8826345a78cbc0cd4c43dd0f48aa259ca9671a909
service_claim
0x719f3e77b74fc7036072081f607f6cf5cd901b43f685516403cc4a8a0d58cd5c
service_claim_server
0x7e3b6c5887ac93d69e3107643506f56a30d35afb86135ce29a5400c240faf55c
service_claim_user_session
0x9e8003df31e38f9f5399c01abf5e314a905c35a52597e38be765bb4d47ec6a5
service_claim_agent
```

```

0xacd9c75e871ca1098e1819ae874e3ee0ab5cfc0bf44b17b116185fea3b70d332
  service_claim_api_attestor
0x39c91b954bb2b431c3ff2bff75592e5bf3abda982050e9f6f6508b476f908214
  email_claim
0x42137e6eb6aa87d1a2566e43a1da08cbd47ee4cc1faf9861b4864a3a64059551
  attestation
0xa791b9fc64c39ad37e762b9ec4dc54be3fe161a17168ca54b412cf0dc0699791
  delegation
0xb83ef83d89ea45b9e2db9916debb0a93d6bfde4f987d44ab6f9a759937325fec
  trust_assertion
0x8ae036b2f769e9002d667597b1e63c360139f10e0a34776833a4e62cb608ac0d
  0x16200351a27bcd8c853f5e25b5f1e4aa3b6713ad64a868ade79a99930fd491a6bcd
0x16200351a27bcd8c853f5e25b5f1e4aa3b6713ad64a868ade79a99930fd491a6bcd
  0x1620057523a34dc07096123faa2d811f416b29aab741487168ada956d6f0065773fc
0x1620057523a34dc07096123faa2d811f416b29aab741487168ada956d6f0065773fc
  0x16204773257ffd8c7b170381231bcbc26172ec47ec2b29e1f58420ed836bd208cfed
0x16204773257ffd8c7b170381231bcbc26172ec47ec2b29e1f58420ed836bd208cfed
  0x1620843d67fd28b92523d59e5b6e094f69f5f6c6bff30a340fec2623bf44452e4821
0x1620843d67fd28b92523d59e5b6e094f69f5f6c6bff30a340fec2623bf44452e4821
  0x1620b443a1b13bb8769aedeb912354d1783e7e794e9e08597287e591c42440045f22
0x1620b443a1b13bb8769aedeb912354d1783e7e794e9e08597287e591c42440045f22
  0x1620c2c3b8c2878afe8bd09261038609813b45719fcaec634ec7a1a16e561f92fab9
0x1620c2c3b8c2878afe8bd09261038609813b45719fcaec634ec7a1a16e561f92fab9
  0x1620c91e063717826a309e2a1224da20d2db68de7638bcb577016eec6d939c444009
0x1620c91e063717826a309e2a1224da20d2db68de7638bcb577016eec6d939c444009

```

integrity: PASS

[PASS] 1. session_close artifact exists: exactly one session_close seal found

[PASS] 2. session_close.last_turn_id resolves to T1: last_turn_id

0x1620a36276b6eb455938f31c64ac47693f781bac5d8ea2aa2b1c4fe245fb319486ad found in turn list

[PASS] 3. T1 chain reaches turn_index=0: chain walks cleanly from turn 7 back to turn 0

[PASS] 4. turn count matches session_close.total_turns: chain has exactly 8 T1 markers

round t0_0x162064

[PASS] 5. inter-round hash-chain link: genesis turn correctly has no predecessor link

[PASS] 6. T1 tree contains seal Anchor: round has been sealed with an Anchor revision

[PASS] 7. Anchor links match round artifacts: anchor seals 8 artifact(s); all targets shipped; all 7 evidence file(s) sealed

[PASS] 8. merkle_root verification: 8 merkle roots verified (8 disclosed, 0 redacted; 28 scalar revisions not applicable)

[PASS] 9. artifact turn_id association: all 6 artifact(s) with disclosed turn_id match this round (1 undisclosed)

[PASS] 21. sealed turn ships evidence + genesis artifact: 7 evidence artifact(s) shipped, turn-genesis link present

round t1_0x1620c6

[PASS] 5. inter-round hash-chain link: T1[1] correctly links to T1[0]

[PASS] 6. T1 tree contains seal Anchor: round has been sealed with an Anchor revision

[PASS] 7. Anchor links match round artifacts: anchor seals 5 artifact(s); all targets shipped; all 4 evidence file(s) sealed

[PASS] 8. merkle_root verification: 5 merkle roots verified (5 disclosed, 0 redacted; 19 scalar revisions not applicable)

[PASS] 9. artifact turn_id association: all 3 artifact(s) with disclosed turn_id match this round (1 undisclosed)

[PASS] 21. sealed turn ships evidence + genesis artifact: 4 evidence artifact(s) shipped, turn-genesis link present

round t2_0x16203c

[PASS] 5. inter-round hash-chain link: T1[2] correctly links to T1[1]

[PASS] 6. T1 tree contains seal Anchor: round has been sealed with an Anchor revision

[PASS] 7. Anchor links match round artifacts: anchor seals 4 artifact(s); all targets shipped; all 4 evidence file(s) sealed

[PASS] 8. merkle_root verification: 5 merkle roots verified (5 disclosed, 0 redacted; 19 scalar revisions not applicable)

[PASS] 9. artifact turn_id association: all 3 artifact(s) with disclosed turn_id match this round (1 undisclosed)

[PASS] 21. sealed turn ships evidence + genesis artifact: 4 evidence artifact(s) shipped, turn-genesis link present

round t3_0x162047

[PASS] 5. inter-round hash-chain link: T1[3] correctly links to T1[2]

[PASS] 6. T1 tree contains seal Anchor: round has been sealed with an Anchor revision

[PASS] 7. Anchor links match round artifacts: anchor seals 5 artifact(s); all targets shipped; all 4 evidence file(s) sealed

[PASS] 8. merkle_root verification: 5 merkle roots verified (5 disclosed, 0 redacted; 19 scalar revisions not applicable)

[PASS] 9. artifact turn_id association: all 3 artifact(s) with disclosed turn_id match this round (1 undisclosed)

[PASS] 21. sealed turn ships evidence + genesis artifact: 4 evidence artifact(s) shipped, turn-genesis link present

round t4_0x162033

[PASS] 5. inter-round hash-chain link: T1[4] correctly links to T1[3]

[PASS] 6. T1 tree contains seal Anchor: round has been sealed with an Anchor revision

[PASS] 7. Anchor links match round artifacts: anchor seals 13 artifact(s); all targets shipped; all 12 evidence file(s) sealed

[PASS] 8. merkle_root verification: 13 merkle roots verified (13 disclosed, 0 redacted; 43 scalar revisions not applicable)

[PASS] 9. artifact turn_id association: all 11 artifact(s) with disclosed turn_id match this round (1 undisclosed)

[PASS] 21. sealed turn ships evidence + genesis artifact: 12 evidence artifact(s) shipped, turn-genesis link present

round t5_0x16209e

[PASS] 5. inter-round hash-chain link: T1[5] correctly links to T1[4]

[PASS] 6. T1 tree contains seal Anchor: round has been sealed with an Anchor revision

[PASS] 7. Anchor links match round artifacts: anchor seals 4 artifact(s); all targets shipped; all 4 evidence file(s) sealed

[PASS] 8. merkle_root verification: 5 merkle roots verified (5 disclosed, 0 redacted; 19 scalar revisions not applicable)

[PASS] 9. artifact turn_id association: all 3 artifact(s) with disclosed turn_id match this round (1 undisclosed)

[PASS] 21. sealed turn ships evidence + genesis artifact: 4 evidence artifact(s) shipped, turn-genesis link present
round t6_0x1620a6

[PASS] 5. inter-round hash-chain link: T1[6] correctly links to T1[5]

[PASS] 6. T1 tree contains seal Anchor: round has been sealed with an Anchor revision

[PASS] 7. Anchor links match round artifacts: anchor seals 6 artifact(s); all targets shipped; all 6 evidence file(s) sealed

[PASS] 8. merkle_root verification: 7 merkle roots verified (7 disclosed, 0 redacted; 25 scalar revisions not applicable)

[PASS] 9. artifact turn_id association: all 5 artifact(s) with disclosed turn_id match this round (1 undisclosed)

[PASS] 21. sealed turn ships evidence + genesis artifact: 6 evidence artifact(s) shipped, turn-genesis link present
round t7_0x1620a3

[PASS] 5. inter-round hash-chain link: T1[7] correctly links to T1[6]

[PASS] 6. T1 tree contains seal Anchor: round has been sealed with an Anchor revision

[PASS] 7. Anchor links match round artifacts: anchor seals 20 artifact(s); all targets shipped; all 19 evidence file(s) sealed

[PASS] 8. merkle_root verification: 20 merkle roots verified (20 disclosed, 0 redacted; 64 scalar revisions not applicable)

[PASS] 9. artifact turn_id association: all 18 artifact(s) with disclosed turn_id match this round (1 undisclosed)

[PASS] 21. sealed turn ships evidence + genesis artifact: 19 evidence artifact(s) shipped, turn-genesis link present

[PASS] 10. intra-round artifact chain: artifact chains valid across 8 rounds (60 artifacts total)

[PASS] 11. signature validity: 68 signatures cryptographically valid

[PASS] 12. signer_did attested by preamble: 60 artifacts have authorized signer_dids

[PASS] 13. template ancestry terminates at audit_artifact: 60 artifacts have valid template ancestry

[PASS] 14. compositional link targets exist in bundle: all 473 compositional link targets resolved

[PASS] 15. SelectiveTree envelopes verify: all 81 artifact files parse as SelectiveTree envelopes and verify

[SKIP] 16. redacted values absent from bundle bytes: full preset discloses every value by design; no redacted paths to sweep

[PASS] 17. email claim attested by anchored attester: email attestation anchors exactly the claim object and its attester is trusted under the configured anchors

[PASS] 18. delegation binds root to session key: delegator=root, delegate=session, expiry covers the session

[PASS] 19. T7 approval signer == email claim signer: 1 T7 receipt(s) carry a user-root signature over an aqua:countersigns-anchored tool-call

[PASS] 20. T7 side-attachment turn membership: 1 T7 side-attachment(s) countersign a shipped same-turn target

[PASS] 22. trust completeness (anchored): 1 trust tree(s) fully disclosed and effective, server claim

signed by a configured anchor, 4 attestation(s) signed by anchored subjects

How to verify

All .aqua.json files in this bundle are Aqua Protocol artifacts.

Verify them with the Aqua CLI or the Aqua Rust SDK.

References:

SDK (reference implementation): <https://github.com/inblockio/aqua-rs-sdk>

CLI (wraps the SDK): <https://github.com/inblockio/aqua-rs-cli>

1. Verify a single artifact (atomic):

```
aqua-cli -a audit_trees/0001_50316f_round_seal.aqua.json
aqua-cli -a identity/a1b2c3_server.aqua.json
aqua-cli -a audit_trees/d4e5f6_session_close.aqua.json
```

This verifies the hash chain, signatures, and schema of one file.

Add -v for verbose output showing the full verification tree.

2. Verify the full bundle (forest, resolves cross-tree links):

```
aqua-cli --forest audit_trees/**/*.aqua.json \
    identity/**/*.aqua.json
```

This ingests all artifacts into an ephemeral forest, resolves structural links and composition anchors across files, and verifies the complete audit trail as a connected graph.

3. Using the SDK directly (Rust):

```
use aqua_rs_sdk::Aquafier;

let aquafier = Aquafier::new();
// Atomic: verify one tree
let result = aquafier.verify_aqua_tree(&tree, &files).await;
// Forest: verify with linked trees
let result = aquafier.verify_aqua_tree_with_linked_trees(
    &tree, &linked_trees, &files
).await;
assert!(result.is_verified());
```

Appendix D. Glossary

T1	Turn marker: signed opening of a user turn, chained to the previous turn
T2	User prompt: the human's message for the turn

T3	Agent thinking: recorded model reasoning
T4	Agent tool call: the agent's request to execute a tool
T5	API response: upstream service response attested by the API attestor
T6	Tool result: the tool output returned to the agent
T7	Human approval: human-in-the-loop decision, signed with the user's key
T8	Agent response: the agent's message to the human
SEAL	Turn seal or session-close seal: anchor revision fixing a turn's artifact set, or marking the end of the session
CLAIM	Identity claim from the session preamble (portal server, user, user session, agent, API attestor); each claim except the server's carries a portal attestation, and a delegation record links the user's root key to the session key
OP	Operational record: schema-validated request/response data object
Disclosure levels	disclosed = full payload present; partial = some fields withheld, disclosed fields verified against the Merkle root; hidden = payload withheld, hash verifiable only
Trust anchor	A key the operator of this review application configured as trusted; trust in the bundle's portal and attestation keys is derived from it, never from the bundle alone