GLASS HULL
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PROOF POSIT

Robinhood Chain fee distributions

Every payment the chain has made to the Arbitrum ecosystem, read from the chain - third issue

DOCUMENT CONTROL NUMBER	JFD-20260929-PP-00001
CLASS OF RECORD	resolved
DATE	2026-09-29
COVERAGE	2026-04-30 → 2026-09-06T11:04:57Z
SOURCE FINGERPRINT (SHA-256)	acae8faffcc1d7086cce18015f4e1a9733f739554399ba3382a3503583ea41f9
VERIFICATION	https://gh.jetfyul.com/v/JFD-20260929-PP-00001

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The pages that follow are the full text of this document's exact source, set as readable pages. The SHA-256 printed in every footer is the fingerprint of that source. The seal of this document — its ledger event, both hardware witnesses and its Bitcoin anchor — is recorded at the verification address above, not in these pages.
Jet Fyul Dynamics LLC · contact@jetfyul.com

PROOF POSIT PP-003 — THIRD ISSUE (v3)

Subject — Robinhood Chain (chain 4663), Arbitrum Expansion Program remittance

Title — Every payment Robinhood Chain has made to the Arbitrum ecosystem, read from the chain

Date of this issue's text — 2026-09-29

Why a third issue. The second issue (JFD-20260920-PP-00001) was sealed as a one-page cover, whose seal fields could not carry their own outcome, and its sealed source text left its date, three identifiers and its seal table blank. This issue carries the full text of the second with every figure unchanged. The block hash and the method hashes are now stated from the Glass Hull ledger. The re-run hash is not stated, because no ledger record carries it. The second issue's seal and Bitcoin anchor are stated from the record at the end of this document.

Measurement window	30 April 2026 (block 19, contract deployment) to 7 September 2026 (block 57,033,100)
Pinned at	Block 55,927,945 for the sealed window · block hash `0x06caf60a2e7f1d592940c579fa77d7c86be00e375b005a8ea0ec200a5057f8b4` (Glass Hull ledger, kind-3 3121913) · the 7 September settlement read at block 57,033,100
Chain	4663 — Robinhood Chain, Arbitrum Orbit
Surface	`archive` for genesis → 6 September, both arms in agreement. The 7 September settlement was read from a **public archive endpoint** and is pending re-derivation on our own instrument. Stated here, not in a footnote.
Method hash	Settlement figures: `e366edc8628237f9082c183f794c3ebde711a25dd10378eeeb2055a21995e842` (method PP-003-settlements-exact-v1, frozen 2026-09-16 00:30:44 UTC before computation; Glass Hull ledger, kind-3 2931182) · distributor population: method B `ea38543f7c4f15e6a2ef6cec5b2f4e2a8134cff0f9c3c01cb5fa9c8b6314e320`, amendment `37cd87c97e0ae619507fa478242b3e02ba23c90ff450d0ffac202192e5cf692c` (two independent routes compared, CLEARED; Glass Hull ledger, kind-3 2999355)
Re-run hash	Not stated: no Glass Hull ledger record carries it. Every figure is reproducible with the method in The Full Proof.
Supersedes / Corrects	PP-003-v2 (JFD-20260920-PP-00001), the second issue, whose text this issue carries with every figure unchanged. The second issue superseded PP-003 (JFD-20260916-PP-00001) and corrected the fee-distributor population from "two" to the measured set of three current distributors within a nine-contract family (four contracts have ever been fee accounts), and the associated ownership and configuration counts. All settlement figures, the 9,000/1,000 split, and every total are unchanged and re-read to the wei.
Subject notice	The Arbitrum Foundation was given sight of this finding before publication. Robinhood was not contacted.
How to cite	Jet Fyul Dynamics LLC, *Proof Posit PP-003-v3: Arbitrum Expansion Program remittance, chain 4663*, 2026-09-29, pinned at block 55,927,945

I. SUMMARY

Robinhood Chain owes the Arbitrum ecosystem 10% of its net protocol revenue under the Arbitrum Expansion Program. The Arbitrum Foundation's own H1 report describes that income as unaudited. Nobody outside the operator had verified it.

We read every payment the chain has made, from the deployment of its fee contracts to 7 September 2026. There are nine settlement dates (carried from PP-003's sealed run record).

The split is exact. The chain's fee distributors are standard reward-distributor contracts, weighted 9,000 / 1,000 in basis points, and every settlement in the chain's history lands on that split to the basis point, with no exception. Three such contracts are the current fee distributors, configured in the chain's first blocks and never altered thereafter.

On Monday 7 September the chain settled **12,725.576405 ETH** — 2.86 times everything it had remitted in the eight settlements before it, combined. The ecosystem's share of that single day was **1,272.557641 ETH**.

Three things remain unexplained. Fees wait in the distributors between weekly splits, and the ecosystem's share waits again before routing onward to L1; both balances were substantial at our pinned height. And a single address has held the power to redirect the ecosystem's share from all three current distributors since 24 June 2026, before the chain opened to the public on 1 July.

II. METRIC OBJECTIVE

The question. Does the chain remit what the Expansion Program requires, and can that be established without relying on the operator's own reporting?

What we measured. Every settlement the chain's fee-distributor contracts have paid, across the full history of the chain — the settling contract, the receiving address, the exact value, and when — and from those, the realised split per settlement.

Why the question is open. The Arbitrum Foundation's H1 2026 update describes Expansion Program income as unaudited. Robinhood Chain is now the largest contributor to that line. No independent verifier is named anywhere in the programme's public materials.

Declared before computation. The method fixed, in advance, that the realised split would be reported whatever it turned out to be — including a result showing the split is honest. It is.

III. FINDINGS

Nine settlement dates.

Settled	Ecosystem share (ETH)	Realised split
11 Jul 2026	32.319	10.000%
20 Jul 2026	69.470	10.000%
27 Jul 2026	76.931	10.000%

Settled	Ecosystem share (ETH)	Realised split
3 Aug 2026	21.113	10.000%
11 Aug 2026	36.206	10.000%
17 Aug 2026	47.404	10.000%
24 Aug 2026	18.375	10.000%
31 Aug 2026	142.738	10.000%
7 Sep 2026	**1,272.557641**	**10.000%**

Cadence is weekly, Mondays at 18:01 UTC, unbroken from 20 July, with one departure: no Monday settlement on 10 August, and one on Tuesday 11 August instead.

The 7 September settlement, in full. 12,725.576405 ETH across the fee accounts — 11,453.018764767607188000 to the operator's recipient and 1,272.557640529734132000 to the ecosystem's, exactly nine to one, in wei. That single week is **2.86×** the eight prior settlements combined.

The distributor family. Nine contracts on the chain carry identical fee-distributor code. Four of them have ever served as ArbOS fee accounts. Three are the current fee distributors — the network distributor `0xbc5c3a7adecf54d34169fd90dbd1b7d3142df067`, the infrastructure distributor `0x5a2b80a9b7effc06129bd5462d77bc20a8a59be7`, and the L1-surplus distributor `0x8f516b99…` — each configured in the chain's first blocks with the 9,000/1,000 split to the same two recipients, and never altered. One further contract, `0xe6cf1072…`, served as the infrastructure fee account earlier before that role passed to `0x5a2b…`; it holds a residual balance and has never settled.

Control. Ownership of the three current distributors passed from the deployer `0xc8451c…30ca` to a single address, `0x2a153c6a1b66dbc930a8d7017230ab0253005c09`, within twenty-seven seconds of one another, on 24 June 2026, before the chain opened to the public on 1 July. It has never moved since. That address can change where the ecosystem's share is sent from all three current distributors. It never has. The earlier contract `0xe6cf1072…` remains on the original deployer key and was never transferred; single-key control therefore holds for the three current distributors, not across every contract that has ever been a fee account. Neither key is named in any governance record we could locate.

Waiting balances. At the pinned height the two settling distributors held substantial balances awaiting the weekly split, and the ecosystem's recipient held a further amount already split but not yet routed to L1 — its last routing event was block 45,065,698, on 24 August.

i. Proofs (Abridged)

Contracts Network fee distributor `0xbc5c3a7adecf54d34169fd90dbd1b7d3142df067` Infrastructure fee distributor `0x5a2b80a9b7effc06129bd5462d77bc20a8a59be7` L1-surplus distributor `0x8f516b99…` Operator recipient `0x8b3511b4c4b68fcafdce7e6f91b925458bb64ea6` Ecosystem recipient `0x92433c650785397386a0cc347ec2489718e45307`

Counts — nine settlement dates to date (carried from PP-003, DCN JFD-20260916-PP-00001, kind-15 2949424); the two settling distributors carry them, and the L1-surplus distributor and the earlier fee-account contract have never settled. Nine contracts carry the distributor configuration event. Ownership of

the three current distributors moved once each to `0x2a153c6a…` on 24 June. The precise per-contract configuration and transfer counts are in The Full Proof.

Both arms. The control finding rests on a negative — that ownership of the current distributors never moved again — so it was established in two directions. The pass arm returns the known ownership events where they exist; the refute arm returns empty across the remaining history. An empty result is evidence only because the same query provably finds the events when they exist.

Exact arithmetic. Every amount was computed in exact integer arithmetic; no floating-point conversion appears in the evidentiary path. The method and queries that produce these figures are in The Full Proof; running them yields these figures, or our figure is wrong.

IV. LIMITS OF OBSERVATION

What this measurement does not establish, stated as plainly as what it does.

The 7 September figure was read from a public archive endpoint, not from our own instrument. Our archive did not reach that block at sealing. Every figure from the chain's deployment to 6 September is on our own archive with two independent surfaces in agreement; the 7 September figure is pending re-derivation and will be restated when it lands. We would rather say which surface answered than have a reader discover it.

The split is exact. That is not the same as the base being correct. We measured what the distributors split. We did not measure what entered them here. Fees that never reach a fee-distributor contract are outside this measurement, and are treated in the companion reconciliation.

The waiting balances are not evidence of anything being owed late. They are a measurement at a height. Whether they are consistent with an intended cadence is a question the chain alone cannot answer.

We did not measure intent, conduct, or compliance, and nothing here should be read as a finding about any of those.

V. CONCLUSION

The mechanism is honest. The 9,000 / 1,000 split is executed by code rather than reported by a party, was configured in the chain's first blocks across the three current distributors, has never been altered, and lands on the basis point in every settlement the chain has made. That is the part nobody had confirmed, and it holds.

What remains open sits elsewhere: what enters the base before the split, what waits between the rails, and who holds the key that can redirect the ecosystem's share.

A revenue line that moved by a multiple rather than a margin, in the final month of a quarter, inside a figure its own publisher describes as unaudited, is a figure worth verifying. It now has been, for the portion the chain can answer.

VI. GLOSSARY AND DEFINITIONS

Arbitrum Expansion Program (AEP) — the licence under which an Orbit chain remits a share of net protocol revenue to the Arbitrum ecosystem.

Basis point — one hundredth of one percent. A 9,000 / 1,000 weighting in basis points is a 90% / 10% split.

Both arms — our standing requirement that a finding be established in two directions: the pass arm showing the query returns the result when it exists, and the refute arm showing it returns nothing when it does not. A negative finding without a refute arm is not a finding.

Frozen method — a measurement specification written and hashed before it is run, so the method provably predates the result and cannot be fitted to it.

Net protocol revenue — the base on which the AEP share is computed, as defined by the AEP Terms. The definition and the reconciliation to it appear in The Full Proof and the companion Posit.

Pinned height — the block at which a figure was read. A figure without a pinned height is not reproducible.

Re-run hash — confirms a result obtained with the method. The method is in The Full Proof.

Refute arm — see *both arms*.

Settlement — one execution of the fee-distribution split, paying each configured recipient.

VII. ADDITIONAL RESOURCES

If you would like to read more of our series, **Proof Posits**, they are the receipts of our proofs and they are free: glasshull.jetfyul.com/#posits.

If you would like to test yourself against a locked call, our prediction series — **The Hull Against the Machine** — seals each prediction before the event and reveals it on a timer: glasshull.jetfyul.com/hull-against-the-machine.

If you would like the full report — the frozen method, the queries, every row, and the certification — that is **The Full Proof**, and it can be licensed: glasshull.jetfyul.com/full-proof.

SEAL AND VALIDATION OF THE SECOND ISSUE, FROM THE RECORD

This issue's own seal, witnesses and Bitcoin anchor are recorded on its verification page, https://gh.jetfyul.com/v/JFD-20260929-PP-00001, and in its certificate of authenticity, JFD-20260929-CERT-00001, not in these pages. The second issue's, as recorded:

DCN	JFD-20260920-PP-00001
Title of record	Robinhood Chain fee distributions
Document SHA-256	`b15b75eedd5fb3a3acd64178b994494911cf524fc9e4c145e30970da006841ed` (4,287,866 bytes)
Source text SHA-256	`6b9d852546b04f343a7d59018c449b113a044cacae10202ce03c3b28bb83b5ac`

Seal event	Glass Hull ledger kind-15 **3024863**, 2026-09-20 02:30:08 UTC, event hash `0bdb2d14b709d8bf222ed1df552eaf6fb2e75c2bf73ad745ff5a2b9c5fabe5d3`
Seal authorisation	Notary lane check, ledger event 3024861
Witnesses	A9: ATECC608B serial `0123ADA0711D8597EE` · A10: ATECC608B serial `0123DC797ACC1195EE` · ECDSA-P256 (secp256r1). Two independent hardware witnesses; one signature is not a seal.
Seal request SHA-256 (signed by both chips)	`6a7152e801e0eef8e735317fda497c0ce784ae724c1fc95fc559c7b0175c5995`
Bitcoin anchor	Block **967784**, hash `00000000000000000001d6ff7dc3535248d3fe4af4d7cb636d8baaf6c2a2125`, mined 2026-09-20 02:46:41 UTC; confirmation recorded as ledger event 3027428
Certificate of authenticity	JFD-20260928-CERT-00007 (SHA-256 `d3abda1db13133b7f028ed44d23f95b835a9540298c6796f6e0140699d4ae115`), sealed as kind-15 3218920; it certifies kind-15 3024863
Verify page	https://gh.jetfyul.com/v/JFD-20260920-PP-00001

How to validate the second issue yourself

1. Compute the SHA-256 of the file JFD-20260920-PP-00001.pdf, over its bytes exactly as delivered. It must equal `b15b75eedd5fb3a3acd64178b994494911cf524fc9e4c145e30970da006841ed`, or the file has been altered.
2. Look up the seal event, kind-15 3024863, on the Glass Hull ledger. Its payload carries the document's identifier and that SHA-256. The ledger is append-only; an entry cannot be revised after the fact.
3. Verify the two hardware signatures against the published witness public keys. Either signature alone is insufficient by design.
4. Verify the Bitcoin anchor. It establishes that the document existed no later than block 967784.
5. Verify the signatures on-chain if you prefer: chain 4663 verifies P-256 signatures natively at address `0x100` via RIP-7212, so a contract can check our seal without an oracle.
6. Reproduce the finding with the method in The Full Proof.

Glass Hull · a product of the Founder's Unfair Advantage · Jet Fyul Dynamics LLC We hold no token and take no position in anything we measure.

END OF DOCUMENT · JFD-20260929-PP-00001

NOTE ON THIS DOCUMENT

The pages above reproduce the sealed document. The sealed record is a file.

What the Notary authorised, what both hardware witnesses signed and what the ledger event records is the file `JFD-20260929-PP-00001.pdf` - 322018 bytes, SHA-256 `28e91b2a4dd878abe5864abad11b6c15e95003983ecb59e56d062237d3753bb5`.

The sealed document `JFD-20260929-PP-00001.pdf` (322018 bytes, SHA-256 `28e91b2a4dd878abe5864abad11b6c15e95003983ecb59e56d062237d3753bb5`) is embedded in this PDF as a file attachment.

Its exact source, whose fingerprint the document prints, `PP-003-v3-source.md` (16013 bytes, SHA-256 `acae8faffcc1d7086cce18015f4e1a9733f739554399ba3382a3503583ea41f9`) is embedded in this PDF as a file attachment.

The anchor proof as stamped at sealing `JFD-20260929-PP-00001.pdf.ots` (786 bytes, SHA-256 `ff36f703dfb158bc942f1042565693456834dfa2f9a6d772b1bd854f9292f049`) is embedded in this PDF as a file attachment.

The seal record from which the certificate is built `seal-record-JFD-20260929-PP-00001.json` (7396 bytes, SHA-256 `481da26337029269e56a49677e5ce7f8664d23beb725017737c5b87aa2910bdb`) is embedded in this PDF as a file attachment.

The complete anchor proof, carrying the Bitcoin attestation, `JFD-20260929-PP-00001.pdf.anchored.ots` (3860 bytes, SHA-256 `3263613690b8512a67f1cd693ac89be968208ee42677eca0808030a655c57ed7`) is embedded in this PDF as a file attachment.

The anchor confirmation from which the certificate's Bitcoin block is taken `anchor-confirmation-JFD-20260929-PP-00001.json` (2580 bytes, SHA-256 `2d04634b8b6643cca5a1e7c285a79fa5d8e577b1da6ebdf6bddc7cc56d019efe`) is embedded in this PDF as a file attachment.

Open the attachments pane of your PDF reader to extract them, and hash each file as stored.

What follows, in order

The seal page, carrying the seal record's values: fingerprint, ledger event, both witnesses and the anchor. After it, the Certificate of Authenticity on the Smoking Gun plate, built from the same seal record and signed; then the page "How to verify this without the Issuer, in six steps", which carries the record, both witnesses and the anchor in full, and the steps that verify all of it without the Issuer.

SEAL PAGE — MATCHSTICK TRIBUNAL · MT-CC-SEALDOC-002

K. L. Phillips, a man
Principal, Jet Fyul Dynamics LLC · The author stands behind every word.

BLOCK 2 — ISSUER

```
ISSUER      Jet Fyul Dynamics LLC · Wyoming
RAIL        Matchstick Tribunal
CUSTODY     both witness keys held by the issuer, in silicon, on separate hosts; never exported
```

BLOCK 4 — WHO SIGNED IT

Two independent hardware witnesses. Conforming tests of a defined procedure — not a primary and a backup.

	WITNESS 1	WITNESS 2
chip identity	a9-atecc608b-slot0	a10-atecc608b-slot0
serial	0123ADA0711D8597EE	0123DC797ACC1195EE
curve	ECDSA-P256 (secp256r1)	ECDSA-P256 (secp256r1)
public key	d62d03f8dc3813fb5b74f2b64339d185…	853e69fc700990303abfe61358bfa456…
signature over artifact hash	→ ledger event 3225491	→ ledger event 3225491
signed (UTC)	→ event 3225491	→ event 3225491
federation peer	a10-atecc608b-slot0	a9-atecc608b-slot0
host · custody	A9 · Jet Fyul Dynamics LLC	A10 · Jet Fyul Dynamics LLC
certifies in accordance with	Fed. R. Evid. 902(13), 902(14)	Fed. R. Evid. 902(13), 902(14)
verified offline	→ event 3225491	→ event 3225491

Each signature verifies on its own, against its own public key, without the other and without anything of ours.
One signature is not a seal: if either witness is unreachable, no seal is produced. Both chips are the same make and model,
provisioned and owned by the issuer — independent in custody and location, not in supply chain or ownership.

Full public keys, signatures, and the Rule 902(11) certification of a qualified person: ledger event → event 3225491 · https://gh.jetfyul.com/v/JFD-20260929-PP-00001

Blocks 1-3 are inside these bytes; Block 4 live cells, Block 5 (Ed25519 a1-ledger) and Block 6 (Bitcoin anchor) live on the ledger and at https://gh.jetfyul.com/v/JFD-20260929-PP-00001

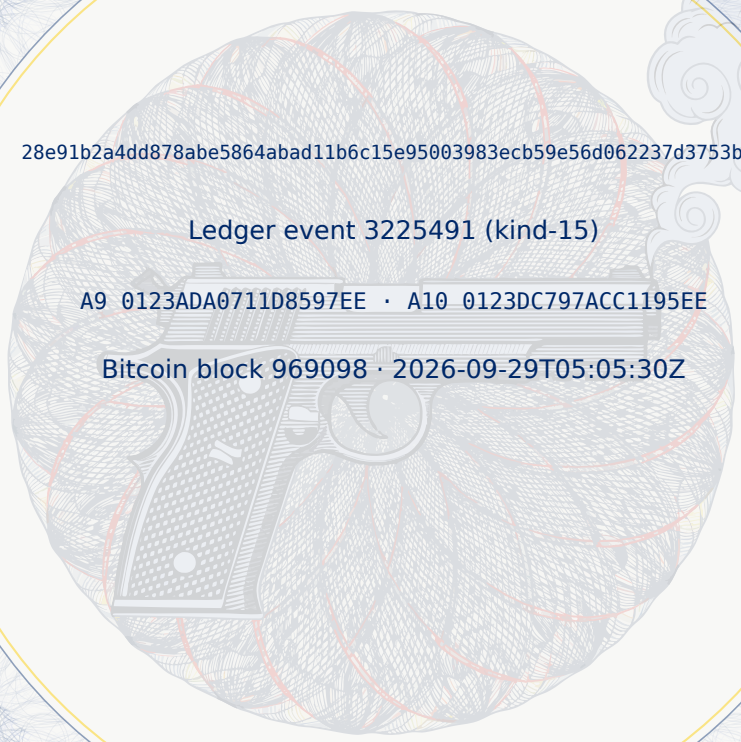
GLASS HULL

CERTIFICATE OF AUTHENTICITY · JFD-20260929-PP-00001

JFD-20260929-PP-00001.pdf · 322018 bytes · sealed 2026-09-29T03:30:20Z

Robinhood Chain fee distributions

Certificate JFD-20260929-CERT-00001



28e91b2a4dd878abe5864abad11b6c15e95003983ecb59e56d062237d3753bb5

Ledger event 3225491 (kind-15)

A9 0123ADA0711D8597EE · A10 0123DC797ACC1195EE

Bitcoin block 969098 · 2026-09-29T05:05:30Z

K. L. Phillips

Chief Executive Officer

28e91b2a4dd878ab · ANCHORED · https://gh.jetfyul.com/v/JFD-20260929-PP-00001

How to verify this without the Issuer, in six steps

Robinhood Chain fee distributions - JFD-20260929-PP-00001

The record

Document control number: JFD-20260929-PP-00001

Fingerprint (SHA-256 of the sealed file, raw bytes as stored):
`28e91b2a4dd878abe5864abad11b6c15e95003983ecb59e56d062237d3753bb5`

Sealed file: `JFD-20260929-PP-00001.pdf`, 322018 bytes

Source fingerprint printed inside the document:
`acae8faffcc1d7086cce18015f4e1a9733f739554399ba3382a3503583ea41f9`

Ledger event (kind-15): 3225491, event hash
`c52b853cd611ba84665c59434e613926ae96ff8870afa266a351d908a2af8636`

Notary authorisation (kind-3): 3225490

Seal request signed by both witnesses: SHA-256
`1528810b007221eb2ca2046f22bd9b4ca506caa2f476eb84b86756e9925bcf01`

Anchor: OpenTimestamps, **ATTESTED in Bitcoin block 969098** - block hash `00000000000000000001d0fb87b8cd242dbfd9f037ba7f2a8e7668ea05d98ce`, block time 2026-09-29T05:05:30Z.

Calendars that attested: https://alice.btc.calendar.opentimestamps.org (block 969098); https://bob.btc.calendar.opentimestamps.org (block 969100); https://btc.calendar.catallaxy.com (block 969098). The earliest attested block is the anchor.

Anchor check: the committed value equals block 969098's merkle root `c6962e925ec2a46c00b30263d55a4a5b26da4e3af5f0fb3056a254f688a81149`, and mempool.space and blockstream.info agree on that merkle root and on the block hash (checked 2026-09-29T06:40:41Z).

Proofs: the proof as stamped at sealing, `JFD-20260929-PP-00001.pdf.ots` and the complete proof `JFD-20260929-PP-00001.pdf.anchored.ots`, which carries the Bitcoin attestation itself.

Verification address: https://gh.jetfyul.com/v/JFD-20260929-PP-00001

The two hardware witnesses

Witness 1 - host A9, a9-atecc608b-slot0, serial 0123ADA0711D8597EE, curve ECDSA-P256 (secp256r1), signed 2026-09-29T03:30:18.013545+00:00

Public key: `d62d03f8dc3813fb5b74f2b64339d185742aabcae1bdcfd2f7a7ad59f1dd3c5d50e57effa4a3c888f58c3eca9d274bd7f0b8d263fa38bbf0bc6fbff6035c2411`

Signature: `028593da0fe4e33edb257e68495b1031af333f9d608f7128a7500c3df1a207f15cd474cb471af9d87fd3c4b91aef978530183077afe3ea5baa2c3cbf59e4277b`

Witness 2 - host A10, a10-atecc608b-slot0, serial 0123DC797ACC1195EE, curve ECDSA-P256 (secp256r1), signed 2026-09-29T03:30:20.293207+00:00

Public key: `853e69fc700990303abfe61358bfa456160eaae1529dbc74805d1639cfc88e78497bbe060e7ae5d54466b2ce0a2753e14204a21eed4a132a61ace3294f9beba1`

Signature: `e55571d49bbaaabded5eb06a20d3a64dd3c83d8106a18cfaa88fede223c2b6bc1700675b03dbc0c8478385419391a451a9a24f6a421dcc05b23cdb7fb2e1b625`

The six steps

(1) Extract `JFD-20260929-PP-00001.pdf` from this PDF's attachments and hash it as stored, with no normalisation. Its SHA-256 must equal the fingerprint above.

(2) Read ledger event 3225491 by its id. Its payload must carry that fingerprint as `doc_sha256` and JFD-20260929-PP-00001 as `dcn`.

(3) Verify witness 1's signature as ECDSA over P-256, with the public key above, over the seal request bytes whose SHA-256 is `1528810b007221eb2ca2046f22bd9b4ca506caa2f476eb84b86756e9925bcf01`.

(4) Verify witness 2's signature the same way. Each signature must verify under its own key and fail under the other's.

(5) Read the OpenTimestamps proof against the same fingerprint. It must carry a Bitcoin block-header attestation at block 969098; ask any block explorer for that block and compare its merkle root with the value the proof commits to.

(6) Open https://gh.jetfyul.com/v/JFD-20260929-PP-00001 and confirm it shows the same fingerprint, ledger event, witnesses and anchor.

This certificate goes to what the record is and that it has not been altered. It is not a sworn declaration and does not assert the truth of anything the document says.