Threat Research & History Trail

THRT: Blockchain AI classification and datasets

Abstract

Light paper of a decentralized token for accessing AI file classifications and training datasets via Solana, supporting education, transparency, and research.

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THRT: Threat Research & History Trail

Purpose: Decentralized access to file classification and AI/ML training datasets via blockchain.

Network: Solana (high speed, low-fee chain)

Use Case: AI-driven file classification with transparent access to training data

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Abstract:

THRT is a blockchain-powered platform whose goal is to decentralize file classification for “safe”, “malicious”, or “unknown" results and encrypted AI/ML training datasets. Built on the Solana blockchain, THRT leverages public transparency, data immutability, and tokengated access leading to the empowerment of students, researchers, and cybersecurity professionals by providing tools for education, audit, and threat research. The THRT token is the key to unlocking the system – enabling lookups, and dataset downloads with APIbased decryption all running in a nonprofit framework.

Problem:

Modern cybersecurity and AI research rely heavily on large-scale datasets for file analysis, classification, and model training. However:

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- **Access is cost-prohibitive:** Leading tools offer petabyte-scale dataset search and lookup functionalities while charging enterprise-level prices. This makes them inaccessible to students, independent researchers, and smaller organizations.
- **Opaque AI datasets:** As AI becomes more sophisticated, the underlying datasets are proprietary and locked behind corporate walls. This restricts reproducibility, auditability, and innovation to build the next big thing.

Solution:

THRT (Threat Research & History Trail) solves these issues by decentralizing access to classification results and encrypted training datasets through blockchain:

- **Public classification lookup:** Anyone can search files by hash and view their AI generated classifications stored on the blockchain. This provides transparency and auditability.
- **Token gated dataset access via nonprofit API:** Through the PCEF registered users receive monthly THRT token drops enabling secure low-cost access to encrypted AI/ML training datasets. Users can request encrypted datasets by file hash and decrypt them using their monthly token allowance – creating a sustainable, accessible alternative to expensive dataset providers.
- **Low-cost research driven model:** By placing the project under a nonprofit umbrella, THRT's ecosystem cannot be commercially exploited and remains research focused.

More Details:

THRT is a Solana-based utility token that empowers a decentralized system for storing and accessing AI/ML file classifications and training datasets. By leveraging the blockchain for THRT enabled public, hash-based lookups with an added layer of transparency and security through encryption and decentralized storage.

All AI training datasets are encrypted in-chain to prevent misuse while the classifications are plaintext by default. The encrypted training dataset blob is protected using AES-256GCM with securely generated random keys. Each key is securely stored in an encrypted database while being mapped to its corresponding file hash. This will enable fast hashbased lookups with secure and efficient storage.

The only way to access the encrypted datasets is to use the PCEF API and decrypt using the key associated with the file hash in the encrypted database. Ensuring safe access while maintaining transparency. This model enables students, educators, researchers, and enthusiasts to access powerful training datasets and classification, while making AI classification accessible to all.

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We plan to make THRT token tradeable on decentralized exchanges permitted by law. This will provide liquidity and accessibility to the token. We remain committed to complying with all applicable laws and regulations in any jurisdiction where the token becomes exchangeable.

Key functionality:

1. **AI file classification register**
    a. Each file scanned by the PCEF AI classifier is associated with classification and training metadata.
    b. This data is stored immutably on the blockchain with encrypted AI training data.
    c. All data is publicly accessible via blockchain.
    d. If a file gets reuploaded and reclassified after the AI has been improved, the new result is also stored on the blockchain. When it is looked up there will be a history of up to the five most recent classifications with timestamps.
2. **Training Data Ledger**
    a. The encrypted training datasets are stored on chain with the classification and able to be looked up by file hash, only users who hold THRT tokens can decrypt and download the datasets for educational, training, and audit purposes using the PCEF API.
3. **Access Control Via Token**
    a. THRT is required to access:
        i. Encrypted AI/ML training datasets.
4. **Monthly Drops**
    a. Users who are part of the ecosystem will be provided monthly token drops; we will provide plans for free to students, educators, and research credentials to qualified companies/individuals.
    b. 10% of unused tokens are transferred to THRT's development fund to continue funding development.
    c. 90% of unused tokens are burned at the end of the month to prevent severe price fluctuation.

API Details:

1. All users have the options to register and receive a free API key.
2. The API provides unrestricted access to classifications at no cost, an API key is not required to access classification details.

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3. Users who are registered receive monthly non-transferable tokens for accessing encrypted training datasets. These tokens are account-bound. At the end of the month 90% of unused tokens are burned and 10% are transferred to the development fund.
4. All classification lookups through PCEF are free and unlimited.
5. Training dataset lookups require token expenditure and are limited by the user's monthly token allowance.
6. After a user has retrieved a decrypted dataset, the data is licensed under Creative Commons BY 4.0 (CC BY 4.0).

THRT Token Overview:

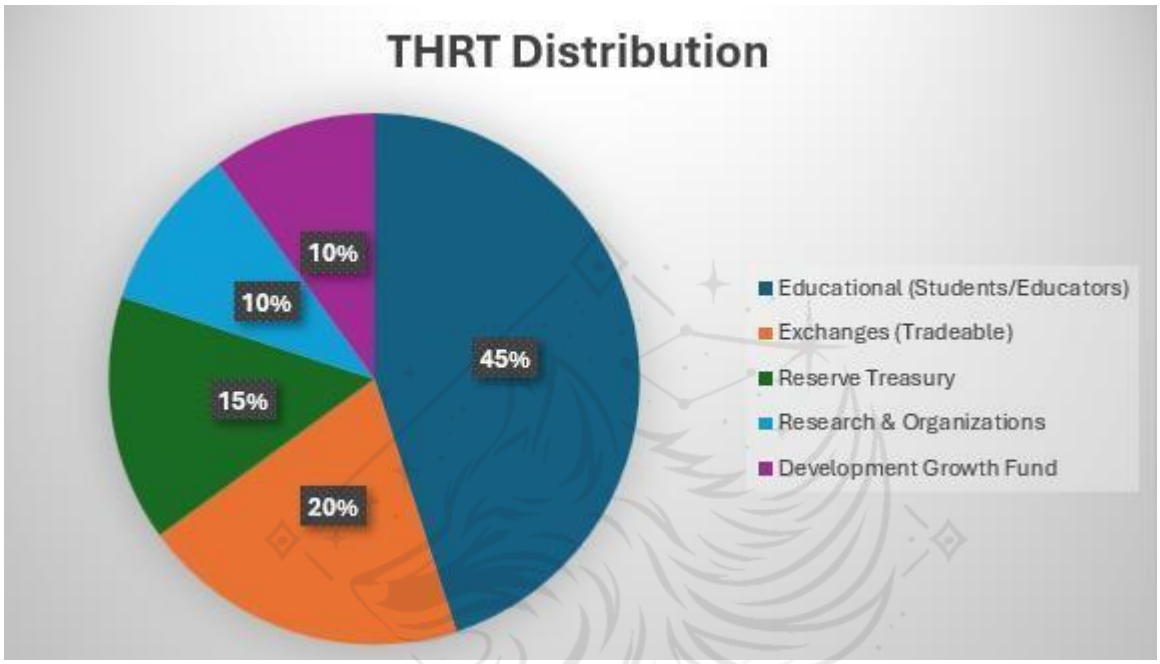
- **Utility:**
  - Access to encrypted AI/ML training datasets via PCEF API. ○ Perform hash-based file classification lookups via blockchain. ○ Participate in monthly token drops. ○ Unlocks research grade tools and resources.
  - Help stabilize token supply through burn mechanism.
- **Tokens supply info:**
  - Max supply: 1,000,000,000 ○ Initial circulating supply: 40% (400,000,000) ○ Noncirculating reserve: 60% (600,000,000)
- **Token distribution from initial supply:**
  - Airdrops to researchers and students: 150,000,000 ○ Public trading circulation: 100,000,000 ○ Nonprofit partners/organizations: 50,000,000 ○ API ecosystem (monthly drop reserve): 90,000,000 ○ Ambassadors/Community partners: 10,000,000
- **Noncirculating distribution:**
  - Development fund: 150,000,000 ○ Education/Student drops: 270,000,000 ○ Treasury reserve: 120,000,000 ○ Partnership incentives: 60,000,000
- **Lockup strategy:**
  - The development fund will be locked for 6 months with a linear vesting for the next 6 months. This provides us with the ability to scale based on need quickly, provide AI development, staffing, and maintain transparency.
  - Each quarter after unlocking a public development report will be available on the PCEF website. ○ 60%+ of all board members at

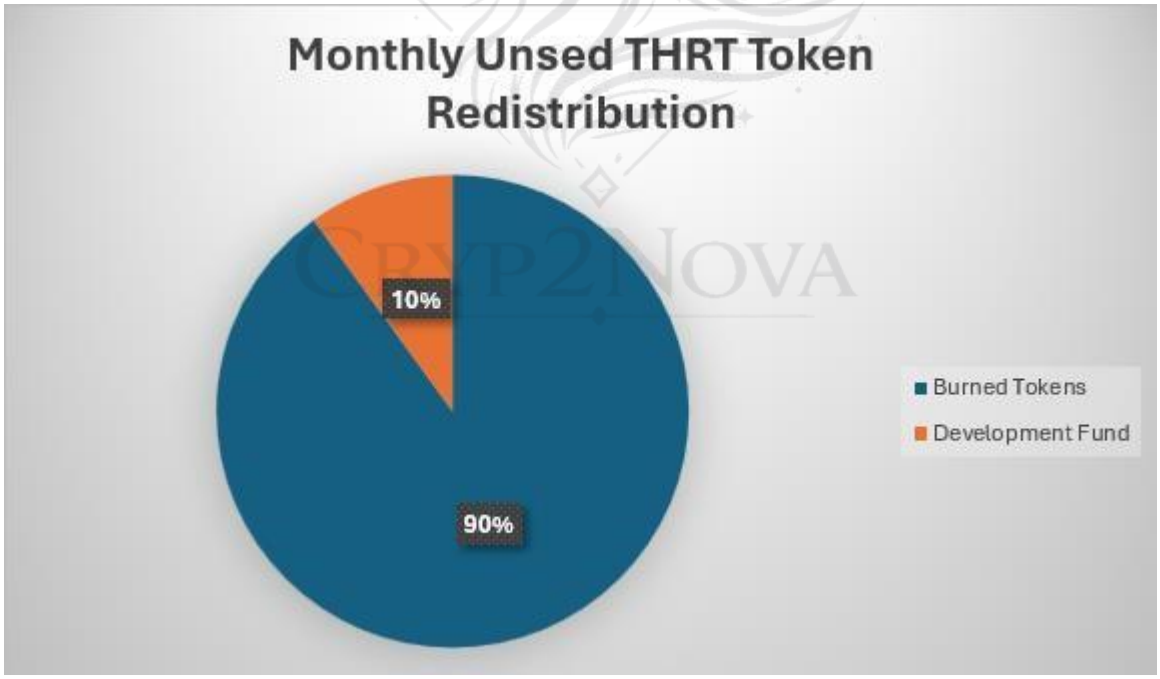
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PCEF must agree on the dev spending and the spending will be publicly available on the PCEF website.

Token Graphs:





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