VeriGraph Protocol

Decentralized Oracle Infrastructure for News Authenticity and Single Source of Truth (SSOT)

Whitepaper v1.0 — Development / Mainnet Technical Edition
Network: Base Mainnet
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Abstract

VeriGraph is a decentralized oracle infrastructure designed to transform heterogeneous Internet information into verified, traceable and machine-readable representations of real-world entities and events.

The protocol is built around a Single Source of Truth (SSOT) workflow:

Collection → Normalization → Resolution → Semantic Verification → Certification → Exposure → Cryptographic Anchoring

The current development implementation focuses on news and event verification. It combines NewsAPI (development configuration), Google RSS feeds and other source inputs with lexical, semantic and contextual verification techniques. The implementation includes multilingual semantic vector comparison and similarity methods such as Jaccard similarity, Levenshtein distance and cosine similarity, together with multi-attribute matching and source corroboration.

The objective of VeriGraph is not to create a new AI model. It is to provide an information-verification and attestation layer between heterogeneous Internet sources and automated systems such as APIs, knowledge graphs and AI agents.

1. Protocol Purpose

Internet information is abundant but fragmented, duplicated, inconsistent and subject to change.

The same real-world entity or event may be represented differently across sources. Automated systems therefore need more than raw URLs or articles: they need a process that establishes identity, compares observations, evaluates consistency, records provenance and exposes a canonical representation.

VeriGraph is designed as that verification layer.

The protocol combines established technologies and methodologies into a defined technical workflow rather than depending on a proprietary AI model.

2. Current Development Implementation

The current VeriGraph implementation is a development-stage news verification engine.

Its current source-collection layer uses:

- NewsAPI in its development configuration;
- Google RSS feeds;
- additional heterogeneous Internet sources as integrated by the project.

The verification layer can combine:

- lexical normalization;
- Jaccard similarity;
- Levenshtein distance;
- multilingual sentence embeddings;

- cosine similarity;
- multi-attribute matching;
- contextual comparison;
- source corroboration;
- freshness and provenance checks.

The current application uses the multilingual semantic model:

`paraphrase-multilingual-MiniLM-L12-v2`

The implementation may evolve as the project is improved. New source adapters, verification rules, models and scoring mechanisms can be introduced without changing the core SSOT concept.

3. Single Source of Truth (SSOT)

An SSOT is the canonical representation produced after VeriGraph reconciles heterogeneous observations relating to the same entity or event.

An accepted SSOT can contain:

- canonical identity;
- normalized source information;
- source references;
- observation times;
- freshness information;
- concordant values;
- divergent values;
- verification signals;
- confidence information;
- validation status;
- machine-readable representation;
- cryptographic state hash.

An SSOT is therefore the result of a verification process, not simply a copy of one source.

4. Verification Pipeline

The VeriGraph technical pipeline is:

```
Heterogeneous Internet Sources
              v
      Source Collection
              v
        Normalization
              v
 Entity / Event Resolution
              v
   Lexical + Semantic Checks
              v
    Cross-Source Corroboration
              v
 Confidence / Explainability
              v
     Provenance + Freshness
              v
       SSOT Acceptance
              v
       State Hashing
              v
     Blockchain Anchoring
              v
          VGR Mint
            v
```

```
Machine-Readable Exposure
```

The blockchain is the attestation layer. Computationally intensive source collection and verification remain primarily off-chain.

5. Semantic Verification

VeriGraph does not rely on one similarity metric as a universal truth function.

Instead, semantic verification can combine several signals depending on the type of information being compared.

5.1 Lexical Similarity

Lexical techniques can detect direct overlap and textual similarity after normalization.

Examples include:

- token overlap;
- Jaccard similarity;
- Levenshtein distance.

5.2 Semantic Similarity

Multilingual sentence embeddings can be used to compare the semantic meaning of two pieces of text.

Cosine similarity provides a semantic similarity signal between vector representations.

5.3 Multi-Attribute Verification

For structured entities, multiple attributes can be compared simultaneously, including name, address, identifier, country, date, organization and source metadata.

Combined rules can distinguish between:

- same entity / same event;
- probable match;
- ambiguous case;
- divergence;
- insufficient evidence.

5.4 Source Corroboration

Multiple sources can be compared rather than relying on a single publication.

Corroboration does not automatically establish objective truth. It establishes that the observations satisfy the configured VeriGraph verification criteria.

6. Geopolitical Node Architecture

VeriGraph uses logical audit slots to distribute processing responsibility.

The architecture separates:

- global / international processing;
- country-specific local processing;
- country-specific influence processing.

A logical node represents an audit responsibility. A physical or virtual server executes that logical node.

World News

The current World News logical node is:

`N0_WN`

`N0_WN` identifies the global audit slot. It is not a country and is not itself a semantic classification of every SSOT.

The geographic scope of an SSOT is determined by its SSOT data and processing context.

Country Audits

Country processing supports two audit vectors:

Local Audit — domestic or country-specific information.

Influence Audit — cross-border impact, geopolitical propagation and international influence associated with a country.

7. High-Availability Infrastructure

A logical economic slot can be supported by:

- one PRIMARY server;
- one BACKUP1 server;
- one BACKUP2 server.

Heartbeat monitoring is used to determine server liveness.

This separates logical node identity from physical server availability.

Redundancy is intended to improve availability without changing the economic identity of the logical audit slot.

8. VGR Utility Token

Name: VeriGraph
Symbol: VGR
Network: Base Mainnet
Decimals: 18

Mainnet VGR Contract

`0xE6d677D6d9232723BBC365810E21808a772bC420`

8.1 Minting Rule

The protocol economic rule is:

1 validated SSOT = 1 VGR

There is no pre-minted reserve in the current protocol model and no fixed maximum supply encoded by the economic design.

Supply expands as validated SSOT events are produced.

8.2 Zero-Dust Distribution

Each newly minted VGR is distributed deterministically so that total allocation equals exactly 100%.

International / World News

Recipient	Share
Operational Node	49.0%
Founder	33.5%
Net Treasury	17.5%
Total	100.0%

Country SSOT

Recipient	Share
Local Node	24.5%
Influence Node	24.5%
Founder	33.5%
Net Treasury	17.5%
Total	100.0%

No residual allocation is intentionally left undistributed.

9. Treasury Policy

The treasury allocation is intended to support the VeriGraph project and its continued development.

Planned treasury uses may include:

- infrastructure;
- development;
- security;
- research and verification improvements;
- source integrations;
- node expansion;
- ecosystem and operational costs.

Treasury deployment is subject to project governance and approved decisions.

The current deployed Governance V2 provides on-chain governance for defined protocol parameters and governance membership. The treasury-use policy above is therefore a project policy/objective and should

not be interpreted as an already-implemented on-chain treasury voting mechanism unless that functionality is explicitly deployed.

10. VGR / USDC Reference Model

10.1 Current Bootstrap State

The deployed Governance Proxy currently records:

Reference Mode: LINKED
Reference Ticker: USDC
Reference Price: 1.000000 USDC per VGR

The on-chain representation uses six decimals:

`1,000,000`

10.2 Reference Is Not an Automatic Redemption Promise

The linked value is a governance-level reference parameter.

It does not by itself guarantee redemption of every VGR for one USDC and does not constitute a permanent reserve or peg mechanism in the VGR token contract.

The design separates token issuance, governance reference parameters, market price discovery and any future collateral or redemption architecture.

10.3 Evolution

Governance V2 supports:

LINKED

and

FLOATING

reference modes.

The reference methodology can therefore evolve through the governance layer without requiring a redesign of the VGR token contract.

11. On-Chain Governance

Governance is implemented as a separate smart-contract layer.

11.1 Governance Proxy

`0xC0fd53bA3Fc1709b359E46f2498594d182b6Ad5b`

11.2 Governance Logic V2

`0xF048AD6E191C12eA6D79203A317DA223830cA499`

The Proxy delegates execution to the Logic contract.

The Proxy has a designated `proxyAdmin` for controlled implementation upgrades.

11.3 Current Governance State

Parameter	Current Value
Reference Mode	LINKED
Reference Ticker	USDC
Reference Price	1.000000
Voting Period	7 days
Initial Governor Weight	1000
Total Voting Power	1000

Current initial Governor:

`0xe7766e7535588D325154E2EB8f5361759e91753F`

11.4 Weighted Governance

The deployed V2 logic supports weighted governance membership and voting.

Governance participants can receive explicit voting weights.

The protocol is designed so that governance can evolve as eligible participants and Node Owners are added.

12. Smart-Contract Separation

VGR Contract

Responsible for:

- token issuance;
- VGR balances;
- deterministic VGR distribution;
- SSOT minting;
- token economic rules.

Governance Contract

Responsible for:

- governance state;
- voting;
- governance membership;
- reference parameters;
- proposals;
- controlled implementation upgrades.

Oracle / Application Layer

Responsible for:

- source collection;
- normalization;
- entity and event resolution;
- semantic verification;
- corroboration;
- confidence evaluation;
- provenance and freshness;
- SSOT generation;
- blockchain transaction orchestration.

13. Security and Trust Model

The protocol combines several independent security dimensions:

Source Diversity

Multiple sources can be compared and reconciled.

Algorithmic Verification

Lexical, semantic and structural verification signals can be combined.

Provenance

Source observations and timestamps can be retained.

Cryptographic Anchoring

The verified state can be represented by a cryptographic hash and anchored on Base.

Infrastructure Redundancy

PRIMARY/BACKUP1/BACKUP2 server architecture is intended to improve availability.

Governance

Protocol parameters can evolve through on-chain governance.

No single layer should be interpreted as an absolute guarantee of truth.

A blockchain confirms that a particular state and transaction were recorded. It does not independently determine that an external Internet claim is objectively true.

14. Machine-Readable and AI-Agent-Oriented Infrastructure

VeriGraph is designed to expose verified information to software systems through:

- JSON;
- JSON-LD;
- Schema.org;
- APIs;
- structured Web pages;

- files;
- knowledge graphs.

Potential consumers include AI agents, enterprise software, automated procurement, CRM platforms, business intelligence systems, marketplaces and generative search/answer engines.

The architectural goal is an **Internet-to-Agent information layer**.

15. GEO and AEO Applications

VeriGraph can support:

- Answer Engine Optimization (AEO);
- Generative Engine Optimization (GEO);
- AI-readable business directories;
- verified local-business information;
- structured entity graphs;
- machine-readable discovery.

A representative application combines:

Verified Entity Graph + Structured Web Exposure + Machine-Readable Interfaces + Continuous Verification

16. Broader Applications

The same core architecture can be applied to:

- Enterprise Master Data Management;
- business identity resolution;
- supplier verification;
- marketplace seller verification;
- fraud-prevention workflows;
- autonomous procurement;
- AI due diligence;
- CRM data cleansing;
- regulatory data reconciliation;
- local-business data infrastructure;
- knowledge-graph construction;
- agentic commerce.

The reusable technical pattern is:

Collection → Resolution → Verification → Certification → Exposure

17. Mainnet Deployment

The current verified Base Mainnet deployment is:

VGR

`0xE6d677D6d9232723BBC365810E21808a772bC420`

Governance Proxy

`0xC0fd53bA3Fc1709b359E46f2498594d182b6Ad5b`

Governance Logic V2

`0xF048AD6E191C12eA6D79203A317DA223830cA499`

Smart Account

`0xe7766e7535588D325154E2EB8f5361759e91753F`

Governance Initialization Transaction

`0x16803f0df9f314510f765e553cf6fde352421a3a18ac893efd6f1e837a72b394`

The deployed Governance Proxy was verified on-chain as initialized, linked to the VGR contract above, and configured with the stated initial governance parameters.

18. Development Status and Roadmap

Phase 1 — Development / Mainnet Foundation

Current components include:

- VGR Mainnet deployment;
- Governance V2;
- Governance Proxy;
- initial governance configuration;
- Base Mainnet integration;
- Paymaster-sponsored transaction architecture;
- development news-source ingestion;
- semantic verification pipeline;
- high-availability node framework.

Phase 2 — Operational Node Expansion

Objectives include:

- onboarding additional node operators;
- expanding country local audit slots;
- expanding country influence slots;
- increasing redundancy;
- strengthening heartbeat and liveness operations.

Phase 3 — Verification and Source Expansion

Objectives include:

- additional source connectors;
- improved multilingual semantic verification;
- more advanced entity and event resolution;
- stronger provenance and freshness handling;
- improved confidence and explainability.

Phase 4 — Governance Expansion

Objectives include:

- expanding governance membership;

- increasing distributed voting participation;
- formalizing Node Owner participation;
- evolving protocol governance toward broader decentralization.

Phase 5 — Machine-Readable Information Network

Objectives include:

- verified entity graphs;
- structured data exposure;
- JSON-LD and Schema.org integration;
- APIs;
- automated discovery;
- AI-agent-oriented information services.

19. Limitations and Disclosures

VeriGraph is an information-verification and attestation infrastructure.

It does not guarantee that every Internet source is objectively correct.

Verification quality depends on source quality, source diversity, verification methodology, software implementation, node availability, governance configuration and operational security.

The current implementation is a development-stage system and source integrations may change as the project evolves.

References to future functionality, additional source adapters, improved models, broader governance or expanded applications describe the project's roadmap and should not be interpreted as functionality that is already deployed.

This whitepaper describes technical architecture and project design. Legal, regulatory, financial and tax treatment of VGR may differ by jurisdiction and should be assessed independently.

20. Glossary

SSOT — Single Source of Truth: canonical representation resulting from reconciliation and verification.

Oracle — Infrastructure that transfers verified observations from external information environments into a structured or on-chain representation.

Node — Logical VeriGraph audit responsibility.

Server — Physical or virtual infrastructure executing a node.

Local Audit — Country-specific domestic information verification.

Influence Audit — Country-specific cross-border or international influence verification.

World News — Global/international audit scope.

State Hash — Cryptographic representation of a verified state.

VGR — VeriGraph utility token.

LINKED — Governance reference mode using a designated reference value.

FLOATING — Governance reference mode that does not maintain the bootstrap linked reference.

21. Version History

Version	Date	Description
1.0	2026-10-06	Initial public technical whitepaper updated for current Base Mainnet deployment and development-stage implementation

22. Conclusion

VeriGraph is designed as infrastructure for transforming heterogeneous Internet information into verified, traceable and machine-readable state.

Its core proposition is:

Transform heterogeneous information into verified, traceable and machine-readable state that can be anchored on-chain and consumed by automated systems.

The project combines information collection, entity and event resolution, semantic verification, source corroboration, provenance, freshness, cryptographic state anchoring, deterministic token economics, high-availability infrastructure and on-chain governance.

The architecture is designed to improve over time as new sources, verification techniques, node operators and machine-readable interfaces are integrated.