

mezeMEV

Implementation Paper

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How Meze Implements the MEV Standard

A Transaction-Driven L1 Blockchain for Food Commerce

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This is a MEV Implementation Paper — authored by Meze, documenting how Meze has adopted and built upon the MEV standard. The MEV standard is defined in the MEV Whitepaper v1 and MEV Academic Paper v1 (officialMEV.org, 2026). MEV is the foundation. Meze is the building.

Abstract

Meze is a Layer 1 blockchain network that is transaction-driven, powering a food commerce ecosystem. This paper documents Meze's full implementation of the Milestone Economic Value (MEV) standard — the first live application of MEV in a production blockchain. The implementation introduces MEZE MEV: a Revenue-Backed Minting model where the native MEZE token is issued exclusively from verified economic activity — user commerce transactions (RBT) and platform revenue (RBA). Activity is verified by a dual-layer architecture: Transaction Verifier and Enterprise Verifier, both interfacing with the Off-Chain Economic Oracle (OCEO) using EIP-712 cryptographic proofs. MEVU accumulates into MEV_total tracked by MEVTracker. Milestones are generated using the $k \times 10^n$ formula ($k \in \{1,5\}$). When MEV_total crosses a threshold, the milestone is detected, curated, and commemorated as an Epoch NFT. This paper also documents which parts of the MEV standard Meze has implemented and which remain for future phases — including MEV Diapause and validator incentive design, which are NOT part of Meze's current implementation.

MEV Standard Reference: MEV Whitepaper v1 + MEV Academic Paper v1 (Onimisi, 2026) — officialMEV.org

1. Why Meze Chose MEV

Meze is built on a foundational principle: the value of the network must reflect real commerce activity — not speculation or predetermined supply schedules. Food commerce generates constant, high-frequency, verifiable events: orders placed, processed, and settled. MEV offered a framework that derives token issuance directly from verified economic activity — configurable and adaptable to Meze's specific architecture.

MEV is the foundation Meze is built on. MEZE MEV — Meze's implementation of the standard — is the building. Every innovation in this paper belongs to Meze. The MEV standard provided the framework that made those innovations verifiable and standard-compliant.

1.1 MEV Implementation Scope

Meze is the first MEV implementation and does not implement every layer of the standard. The table below is an honest scope declaration:

MEV Standard Component	Meze Status	Notes
Activity (A) — commerce transactions	Implemented	RBT (user) and RBA (platform) — two activity types
Verification (V) — dual-layer	Implemented	Transaction Verifier + Enterprise Verifier via OCEO
MEVU generation ($A \times V$)	Implemented	Via NativeTrigger and RBM formula
MEV accumulation (MEV_total)	Implemented	MEVTracker contract
Logarithmic Milestone Formula	Implemented	$k \times 10^n$, $k \in \{1,5\}$
MEV Epoch (milestone trigger)	Implemented	Milestone detection → Epoch NFT curation and minting
MEV Oracle (OCEO)	Implemented	Off-chain bridge, EIP-712 signed, HSM key storage
MEV Diapause	NOT implemented	Future phase — Meze operates at Phase I (S=0, immediate activation)
Validator incentives via MEV	NOT implemented	Meze uses Avalanche's native validator model
MEV Emergence / Composition	NOT implemented	Future phase consideration

2. The MEV Flow in Meze

Meze follows the MEV sequential flow: Activity → Verification → MEVU → Accumulation → Milestone → Epoch.

Step	MEV Stage	Meze Implementation
1	Activity (A)	A food commerce event occurs — user payment (RBT) or platform revenue event (RBA).
2	Verification (V)	Transaction Verifier (RBT) or Enterprise Verifier (RBA) validates via OCEO-signed EIP-712 payload. Signature, freshness, settlement, non-duplication all verified.
3	MEVU Output	NativeTrigger computes: $Mint = (Normalised\ Revenue \times RBM\ Percentage) \times Emission\ Rate$. MEZE tokens minted and routed to AllocationVault.
4	Accumulation	MEVTracker updates MEV_total — cumulative sum of all minted MEZE since genesis.
5	Milestone Check	MEVTracker compares MEV_total against $k \times 10^n$ thresholds. Threshold crossed → MilestoneDetected event emitted.
6	Epoch	Detected milestone enters curation. Metadata assigned. Epoch NFT minted as immutable on-chain record.

2.1 Diapause Status — Phase I Operation

Meze operates in MEV Diapause Phase I ($S = 0$). All validated MEVU activates immediately. MEV Diapause is a formally specified component of the MEV standard. Meze currently operates at Phase I ($S=0$) and has not yet implemented the full Diapause mechanism. Future phases of Meze may introduce Diapause as a stability mechanism when network scale warrants it.

MEZE MINTING FORMULA

$$\mathbf{Mint} = (\mathbf{Normalised_Revenue} \times \mathbf{RBM_Pct}) \times \mathbf{Emission_Rate}$$

All minted value activates immediately ($S=0$, Phase I MEV Diapause — no dormant value)

3. The Minting Architecture

Layer	Name	Description
Value Origin	Revenue-Backed Minting (RBM)	All tokens backed by verified off-chain revenue.
Execution — User	Revenue-Based Transactions (RBT)	User payments. Transaction Verifier.
Execution — Platform	Revenue-Based Allocation (RBA)	Platform revenue. Enterprise Verifier.
Governance Extension	Governance-Driven Minting (GDM)	Policy layer. Multisig + timelock + epoch caps.
Market Extension	Liquidity-Driven Minting (LDM)	Market infrastructure. Two-step approval.

Flow: OCEO (EIP-712) → Verifier Layer [Transaction Verifier | Enterprise Verifier] → NativeTrigger → Native Minter → AllocationVault → MEVTracker (accumulation + milestone detection)

4. Dual-Layer Verification Architecture

4.1 Transaction Verifier (RBT)

- Interfaces exclusively with OCEO
- Verifies EIP-712 signature on-chain
- Enforces 5-minute data freshness
- Confirms settlement status
- Validates non-duplication — replay protection

4.2 Enterprise Verifier (RBA)

- Interfaces exclusively with OCEO
- Same EIP-712 verification and replay protection
- Validates revenue source category
- All allocation flows to protocol-level buckets

Both verifiers implement V in the MEV formula. The dual-layer architecture is Meze's realisation of how activity is verified before MEVU is produced. MEV defines that V must occur. Meze defines the cryptographic architecture.

5. The Off-Chain Economic Oracle (OCEO)

OCEO is Meze's implementation of the MEV Oracle standard — bridging real-world food commerce (off-chain) to on-chain token settlement. OCEO is an off-chain backend service, not a smart contract. Its on-chain presence is a single registered cryptographic signing address.

- Receives confirmed, settled economic events from payment processors
- Normalises fiat values to on-chain denomination
- Signs each payload using EIP-712 typed data — private key in HSM or cloud KMS
- Submits signed payloads for on-chain verification and minting

OCEO is Meze's implementation of the MEV Oracle bridge protocol: Capture → Verification → Commitment. OCEO is the building. The MEV Oracle protocol is the foundation.

6. NativeTrigger and AllocationVault

6.1 NativeTrigger

- Receives validated inputs from Transaction or Enterprise Verifier
- Validates non-duplication — each event ID processed once
- Computes: $\text{Mint} = (\text{Normalised Revenue} \times \text{RBM Pct}) \times \text{Emission Rate}$
- Calls native minter precompile to create tokens
- Routes minted tokens to AllocationVault
- Updates MEVTracker — adds to MEV_total, checks milestone crossings

6.2 AllocationVault — RBT & RBA Distribution

Bucket	RBT Share	Method
User Rewards	50%	Pull — user claims
Community & Marketing	20%	Push
Treasury	15%	Push
Foundation (MCF)	10%	Push
Merchant Incentives	5%	Pull — merchant claims

Bucket	RBA Share	Method
Treasury	50%	Push
Community & Marketing	15%	Push
Team & Advisors	15%	Push
Foundation (MCF)	10%	Push
Merchant Reserve	5%	Push
User Reserve	5%	Push

7. MEV Accumulation and Milestone System

MEZE ACCUMULATION

$$\text{MEV_total} = \Sigma(\text{Mint_RBT} + \text{Mint_RBA} + \text{Mint_GDM} + \text{Mint_LDM})$$

Running sum of all minted MEZE — never decreases

MEV_total ≠ Circulating Supply. MEV_total is historical cumulative output. Circulating supply can decrease through burns and fees. MEV_total only ever increases.

7.1 Meze's Logarithmic Milestone Formula

MEZE MILESTONE FORMULA

$$M = k \times 10^n, \quad k \in \{1, 5\}$$

Milestones: 1, 5, 10, 50, 100, 500, 1,000, 5,000, 10,000... infinitely

7.2 Milestone Detection and Epoch NFT Flow

Step	Stage	What Happens
1	Detection	MEVTracker detects threshold crossing. MilestoneDetected emitted. Status: Pending Curation.
2	Curation	Authorised operator assigns metadata, artwork, IPFS link, recipient.
3	Minting	Epoch NFT minted with all fields populated. Each milestone minted exactly once.
4	Distribution	NFT transferred to designated recipient or auction contract.

8. Governance and Supply Integrity

Parameter	Hard Ceiling	Description
RBT Percentage	50% (5000 bps)	Max share of RBT revenue convertible to tokens
RBA Percentage	50% (5000 bps)	Max share of RBA revenue convertible to tokens
Emission Rate	1e20	Absolute token output ceiling per unit of value

Hard ceilings are immutable compile-time constants. No governance proposal or upgrade can exceed them. All sensitive changes route through TimelockController with mandatory 2-day delay.

9. Meze MEV Lite SDK File Set

File	Meze Configuration
AboutMEV.md	Meze implements MEV Standard v1. MEV is the economic foundation of the Meze L1 network.
MEVLicense.md	MEV Open Standard License v1. Certificate: MEV-001-MEZE.
MEVCertificate.md	ID: MEV-001 Issued: 2026 MEV-Certified officialMEV.org/registry/meze
MEVU.md	MEVU = MEZE native token. Adaptive supply (RBM). Minted per verified activity. No fixed cap.
MEVEpoch.md	Formula: $k \times 10^n$, $k \in \{1,5\}$. Milestones: 1,5,10,50,100,500... Epoch NFT on crossing.
MEVMRSS.md	A = commerce transaction (RBT) or platform revenue (RBA). V = EIP-712 OCEO payload \times verifier checks.
MEVDiapause.md	Phase I (S=0). Diapause NOT active. All validated MEVU activates immediately. Future phase planned.
MEVOracle.md	Mode: Bridge. Implementation: OCEO. EIP-712 signed. HSM key. 5-min freshness.
MEVActivity.md	RBT: settled food commerce payment from registered merchant. RBA: settled platform revenue event.
MEVAdaptation.md	MEZE MEV: RBM,
MEVRegistry.md	ID: MEV-001 officialMEV.org/registry Active
MEVCompliance.md	MEV Standard v1 compliant. A \times V implemented. $k \times 10^n$ milestones. Epoch NFT. OCEO bridge. Diapause Phase I (S=0). Validators NOT under MEV scope.

10. What Meze Proves and What Comes Next

MEV Proof	Meze Demonstration
MEV as economic engine of a production L1	Entire MEZE economy governed by MEV — no supplementary model needed
Adaptive supply driven by real activity	MEZE adaptive supply operational since genesis
MEV Oracle bridges real-world activity on-chain	OCEO bridges food commerce to Meze L1 with cryptographic integrity
Logarithmic milestone formula generates Epochs	$k \times 10^n$ formula produces infinite milestones; Epoch NFT system operational

10.1 What Meze Does NOT Implement (Honest Scope)

- MEV Diapause — Meze operates at Phase I ($S=0$, immediate activation). The Diapause component is formally specified in the MEV standard. Future phases of Meze will implement full Diapause control when network scale warrants conditional activation.
- MEV-based validator incentive design — Meze uses Avalanche's native validator model
- MEV Emergence / Composition — future phase consideration
- Cross-system MEV interoperability — future phase as ecosystem grows

MEV is the foundation. Meze is the building. The registry is open.

officialMEV.org/registry | MEV-001 | MEV-Certified | 2026

References

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