MEV

MILESTONE ECONOMIC VALUE

Official Whitepaper | Version 1 (Genesis)

A Universal Standard for Activity-Based Economic Value

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MEV is not a product. MEV is not a token. MEV is a standard.

Abstract

Milestone Economic Value (MEV) is an open economic standard that defines how verifiable value is generated from real activity, accumulated toward milestones, and marked by Epochs. The MEV sequential flow operates through six stages: Activity (A) is verified (V) to produce MEVU; MEVU accumulates into MEV_total; when MEV_total crosses a threshold defined by the adopter's Logarithmic Milestone Formula, a milestone is achieved; each milestone triggers a MEV Epoch. MEV Diapause is an integral component of the MEV framework governing when validated value enters active circulation, specified via system state variable $S \in \{0,1\}$ and activation function $D(E,L,G,R)$. In Phase I systems ($S=0$), the mechanism is mathematically inert. It activates dynamically when system maturity or stress conditions warrant it. MEV is architecture-agnostic, chain-optional, and industry-universal. It is a foundation — not an application. Formal implementations are documented as MEV Implementation Papers on officialMEV.org.

Keywords: *MEV, Milestone Economic Value, MEVU, MEV Epoch, MEV Diapause, MEV Emergence, MEVOS, logarithmic milestones, activity-based value, open economic standard*

1. Introduction

Economic value is generated constantly — through commerce, learning, infrastructure, validation, civic activity, and creative production. MEV is an open economic standard that defines how that value is generated, accumulated, and distributed in a verifiable, activity-grounded way.

MEV is a foundation, not a building. The standard defines the rules of value creation. What is built on those rules belongs entirely to the adopter. Formal implementations are documented as MEV Implementation Papers on officialMEV.org.

2. What is MEV?

2.1 The Canonical Definition

> *Milestone Economic Value (MEV) is an open economic standard that generates verifiable value units — MEVU — from verified real activity. MEVU accumulates toward adopter-defined milestones measured through Logarithmic Milestone Formulas. When a milestone is reached, a MEV Epoch triggers. The form MEVU takes, the formula used, and the Epoch behaviour are all defined by the adopter.*

2.2 The MEV Flow

Step	Stage	What Happens
1	Activity (A)	A real, measurable event occurs. Adopter-defined.
2	Verification (V)	Activity verified as real, valid, non-duplicated. $V \in [0,1]$. Adopter-defined mechanism.
3	MEVU Output	MEVU = A × V. Form is adopter's decision.
4	Accumulation	$MEV_{total} = \Sigma(A_i \times V_i)$. Monotonically non-decreasing.
5	Milestone (M)	MEV_{total} measured against the adopter's Logarithmic Milestone Formula. Threshold crossed = milestone achieved.
6	Epoch	Milestone triggers a MEV Epoch — formal state transition. Adopter defines the economic response.

> *M (Milestone) is NOT a multiplier applied at transaction time. M is the accumulated threshold — the target MEV_{total} must reach. The Epoch fires when that target is crossed.*

3. The MEV Formulas

MEVU GENERATION

$$MEVU = A \times V$$

Activity × Verification = one unit of verified economic value

MEV ACCUMULATION

$$MEV_{total} = \Sigma(A_i \times V_i)$$

Running sum of all MEVU since genesis. Never decreases.

EPOCH-ADJUSTED MEVU

$$MEVU_{epoch} = A \times V \times Te$$

Te = Epoch Factor for the current phase — NOT a per-transaction weight

MEV PERFORMANCE INDEX

$$P = MEV_{total} / C_{max}$$

Efficiency | C_max = max capacity at current milestone | Range: 0.0–1.0

VALUE CONSERVATION (Emergence)

$$\Sigma(MEVU_{before}) \approx \Sigma(MEVU_{after}) \times Te$$

Value conserved across transformations — never fabricated

4. Logarithmic Milestone Formulas

4.1 Design Principle

There is no single MEV Logarithmic Formula. The standard defines the structural rule — milestones must follow a logarithmic progression — and provides multiple valid formula types. The adopter chooses the formula matching their system's natural growth dynamics.

Formula Type	Expression	Example Thresholds	Best For
Base-b Logarithm	M(n) = log_b(n)	b=10: 1,10,100,1K,10K	Powers-of-base growth
k × bⁿ Progression	M = k × bⁿ, k∈{1,5}	b=10: 1,5,10,50,100,500	Dense early + scale
Linear-log Hybrid	M(n) = a × log_b(n) + c	Adopter parameterised	Custom growth curves
Custom	Any monotonic series	Adopter-defined	Unique dynamics

EPOCH TRIGGER CONDITION

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MEV_total >= M(n) --> Epoch_n fires
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When accumulated MEVU reaches milestone n, Epoch n triggers

5. MEV Units (MEVU)

> *1 MEVU = one unit of verified economic output, generated by A × V. Its form — token, credit, index, credential, score — is determined entirely by the implementing adopter.*

System Type	Possible MEVU Form	Possible Activity Basis
Blockchain / Web3	Native token	On-chain transactions
Education Platform	Learning credit / credential	Course completions, milestones
Enterprise	Productivity index unit	Verified output metrics
Smart City	Civic contribution score	Infrastructure events
DeFi Protocol	Yield / reward primitive	Verified on-chain activity
Any Adopter	Adopter-defined	Any verified real activity

6. MEV Epoch — The State Transition Layer

MEV Epoch is the sixth stage of the MEV flow — what happens after a milestone is achieved. It is the system's economic response to crossing a verified threshold.

System Phase	Te Range	Economic Effect
Genesis / Early Stage	0.8 – 1.0	Conservative baseline — bootstrapping
Growth Phase	1.2 – 1.5	Accelerated generation — incentivise participation
Expansion Phase	1.5 – 2.0	Network effect multiplier
Critical Milestone	2.0+	Peak incentive — landmark achievement

> *Te is a phase modifier — it characterises the entire Epoch period, not individual transactions.*

7. MEV Diapause — The Conditional Activation Layer

7.1 Motivation

The MEV sequential flow produces MEVU and triggers Epoch transitions in response to verified activity. However, it does not address activation timing: when validated MEVU should enter active circulation. Immediate activation of all validated value — appropriate for early-stage systems — can produce structural inefficiencies at scale: inflationary pressure, liquidity imbalance, market inefficiency, and system instability.

MEV Diapause resolves these inefficiencies without compromising the foundational simplicity of the MEV standard. The conceptual inspiration is the embryonic diapause strategy of the Red Kangaroo — a biological system that optimises survival by holding developmental stages in suspension until conditions are ready. Analogously, MEV Diapause holds validated value in a dormant state until the economic environment justifies activation.

> *MEV Diapause is an integral component of the MEV framework that activates when system conditions warrant it. In Phase I (S=0), it is mathematically inert, preserving full simplicity. Complexity is introduced only when the system earns it.*

7.2 The Three-State Value Model

Biological State	MEV Economic State	Description
Joey outside pouch	MEV_active	Circulating value sustaining current economic activity
Joey in pouch	Growth-stage MEVU	Value in accumulation approaching next activation
Dormant embryo	MEV_dormant	Validated value held in suspension awaiting conditions

7.3 System State Variable

DIAPAUSE STATE VARIABLE

$$S \in \{0, 1\}$$

S=0: Diapause OFF (early stage, all value activates immediately) | S=1: Diapause ON (adaptive stage)

7.4 Conditional Activation Equation

CONDITIONAL ACTIVATION

$$MEV_{active} = M \times [(1-S) + S \cdot D(E,L,G,R)]$$

S=0: MEV_active = M (full immediate activation) | S=1: MEV_active = M × D(...)

DORMANT VALUE

$$MEV_{dormant} = M - MEV_{active}$$

Validated but not yet in active circulation

7.5 Diapause Activation Function

ACTIVATION FUNCTION

$$D = \sigma(\alpha E + \beta L + \gamma G - \delta R)$$

σ = sigmoid | D ∈ (0,1) | E=Economic Readiness | L=Liquidity | G=Growth | R=Risk

α, β, γ, δ are adopter-configured weighting parameters. MEV defines the structure of D; the adopter provides the values.

7.6 Time-Dependent Activation

TIME-DEPENDENT EXTENSION

$$D_t = D \times (1 - e^{-\lambda t})$$

λ = rate parameter | produces smooth asymptotic activation curve | prevents shock entry

7.7 Trigger Mechanism

TRIGGER FUNCTION

$$S = H(T, U, V_o, \sigma_m)$$

T=Total MEV | U=Utilisation | V_o=Volatility | σ_m=Market Stress | H outputs 0 or 1

H is a threshold function that fires when system conditions cross adopter-defined thresholds. Thresholds must be published in advance, encoded in MEVCompliance.md, and recorded in the MEV History Layer at each S transition.

7.8 Phased System Design

Phase	State	Activation	Focus
I — Bootstrap	S = 0	MEV_active = M (immediate)	Growth, adoption, simplicity
II — Transitional	S toggles	Conditional; H fires under stress	Stability + growth balance
III — Adaptive	S = 1	MEV_active = M × D_t	Efficiency, sustainability, scale

> *The system starts simple, becomes intelligent only when necessary. Phase I is mathematically identical to a system without Diapause — because S=0 renders the mechanism inert. This is economic evolution built into the protocol itself.*

8. MEV Emergence — The Composition Layer

MEV Emergence extends the standard with a composition layer — enabling MEVU and Epoch-state assets to interact, combine, and produce higher-order economic entities with genuinely new properties. Emergence is optional but governed by MEV's 12 Laws when implemented.

Emergence operates on active value only. Dormant value (MEV_dormant) is not available for composition. Diapause governs whether value enters the system; Emergence governs what that active value can do within it.

- Fusion — compatible entities combine into structures with emergent properties
- Fission — structures decompose into components, subject to conservation constraints
- Transformation — entities change state based on Epoch rules
- Reorganisation — structures rearrange without loss of identity

9. The 12 Laws of MEV Emergence

These laws are part of the MEV standard and apply universally across all Emergence implementations.

Law 1 — Value Conservation

Σ(MEVU_before) ≈ Σ(MEVU_after) × Te. Value conserved; never created from nothing.

Law 2 — Compatibility

Only compatible assets may compose, per type, Epoch state, and MRSS rules.

Law 3 — Emergent Properties

A + B → C. C has genuinely new properties not present in A or B alone.

Law 4 — Structural Integrity

Every emergent entity must maintain valid internal structure. Invalid structures must decompose.

Law 5 — Reversibility

Composed entities may decompose, subject to time locks, costs, and transformation constraints.

Law 6 — State Dependency

All interactions depend on current Epoch state. Same assets may compose freely in Epoch A; restricted in Epoch B.

Law 7 — Identity Persistence

Every asset maintains traceable identity across all transformations. Origin always recoverable.

Law 8 — Compositional Limits

Compositions bounded by adopter-defined limits on count, depth, and value thresholds.

Law 9 — Temporal Evolution

Emergent entities evolve as Epochs change — gaining or losing relevance through the lifecycle.

Law 10 — Interaction Hierarchy

Higher-order entities have capabilities unavailable to atomic MEVU.

Law 11 — Selective Composability

Composability is conditional — governed by MRSS, current Epoch, and defined permissions.

Law 12 — Economic Meaning

Every emergent entity must represent interpretable economic meaning. No arbitrary bundles.

10. MEVOS — The MEV Operating System

> *MEVOS integrates the MEV Value Layer, Epoch Layer, History Layer, and MEVE Ecosystem Layer into a coherent system enabling creation, evolution, and permanent recording of economic value.*

Layer	Name	Function
Layer 1	MEV (Value)	Produces MEVU via A × V; tracks MEV_total; manages Diapause state
Layer 2	Epoch (State)	Monitors MEV_total vs milestones; fires Epoch transitions; applies Te
Layer 3	History (Provenance)	Records all MEVU, Epoch events, and Diapause state transitions immutably
Layer 4	MEVE (Ecosystem)	Lite SDK, MEV-ID, Global Registry, Certification, Exchange

11. MEV Oracle — The On/Off-Chain Bridge

Mode	Architecture	Use Case
Off-Chain Only	MEV runs independently — no blockchain	Enterprises, education, traditional institutions
On-Chain Only	MEV runs natively on a blockchain	DeFi, Web3, L1/L2 networks
Bridge (Oracle)	MEV Oracle connects both bidirectionally	Real-world activity settling on-chain

> *MEV Oracle protocol: Capture → Verify → Commit. Each adopter implements the Oracle for their specific chain and context, documented in their MEV Implementation Paper.*

12. MEV Lite SDK — The Adaptive Declaration Layer

> *The MEV Lite SDK is a declaration layer — not an implementation framework. Standardised markdown files any project imports to formally signal MEV compliance, document its adaptation, and connect to the global registry.*

File	Purpose
AboutMEV.md	Entry point. Explains MEV and how this project implements it.
MEVLicense.md	Declares project under MEV Open Standard License.
MEVCertificate.md	Proof of certification — unique ID from MEV Foundation.
MEVU.md	Declares MEVU form, supply model, issuance mechanism.
MEVEpoch.md	Declares milestone formula, scale, Epoch types, Te values.
MEVMRSS.md	Rule Set — defines A, V method, milestone thresholds.
MEVDiapause.md	Declares Diapause status (S), H thresholds, D parameters, phase designation.
MEVOracle.md	Declares operating mode and Oracle configuration.
MEVActivity.md	Formal definition of Activity in this system.
MEVAdaptation.md	Innovation declaration — what the adopter built on MEV.
MEVRegistry.md	Links to OfficialMEV.org registry entry.
MEVCompliance.md	Self-assessment against MEV standard requirements.

13. MEV in Practice — Implementation Papers

> *The MEV Whitepaper defines the standard. MEV Implementation Papers document the buildings. Each adopter authors their own paper — formally documenting their MEV adaptation, published on officialMEV.org.*

Document	System	Status
mezeMEV Implementation Paper v1	Meze — L1 blockchain, food commerce. First MEV implementation.	Published
ytcMEV Implementation Paper v1	YESTOCODE — education platform, coding milestones.	In preparation
[Future Adopter]	Open to all MEV-certified systems.	Registry open

14. Cross-Industry Applications

Industry	Activity (A)	MEVU Form	Diapause Relevance
Blockchain / Web3	Transactions	Native token	High — token circulation timing critical
Education	Learning completions	Learning credit	Moderate — prevent credential oversupply
Enterprise	Productivity output	Productivity index	Moderate — align with performance cycles
Smart City	Infrastructure events	Civic score	Low-Moderate
DeFi / Finance	On-chain activity	Yield primitive	High — liquidity-sensitive
Any System	Adopter-defined	Adopter-defined	Adopter-configured

15. Governance and OfficialMEV.org

Entity	Role
MEV Standard	Open protocol — freely adopted by any system with real activity
MEV Foundation	Governance authority — stewards standard, issues certification, manages registry
OfficialMEV.org	Canonical home — whitepaper, implementation papers, registry, SDK, certification

16. Vision

MEV's long-term vision: economic systems at every scale — from an individual's learning journey to the output of a nation — are grounded in real, verified activity, structured through milestones, marked by Epochs, and protected by intelligent Diapause when scale demands it.

> *This is not an evolution of tokens. This is not an improvement on existing blockchain economics. MEV is a new foundation — a new physics for economic value.*

17. Conclusion

The MEV flow is universal: Activity is verified to produce MEVU. MEVU accumulates into MEV_total. MEV_total is measured against adopter-defined logarithmic milestones. When a milestone is crossed, a MEV Epoch fires. MEV Diapause governs whether validated value enters circulation immediately or is held in dormancy until conditions are right. MEV Emergence governs what active value can compose into. What happens at each stage is the adopter's innovation. What defines each stage is always MEV.

MEV is not a product. MEV is not a token. MEV is a standard.

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Appendix A — Formula Reference

MEVU GENERATION

$$MEVU = A \times V$$

Activity × Verification = one unit of verified economic value

MEV ACCUMULATION

$$MEV_{total} = \Sigma(A_i \times V_i)$$

Running sum of all MEVU since genesis. Never decreases.

LOGARITHMIC MILESTONE

$$M(n) = \log_b(n) \quad OR \quad M = k \times b^n$$

b = adopter-defined base | k ∈ {1,5} or adopter-set

EPOCH TRIGGER

$$MEV_{total} >= M(n) \rightarrow Epoch_n \ fires$$

When accumulated MEVU reaches milestone n, Epoch n triggers

EPOCH-ADJUSTED MEVU

$$MEVU_{epoch} = A \times V \times Te$$

Te = Epoch Factor for this phase | 0.8 to 2.0+

DIAPAUSE STATE VARIABLE

$$S \in \{0, 1\}$$

0 = inactive | 1 = active

CONDITIONAL ACTIVATION

$$MEV_{active} = M \times [(1-S) + S \cdot D(E,L,G,R)]$$

Unified equation covering both standard and Diapause modes

DORMANT VALUE

$$MEV_{dormant} = M - MEV_{active}$$

Validated but not yet circulating

ACTIVATION FUNCTION

$$D = \sigma(\alpha E + \beta L + \gamma G - \delta R)$$

σ = sigmoid | D ∈ (0,1) | all parameters adopter-configured

TIME-DEPENDENT EXTENSION

$$D_t = D \times (1 - e^{-\lambda t})$$

λ = rate | smooth asymptotic activation

TRIGGER MECHANISM

$$S = H(T, U, V_o, \sigma_m)$$

H outputs 0 or 1 based on system conditions

HYBRID VALIDATOR REWARD

$$R_v = \beta \cdot C_v + \gamma \cdot S_v$$

Contribution-weighted + stake-weighted hybrid

PERFORMANCE INDEX

$$P = MEV_{total} / C_{max}$$

Efficiency | 0.0–1.0

Appendix B — Glossary

Term	Definition
MEV	Milestone Economic Value — the open economic standard
MEVU	MEV Unit — output of A × V. Form is adopter-defined.
MEV_total	Accumulated sum of all MEVU. Measured against milestones. Never decreases.
M	Milestone Threshold — target MEV_total must reach. NOT a per-transaction multiplier.
MEV Epoch	State transition triggered when MEV_total crosses a milestone.
Te	Epoch Factor — phase modifier for MEVU generation within an Epoch. Range: 0.8–2.0+
MEV Diapause	Conditional activation layer governing when validated MEVU enters circulation.
S	Diapause state variable ∈ {0,1}. 0 = inactive, 1 = active.
D	Diapause Activation Function ∈ (0,1). Governs fraction of accumulated value entering circulation.
MEV_active	Portion of accumulated MEV in active circulation.
MEV_dormant	Validated value held in suspension. MEV_total − MEV_active.
MEV Emergence	Optional composition layer. Operates on active value only.
MEVOS	MEV Operating System — four-layer architecture
MEV Oracle	Bridge protocol — Capture → Verify → Commit
MEV Implementation Paper	Formal document by an adopting system. Published on officialMEV.org.
MEV Foundation	Governing authority. Forthcoming. officialMEV.org