Climate Action
Data Trust

Connectivity Deck

Content Overview

Topic
Introduction to CAD Trust
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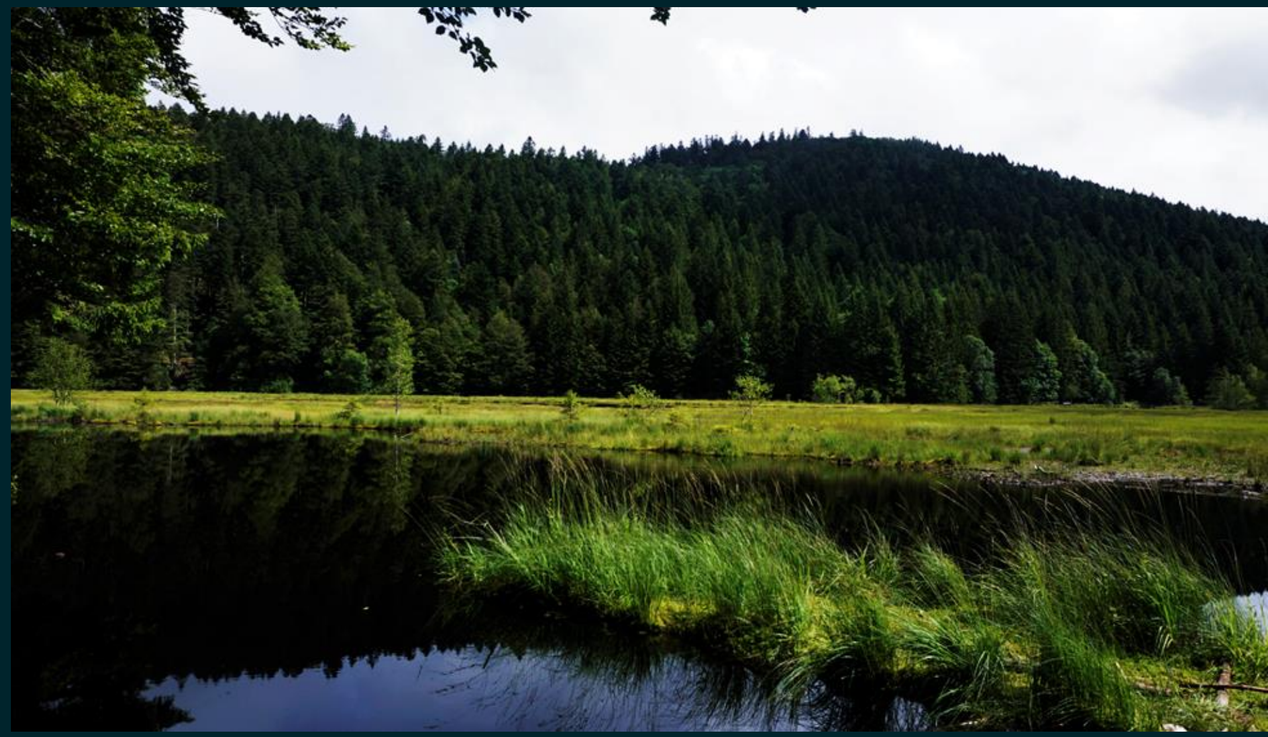
Who we are



Transparency and accountability are vital for efficient carbon markets that drive climate action and the associated finance. The Climate Action Data Trust acts in the public interest to increase transparency, safeguard against double-counting, support transparent accounting, and build confidence in the market.

We improve access to carbon credit data from compliance and voluntary markets, fostering collaboration, facilitating innovation, and helping unlock the potential of carbon markets across the world.

Connecting carbon markets through open data

- Public carbon market transparency platform
- Common data model for carbon credits
- Collaborative, not-for-profit governance

Climate Action Data Trust

Co-founded by:

WORLD BANK GROUP

IETA

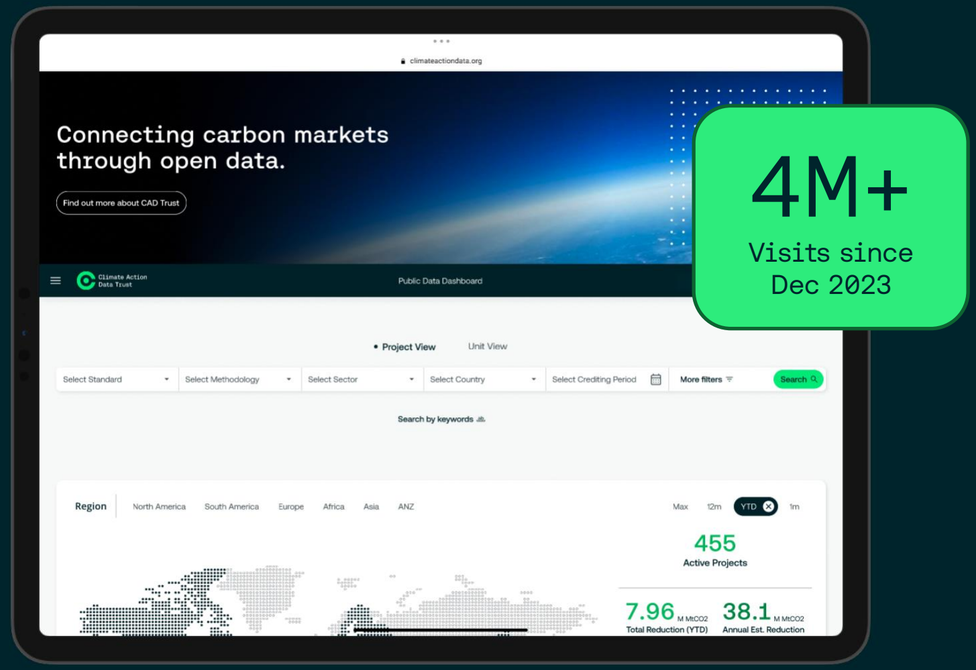
NCCS NATIONAL CLIMATE CHANGE SECRETARIAT SINGAPORE | STRATEGY GROUP PRIME MINISTER'S OFFICE

Harmonized data on over 90% of credits ever issued

Data Dashboard | API access

16K+
Projects

3B+
Issued units



4M+
Visits since Dec 2023

Top countries by visits

- USA 23%
- UK 13%
- Singapore 10%
- Spain 7%
- Brazil 6%
- Rest of World 41%

VERRA · Gold Standard · Global Carbon Council · CERCARBONO Certified Carbon Standard · BioCarbon Standard · TERO CARBON · Asia Carbon Institute · Rainbow · UNFCCC CDM · The World Bank IBRD • IDA Carbon Assets Tracking System (CATS)

Enabling market growth through data interoperability

- In 2025, interoperable infrastructure and data standardization came to the fore as enablers for high integrity market growth
- CAD Trust shared expertise and helped convene leading efforts, building pathways for complementarity and collaboration
- CAD Trust Data Model Version 2.0 is a milestone in developing consistent global guidance

Collaboration to improve interoperability

World Bank Carbon Markets Infrastructure Working Group

- Served as convenor and lead author for Data and Systems Interoperability priority area
- Built consensus among key s**takeholders in infrastructure and data standardization initiatives**
- **Resulting guidance note[1] informed ICVCM, G20 Sustainable Finance Working Group**

Common Carbon Credit Data Model (G20 Sustainable Finance WG input)

- Multiple rounds of consultation with the Climate Data Steering Committee over 2025
- Close technical alignment between CAD Trust Version 2.0 and CCCDM v2.0
- Exploring further synergies during the CCCDM piloting phase in 2026

Carbon Data Open Protocol (CDOP)

- CAD Trust is a CDOP member on both Principles & Policy and Technical working groups
- CDOP currently focusing in-depth on pre-issuance; CAD Trust focused on post-issuance
- CAD Trust Version 2.0 will be integrated into the CDOP schema in the next round of updates

ISO TC/322 Sustainable Finance

- Co-project lead for TS 32214 Working Group 5 - Carbon Credit Data Model
- Helped structure engagements with CCCDM, CDOP to ensure complementarity

1. Guidance note on data and systems interoperability (World Bank, June 2025)

How we support the market as public infrastructure

Trusted global public carbon credit metadata

Improving auditability

- Tracking issued credits using certain criteria (jurisdiction, sector, methodology, stakeholders…)
- Monitoring credit status or eligibility for various schemes

Increasing integrity

- Reconciling information on projects tracked in multiple registries
- Identifying potential double counting across systems

Supporting transparent accounting

- Tracking status and supporting reports on credit use in policy frameworks (e.g., Article 6, CORSIA)

We support:

Governments and regulators

International organisations

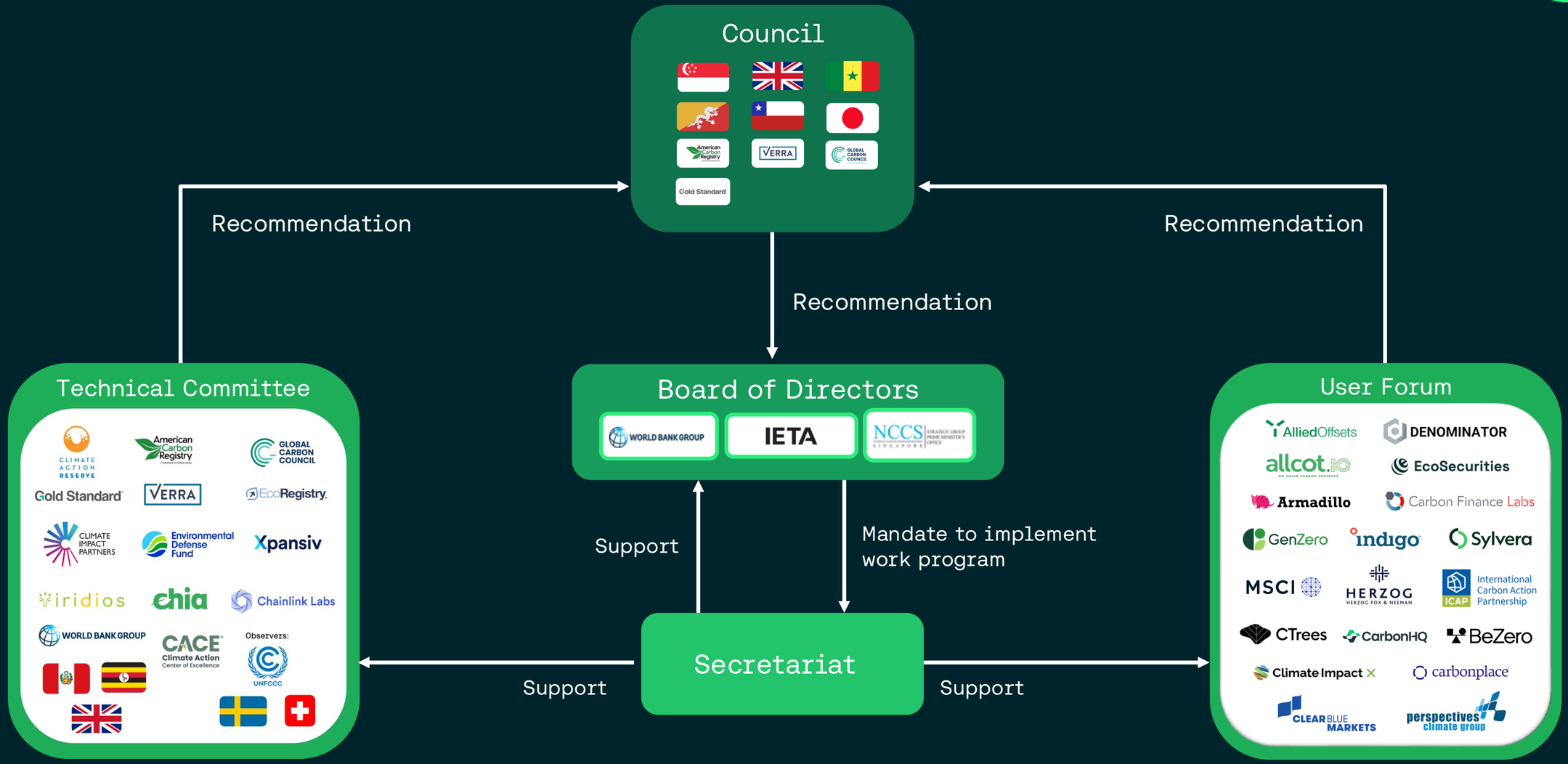
Integrity initiatives

Crediting programs

Market participants

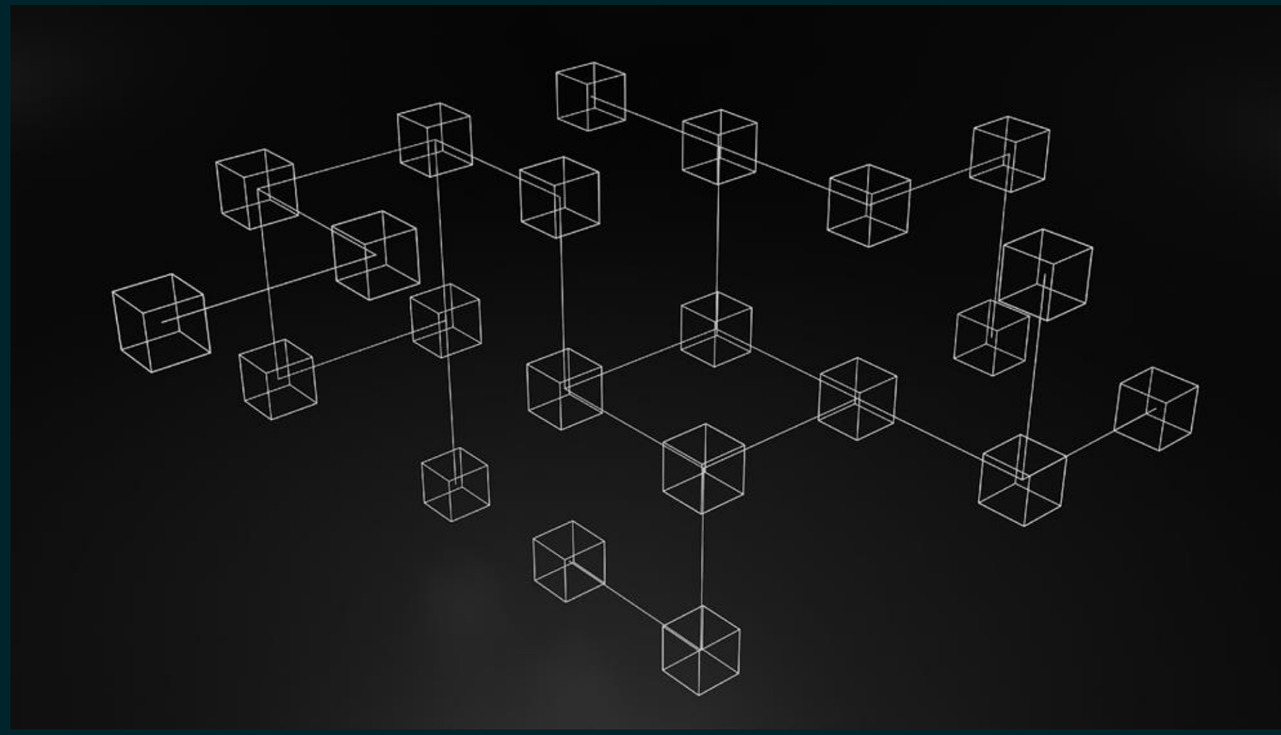
Researchers and civil society

Collaborative global governance



https://climateactiondata.org/about/

Technology

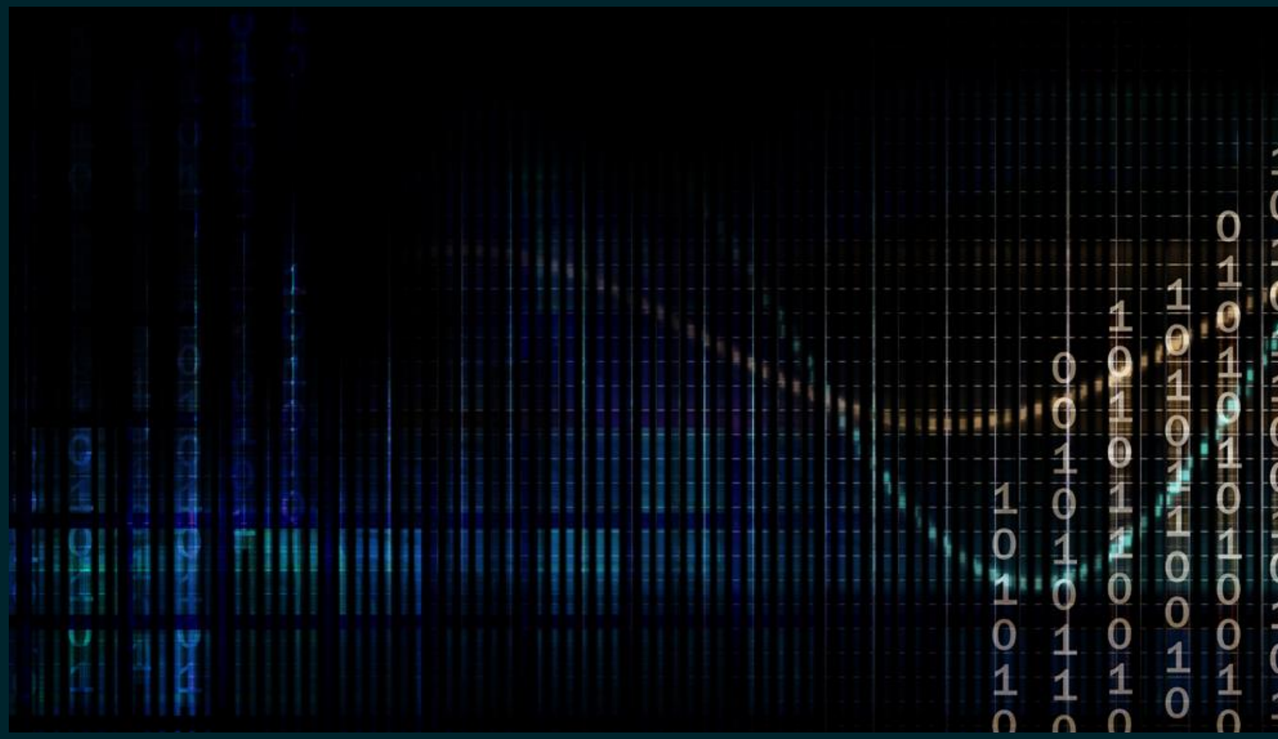


Chia Blockchain

Sustainable blockchain technology driving real climate action.

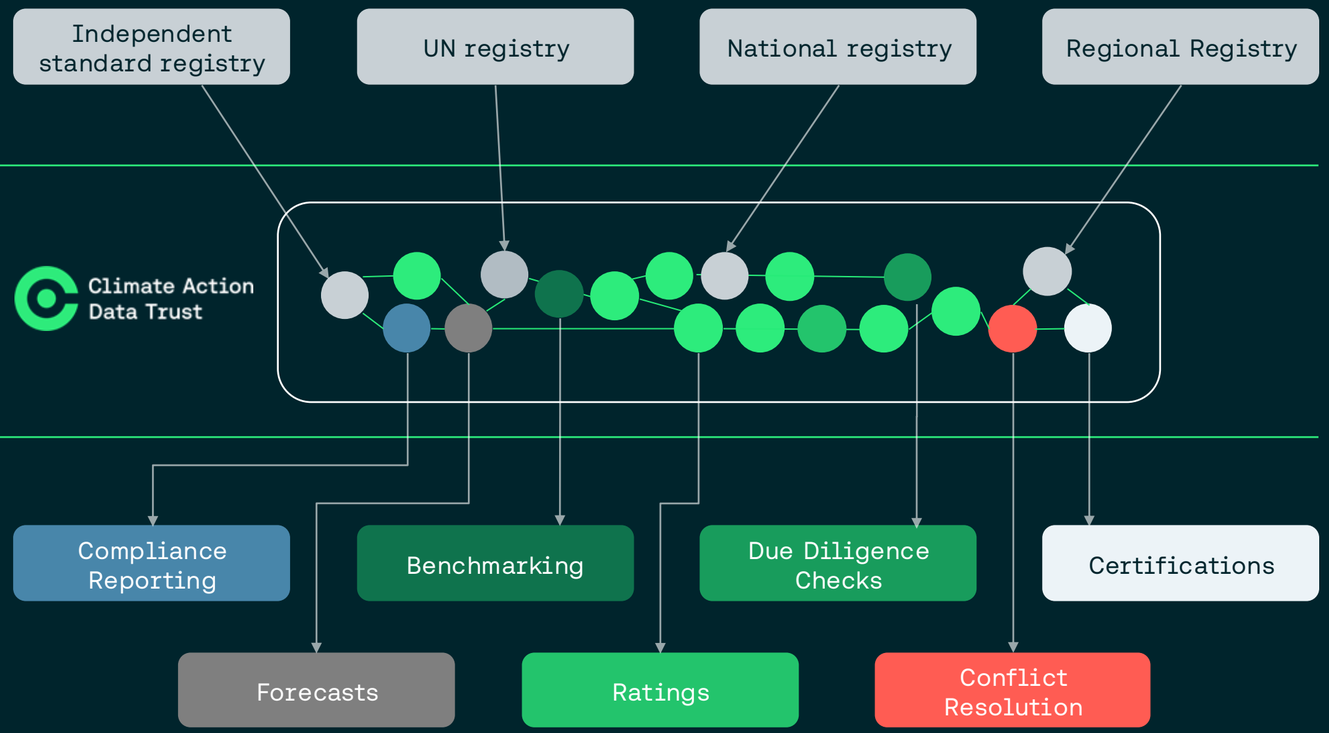
Chia designed a more sustainable blockchain, offering globally-inclusive access to those farming Chia blockchain's version of mining and to the broader financial system.

Data Layer



Public metadata infrastructure for carbon markets

CAD Trust leverages open-source software and public blockchain technology. We enable each registry to broadcast their data to a global decentralised network in a harmonised fashion while keeping full control of their systems.

Crediting programs and governments share their registry data to CAD Trust	REGISTRY LAYER	
Common data model helps harmonize the dataset, improving transparency and interoperability	METADATA LAYER	
Public and private sector organisations can access data and build services by hosting a node	SERVICE LAYER	

Data Flow

Registry's Existing Database

(Independent standards, sovereign registries, UNFCCC registries)

API
Server

CAD Trust Node
(Hosted by Registry)

Chia Blockchain Network

Climate Warehouse
End-to-End Digital Ecosystem for Carbon Markets

Data Dashboard

API
Server

- Compliance reporting
- Forecasting
- Benchmarking
- Ratings
- DD Checks
- Conflict Resolution
- Certifications

Registry Layer

Metadata Layer

Service Layer

Key application features

Secure, decentralised data storage application for carbon credit registries worldwide

Open-Source

The Climate Action Data Trust application is delivered as open-source software. This means there are no fees incurred to obtain the CAD Trust application.

Standard/ Registry Managed

Each Independent Standard and/or Registry has their own copy of the CAD Trust application. This provides each entity full control of their deployment decisions without requiring changes to existing registry systems or processes.

Decentralised

Public blockchain technology allows each registry to keep full sovereignty of their data while sharing it to the CAD Trust for global transparency goals. Users can access a read-only version of the harmonised dataset.

How it works

Chia Data Layer is a shared data network with no central authority. Data is stored locally by a member (in this case: crediting programs and governments), while proofs of the data are stored on the blockchain with URLs that can be used to fetch the stored data. Members in this network can subscribe to data from other nodes and receive updates whenever the data changes and can compare the received data to the proof on the blockchain and confirm that the data is correct.

In use, each participant in the CAD Trust publishes data in their Data Layer tables, using their Chia wallet and keys, running on its own infrastructure. The “governance” node publishes another Data Layer table with the list of Data Layer tables published by each of the recognised participants. Each participant and observer only needs to know the Data Layer table ID for the governance node to locate all of the other participants’ data.

Because this is done on the public blockchain, anyone can subscribe to the data and audits log – ensuring transparency and auditability.

Connectivity

Participants / Publishers:

- Each registry publishes data using their own instance of the CAD Trust software
- The data must conform to the data model established for the CAD Trust

User Type:

Registry Layer

Observers / Subscribers:

- Anyone can download and run the open-source CAD Trust software
- The CAD Trust software can find and download the published data based on the registry ID

User Types:

Registry Layer + Service Layer + Public

Participants / Publishers: publishing data

- The CAD Trust software creates encoded data files representing the data entered by the registry
- The Registry makes those files available on the internet
  - Can use cloud services like AWS, Azure, GCP, etc
  - Can use CAD Trust built-in server
  - Can use 3rd party hosting service
- The Registry announces the location of the files for its ID to all other users of CAD Trust

Observers / Subscribers: subscribing to data

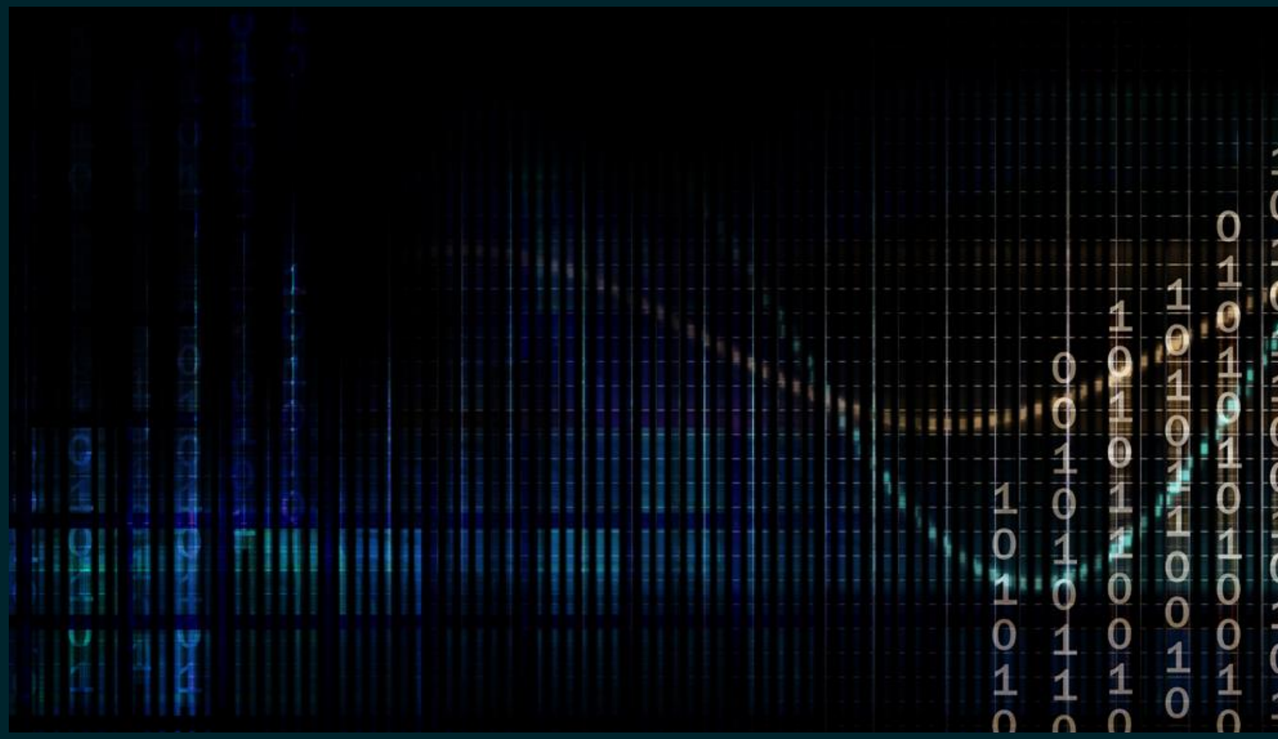
- Subscriber looks up the registry ID for the registry they want to subscribe to
  - CAD Trust governance body publishes a list of known registries

- Subscriber's CAD Trust software:
  - Finds a location to access the data files, which may or may not be directly from the Publisher.
  - May also get the files from another Subscriber.
  - Downloads the files.
  - Decodes them to make the data available to the subscriber/user

- Subscribers can subscribe to many registries at once

- By default, the CAD Trust software automatically subscribes to all the registries on the list of known registries published by the CAD Trust Secretariat (also accessible through the Data Dashboard)
  - Users of the CAD Trust software can decide not to subscribe to certain registries, even if they are on the list provided by the Secretariat.
  - Users of the CAD Trust software can subscribe to registries not on the list provided by the Secretariat by entering that registry's ID manually

Data Model



Data Model Version 2.0

Version 2.0 is the new mandatory data model that all technical registries must follow for CAD Trust connectivity.

Comprehensive architectural upgrade addressing gaps identified in Version 1.

Official release: October 2025

- Development Period: November 2025
- Registry migration period: Q4 2025 through Q1 2026
- Version 1.96 will be deprecated following complete migration of all connected registries

Features comprehensive Baseline Tables for core carbon credit post-issuance operations and dedicated AEF Tables for Article 6.2 international compliance reporting

CAD Trust Data Model Version 2.0

Version 2.0 is our enhanced baseline for harmonising carbon registry data, supporting greater registry interoperability and public good use cases while improving infrastructure performance.

Access all information:

- Press release
- Technical Report
- Data Dictionary
- Entity Relationship Diagram

Data Model Explanation

CAD Trust will provide the Data Model Version 2.0 excel - a business-oriented document describing the expected fields in the data layer.

Key data attributes:

Organisation data
The organisation ID is the unique identifier generated by CAD Trust App. Registries will update their organisation using the CADT APIs.

Project
Organisation will post project data they host, such as project names, types, owner, status, etc.
Each Project gets assigned a unique project ID

Units (Carbon Credit Data)
It is connected to specific projects through the project ID. Organisation will input information denoting the issuances, amount, status, etc.

Governance (Picklist values)
CAD Trust governance node will maintain the values in certain data fields (picklists**);** data providers are expected to match their data accordingly to the various picklist values maintained within CAD Trust

Article 6.2 AEF Data Tables
International compliance requirements under Paris Agreement Article 6.2 framework. Five essential AEF tables: Submission (T1), Authorizations (T2), Actions (T3), Holdings (T4), Authorized Entities (T5)

Data Model Version 2.0

Baseline Tables

STAKEHOLDERS

- CAD Trust Project ID* (FK)
- CAD Trust Stakeholder ID* (PK)
- Stakeholder Name*
- Stakeholder Type*
- Stakeholder Link
- Created At*
- Updated At*

ESTIMATIONS

- CAD Trust Project ID* (FK)
- CAD Trust Estimations ID* (PK)
- Estimation Start Date*
- Estimation End Date*
- Unit Count*
- Estimation Reference Number
- Created At*
- Updated At*

RATINGS

- CAD Trust Project ID* (FK)
- CAD Trust Rating ID* (PK)
- Rating Name*
- Rating Type*
- Rating Value*
- Rating Link
- Created At*
- Updated At*

CO-BENEFITS

- CAD Trust Project ID* (FK)
- CAD Trust Co-Benefit ID* (PK)
- Co-Benefit ID*
- Created At*
- Updated At*

PROGRAMS

- CAD Trust Project ID* (FK)
- CADT Trust Program ID* (PK)
- Program Name*
- Program Registry*
- Program Registry ID*
- Program Description
- Created At*
- Updated At*

PROJECTS

- CAD Trust Project ID* (PK)
- CAD Trust Program ID (FK)
- CAD Trust Reference Project ID
- Project ID*
- Organization ID
- Project Registry Name*
- Project Crediting Program
- Project Name*
- Project Description
- Project Link*
- Project Sector*
- Project Type*
- Project Subtype
- Project Status*
- Project Status Date*
- Unit Metric*
- Created At*
- Updated At*

Each ID is global unique, meaning no organisations will generate the same ID for any table.

LOCATIONS

- CAD Trust Project ID* (FK)
- CAD Trust Location ID* (PK)
- Country*
- In Country Region
- Geographic Identifier
- Map Type
- Map File Link
- Created At*
- Updated At*

VALIDATIONS

- CAD Trust Project ID* (FK)
- CAD Trust Validation ID* (PK)
- Validation ID*
- Validation Type*
- Validation Body*
- Validation Date
- Crediting Period Start Date
- Crediting Period End Date
- Created At*
- Updated At*

METHODOLOGIES

- CAD Trust Methodology ID* (PK)
- Methodology Code*
- Methodology Name*
- Methodology Version
- Methodology Date
- Methodology Link
- Created At*
- Updated At*

PROJECT METHODOLOGIES

- CAD Trust Project ID* (FK)
- CAD Trust Methodology ID* (FK)
- Project Methodology Date
- Project Methodology Description
- Created At*
- Updated At*

LABELS

- CAD Trust Label ID* (PK)
- Label Name*
- Label Type*
- Label Link
- Label Date
- Created At*
- Updated At*

UNIT LABELS

- CAD Trust Label ID* (Composite PK, FK)
- CAD Trust Unit ID* (Composite PK, FK)
- Label Unit Date* (PK)
- Label Unit Description

VERIFICATIONS

- CAD Trust Project ID* (FK)
- CAD Trust Verification ID* (PK)
- CAD Trust Validation ID (FK)
- Verification Start Date
- Verification End Date
- Verification Body*
- Created At*
- Updated At*

ISSUANCES

- CAD Trust Verification ID* (FK)
- CAD Trust Methodology ID* (FK)
- CAD Trust Location ID* (FK)
- CAD Trust Issuance ID* (PK)
- Issuance ID*
- Issuance Date
- Created At*
- Updated At*

UNITS

- CAD Trust Issuance ID* (FK)
- CAD Trust Unit ID* (PK)
- Organization ID
- Unit Serial ID*
- Unit Start Block*
- Unit End Block*
- Unit Count*
- Unit Type*
- Vintage Year*
- Unit Status*
- Unit Status Reason*
- Unit Status Date*
- Unit Retirement Detail
- Unit Retirement Beneficiary
- Unit Link
- Unit Metric*
- Unit Current Owner
- Unit ITMO Reference ID
- Created At*
- Updated At*

Fields with an * are required form fields

PK denotes primary key for a specific table

FK denotes foreign key which links tables together

Data Model Version 2.0

Article 6 AEF Tables

AEF T1 SUBMISSIONS

- CAD Trust AEF T1 Submission ID* (PK)
- AEF T1 Submission Party
- AEF T1 Submission Version
- AEF T1 Submission Report Year
- AEF T1 Submission Submission Date
- AEF T1 Submission Review Status
- AEF T1 Submission Result Check
- AEF T1 Submission NDC First Year
- AEF T1 Submission NDC Last Year
- AEF T1 Submission Reference Review Report
- Created At*
- Updated At*

PROJECTS

ISSUANCES

UNITS

AEF Tables are connected to the Baseline Tables through Unit table

Each ID is globally unique. No organisations will generate the same ID for any table.

AEF T2 AUTHORIZATIONS

- CAD Trust AEF T2 Authorizations ID* (PK)
- CAD Trust AEF T1 Submission ID* (FK)
- CAD Trust Unit ID* (FK)
- CAD Trust Project ID* (FK)
- CAD Trust AEF T5 Authorized Entities ID* (FK)
- AEF T2 Authorizations ID
- AEF T2 Authorizations Date
- AEF T2 Authorizations Cooperative Approach ID
- AEF T2 Authorizations Version
- AEF T2 Authorizations Quantity
- AEF T2 Authorizations Metric
- AEF T2 Authorizations GWP Value
- AEF T2 Authorizations Applicable Non GHG Metric
- AEF T2 Authorizations Sector
- AEF T2 Authorizations Activity Type
- AEF T2 Authorizations Purposes For Authorization
- AEF T2 Authorizations Authorized Party ID
- AEF T2 Authorizations Authorized Entity ID
- AEF T2 Authorizations OIMP Authorized Party
- AEF T2 Authorizations Authorized Timeframe
- AEF T2 Authorizations Authorization Terms
- AEF T2 Authorizations Authorization Documentation
- AEF T2 Authorizations First Transfer Definition OIMP
- AEF T2 Authorizations Additional Information
- Created At*
- Updated At*

AEF T3 ACTIONS

- CAD Trust AEF T3 Actions ID* (PK)
- CAD Trust AEF T1 Submission ID* (FK)
- CAD Trust Unit ID* (FK)
- CAD Trust Project ID* (FK)
- CAD Trust AEF T2 Authorizations ID* (FK)
- AEF T3 Actions Date
- AEF T3 Actions Type
- AEF T3 Actions Subtype
- AEF T3 Actions Cooperative Approach ID
- AEF T3 Actions Authorization ID
- AEF T3 Actions First Transferring Party ID
- AEF T3 Actions Party ITMO Registry ID
- AEF T3 Actions ITMO First ID
- AEF T3 Actions ITMO Last ID
- AEF T3 Actions Unit Registry ID
- AEF T3 Actions Unit First ID
- AEF T3 Actions Unit Last ID
- AEF T3 Actions Metric
- AEF T3 Actions GWP Value
- AEF T3 Actions Applicable Non GHG Metric
- AEF T3 Actions Quantity T CO2
- AEF T3 Actions Quantity Non GHG
- AEF T3 Actions Mitigation Type
- AEF T3 Actions Vintage Year
- AEF T3 Actions Transferring Party ID
- AEF T3 Actions Acquiring Party ID
- AEF T3 Actions Purpose Of Use OIMP
- AEF T3 Actions Using Participating Party ID
- AEF T3 Actions Using Authorized Entity ID
- AEF T3 Actions ITMO Used Year
- AEF T3 Actions Consistency Check Result
- AEF T3 Actions Additional Information
- Created At*
- Updated At*

AEF T4 HOLDINGS

- CAD Trust AEF T4 Holdings ID* (PK)
- CAD Trust AEF T1 Submission ID* (FK)
- CAD Trust Unit ID* (FK)
- CAD Trust Project ID* (FK)
- CAD Trust AEF T2 Authorizations ID* (FK)
- AEF T4 Holdings Cooperative Approach ID
- AEF T4 Holdings Authorization ID
- AEF T4 Holdings First Transferring Party ID
- AEF T4 Holdings Party ITMO Registry ID
- AEF T4 Holdings ITMO First ID
- AEF T4 Holdings ITMO Last ID
- AEF T4 Holdings Unit Registry ID
- AEF T4 Holdings Unit First ID
- AEF T4 Holdings Unit Last ID
- AEF T4 Holdings Metric
- AEF T4 Holdings GWP Value
- AEF T4 Holdings Applicable Non GHG Metric
- AEF T4 Holdings Quantity T CO2
- AEF T4 Holdings Quantity Non GHG
- AEF T4 Holdings Mitigation Type
- AEF T4 Holdings Vintage Year
- Created At*
- Updated At*

AEF T5 ENTITIES

- CAD Trust AEF T5 Authorized Entities ID* (PK)
- CAD Trust AEF T1 Submission ID* (FK)
- CAD Trust AEF T2 Authorizations ID* (FK)
- AEF T5 Authorized Entities Authorization Date
- AEF T5 Authorized Entities Name
- AEF T5 Authorized Entities Incorporation Country
- AEF T5 Authorized Entities ID
- AEF T5 Authorized Entities Cooperative Approach ID
- AEF T5 Authorized Entities Conditions
- AEF T5 Authorized Entities Change Conditions
- AEF T5 Authorized Entities Additional Information
- CAD Trust Unit ID
- CAD Trust Project ID
- Created At*
- Updated At*

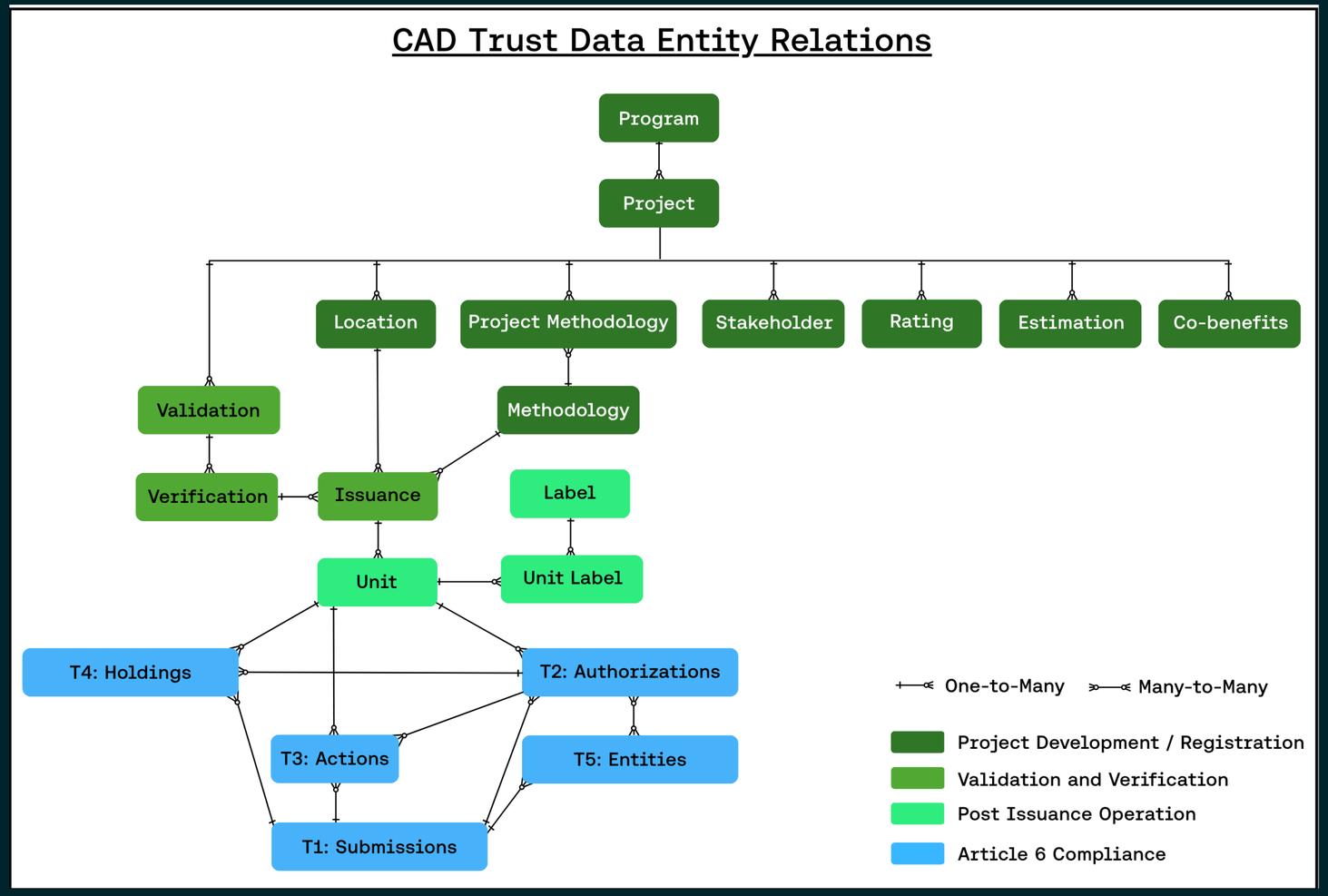
Fields with an * are required form fields

PK denotes primary key for a specific table

FK denotes foreign key which links tables together

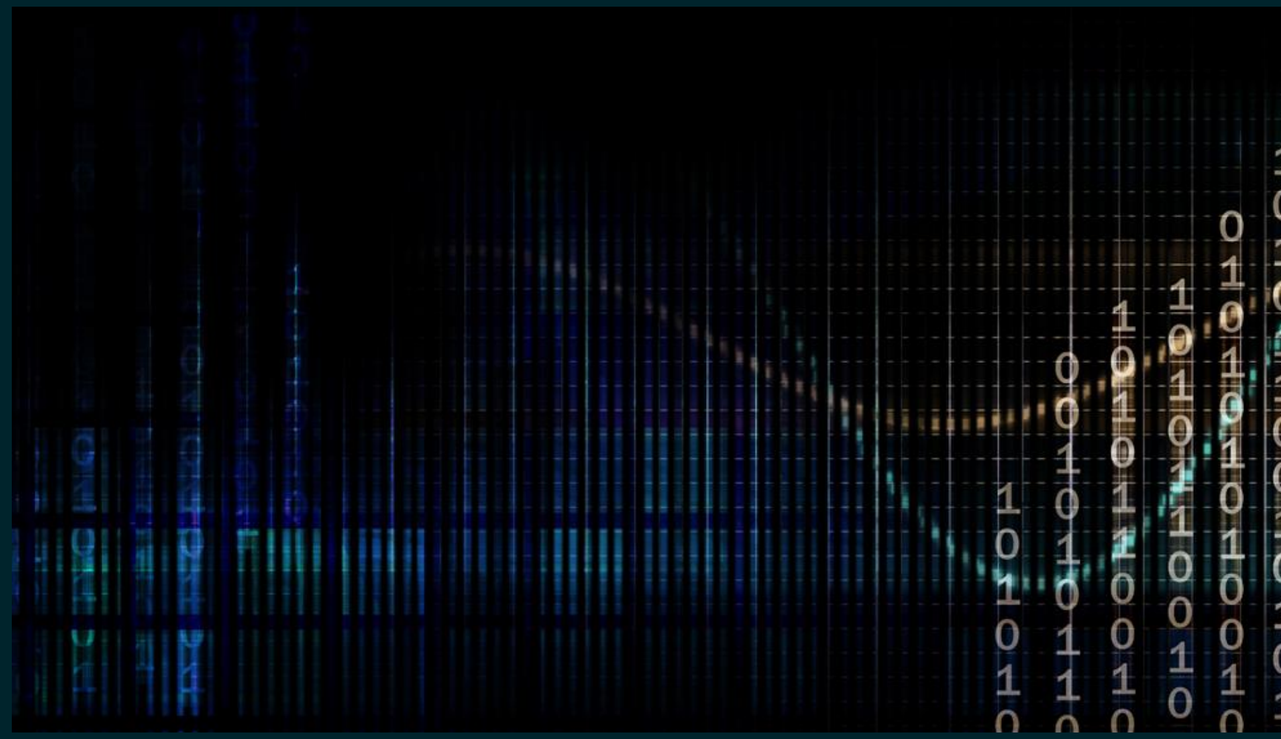
CAD Trust Data Model Version 2.0

Relational Structure



- Project as the main entry of the carbon credit lifecycle.
- Project progresses through Methodology, Validation, followed by Verification before Issuance and Unit.
- Unit as the connector for Labels and Article 6 Authorization, Action, Holding details.
- All five AEF tables can be linked back to the project level.

Installation



Deployment Methods

Server Based

On-Prem Hosted

Runs in a secure environment inside an organisation's network.

This is the lowest-cost secure deployment model.

Private / Hybrid Cloud Hosted

Minimizes cloud hosting costs while still providing a robust deployment of CAD Trust.

It is anticipated to be the most common model for service providers that consume data from the CAD Trust.

Public Cloud

This is anticipated to be the most common model for Participants and the Governor node.

All components other than the CAD Trust API and Chia are provided by the cloud service provider.

User Type:
Registry Layer + Service Layer

Local Install

The most common model for observers will be to simply install the CAD Trust App on their local computers.

Observers do not require cryptographic keys and cannot change data in the CAD Trust, so the reduced security of this model is acceptable.

User Type:
Service Layer + Public

System Requirements

Server Based

Deploying the CAD Trust requires installing both the Chia blockchain software and the CAD Trust API server software.

For **hosted** deployments, both pieces of software are typically installed on the same machine but can be installed on different machines and pointed to one another. The machine should have at the least the following minimum specs:

- **Dual core 1.5Ghz CPU (64 bit) x86**
- **8 GB ram**
- **500 GB SSD disk space**
- **Python version 3.8+**

Ubuntu is the preferred OS to use as the Chia and CAD Trust software is packaged and tested primarily with Ubuntu. Other Linux distributions should run Chia and CAD Trust fine, but may not be extensively tested or have packages routinely built. Windows or Mac systems can be used to host a remote CAD Trust instance.

Local Install

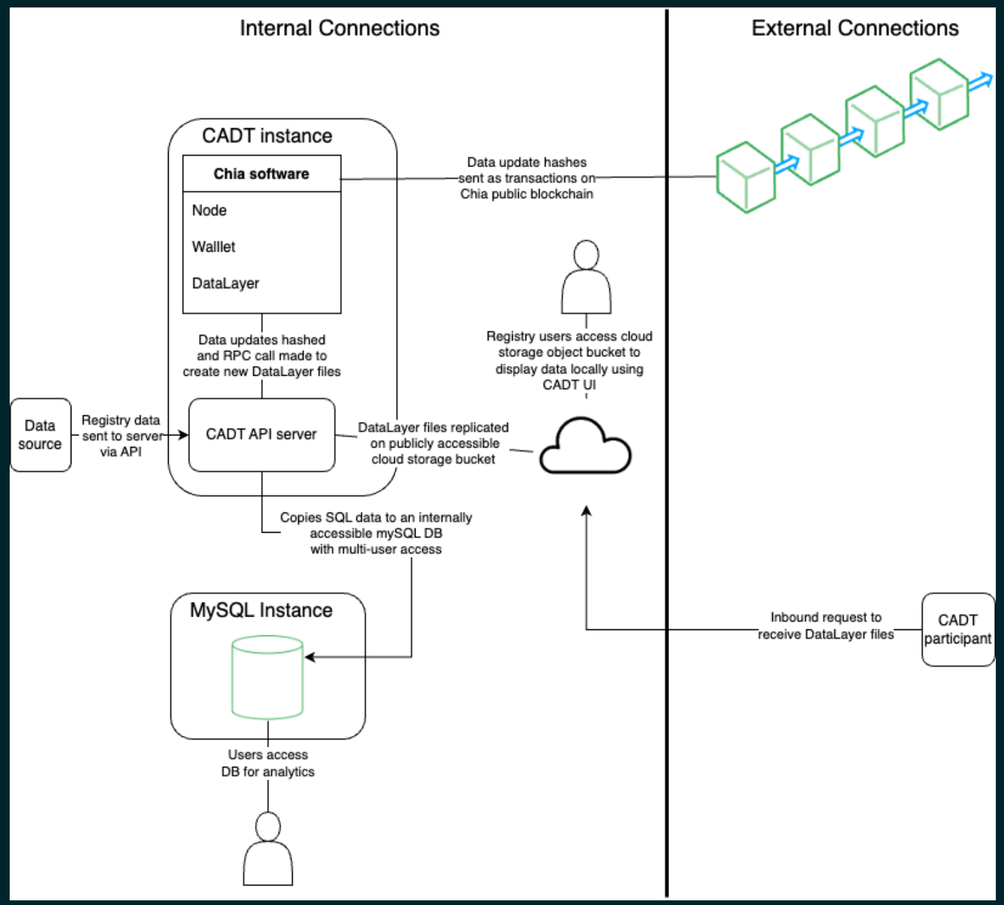
Deploying the CAD Trust requires installing both the Chia blockchain software and the CAD Trust API server software.

For **local** deployments, both pieces of software are always installed on the same machine. The machine should have at the least the following minimum specs:

- **Quad core 1.5Ghz CPU (64 bit)**
- **4 GB ram**
- **500 GB disk space**
- **Python version 3.8+**

Architectural Components

The primary components of a CAD Trust deployment will include:



Component	Description
CADT API Server	This is the CAD Trust API, which provides all the business logic for CAD Trust.
Database Server	The database server is optional. If available, the CAD Trust API will maintain a complete copy of all of CAD Trust in the database for easy access by standard reporting and analytics tools.
Chia Wallet	The Chia Wallet stores the cryptographic keys and the assets controlled by those keys, such as Chia DataLayer data tables and chia cryptocurrency (XCH) for use in paying transaction fees.
Chia Node	The Chia Node is a full validator node on the Chia blockchain and always keeps an up-to-date and validated copy of the blockchain. The Chia node is optionally capable of farming chia cryptocurrency (XCH) to pay for transaction fees.
Chia Data Layer	Chia Data Layer sends the data from peer to peer through a http protocol.

Building ETL Architecture

- Goals: Continuous Integration in updating registry own database and pushing to CAD Trust Service via API and eventually Chia Data Layer
- It is up to Registry to determine the frequency of data extraction and loading
- Ensure that sensitive data is handled securely throughout the ETL process. Implement encryption, access controls, and data masking as needed
- Thoroughly test the ETL pipelines in different scenarios to ensure data accuracy and consistency
- Regularly review and optimise your ETL pipelines for performance, reliability, and maintainability

User Type:
Registry Layer

Key Management: Purpose, Usage, and Ownership

There are two keys to manage when deploying and using the CADT and Chia software.

Chia Private Key

Purpose: The Chia private key provides a cryptographic lock to your Chia wallet. This key is required to manage an organization's data on the Chia blockchain.

Usage: These keys are used by the Chia software to write data updates to DataLayer and to submit the updates to the blockchain as a transaction.

Ownership: This key is generated upon installation of the Chia wallet. The key should only exist on the machine that is used to run Chia and CADT.

The backup 24-word mnemonic to recover the key should be stored in some key management software such as AWS KeyCloak or GCP Cloud Key Management.

CADT API Key

Purpose: The CADT API key acts as a password and protects the CADT software from receiving unauthorized requests. Any requests made without this key will fail.

Usage: The CADT API key will be used by the registry to make any requests to CADT, including generating data updates and fetching existing data. The CADT API key **does NOT** give direct access to the Chia wallet or the Chia private key. Note: an observer node (which runs in read-only mode) may not have an API key as the data is meant to be public.

Ownership: The registry owns and manages this API key. Sharing this API key should follow the registry's password sharing policies, as the key is essentially a shared password for CADT users.

TestnetA Server Setup: Importance and Configuration Steps

As with any data integration project, it is important to set up a test environment to test integration patterns before deploying them to a live production environment.

This allows for test data to be used without worry and will provide confidence when moving to production.

Setting Up a Test Environment

Start by provisioning a machine using one of the methods mentioned in previous slides.

If using a cloud method, simply spin up an additional instance using the same parameters. If using a local deployment method, find another local computer to use for testing.

This instance will need to have both Chia and CADT installed to serve as the test environment.

Configuring CADT and Chia

Once the software has been installed on the instance, one may configure CADT and Chia to send data to the test blockchain, rather than the real “mainnet” blockchain. This allows users to send data to a chain that only serves test data, which means any mistakes will not be visible to the public.

To do this, you will need to edit the configuration file for Chia to point to the testnet blockchain. More details can be found at: https://docs.chia.net/guides/crash-course/introduction?_highlight=testnet#getting-on-testnet

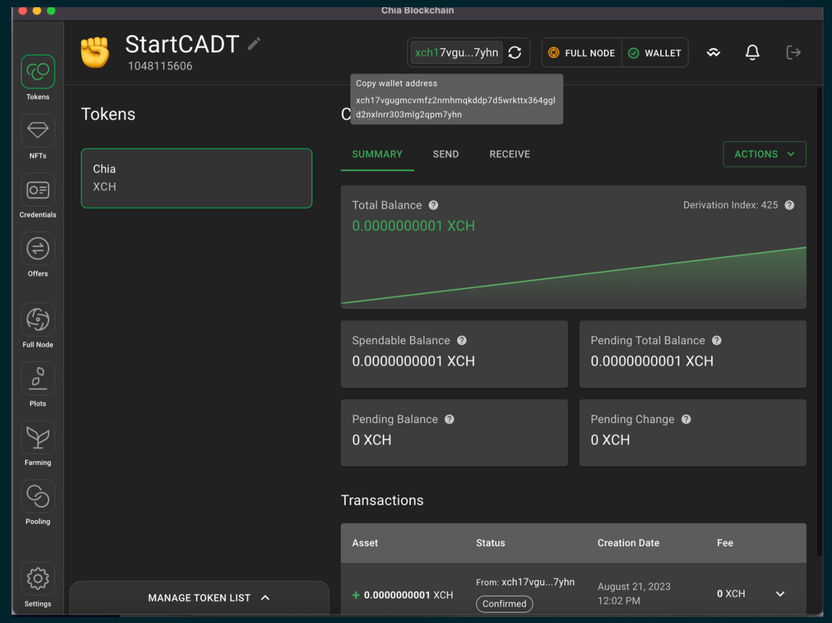
In addition, you will need to configure CADT to use testnet. Follow the instructions listed in the configuration section of the readme on Github. https://github.com/Chia-Network/cadt#configuration

Steps to install CAD Trust

1. Download Software

Setting Up Chia Node / Wallet

Official GUI Installation Download Page
- Reference : Installation Documentation



Setting Up CAD Trust API Server Software

Main CADT Public GitHub repository

Server Based

Server / Remote Installation Guide

Local Install

Local Installation Guide

Setting Up CAD Trust UI App (Optional)

The CAD Trust UI is useful for visualizing the data that is entered into the CAD Trust, but presumably the data will be visible on the public observer node.

The CAD Trust UI is a JavaScript application that connects to the CAD Trust API. It is offered as a desktop application packaged with Electron, or as a web application. If running as a web application, most organizations will host the UI on the same server as the CAD Trust API or in a public S3 bucket. Alternatively, each user can run the desktop application on their workstation and connect to the single CAD Trust API. In either scenario, the CAD Trust API must be connectable from the user's workstation, which usually means making it publicly available on port 31310.

CADT UI Installation

Steps to install CAD Trust

2. Additional Setup / Config

Setting Up Mirror Database (Optional)

One additional server can be added to this setup in order to mirror the CAD Trust DB structure into a multi-user access database such as mySQL.

This is useful for analytics on the data that is reported to the CAD Trust ecosystem - this database will have both the data the registry owns, along with the data other registries have provided.

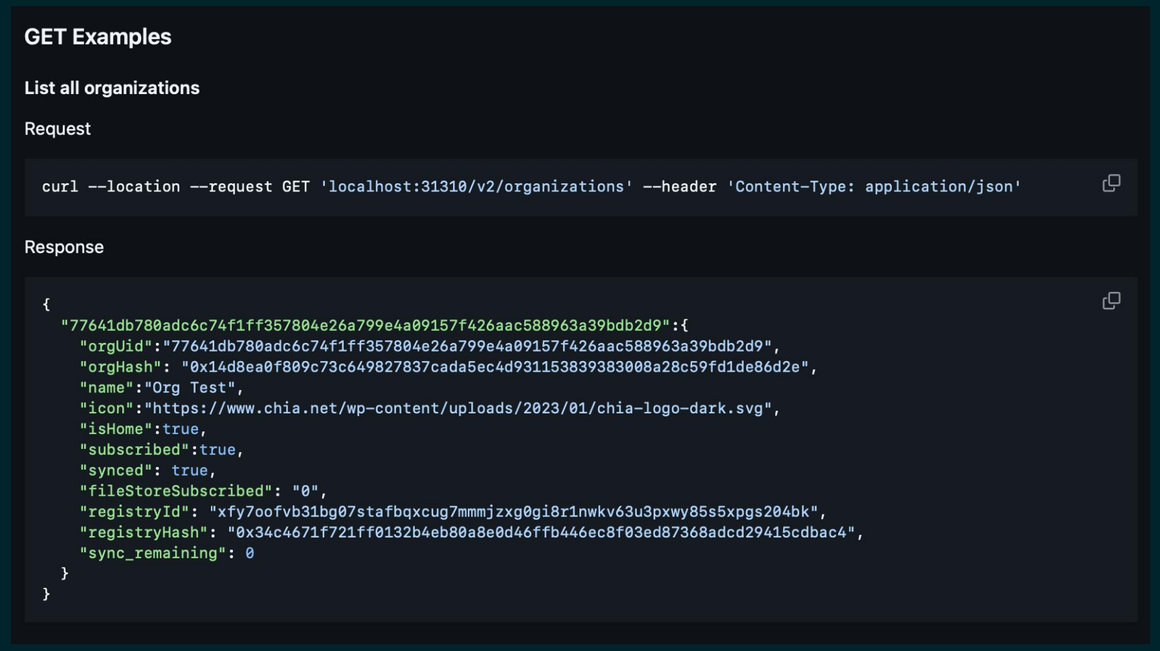
We recommend the machine for the MySQL instance to have at least:

- Single core CPU
- 2 GB ram
- 50gb diskspace

Configuration Details

CAD Trust Version 2.0 API Documentation

CAD Trust API v2.0 Documentation



Reference of links / documents

Setting Up Chia Node / Wallet

Official GUI Installation Download Page
- Reference : Installation Documentation

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Setting Up CAD Trust UI App (Optional)

CAD Trust UI Installation

Setting Up Mirror Database (Optional)

Configuration Details

Postman API Collection

CAD Trust API Collection

Appendix

Threat Analysis

The CAD Trust is unique in that it is a fully-decentralized application. There is no central server that can be attacked by a malicious actor to cause system-wide failures. Instead, it is a true peer-to-peer network with each participant running a node that acts as a peer to all of the other participants' nodes.

Identified potential attacks on the CAD Trust fall into a few broad categories:

- Changing data - a threat actor attempts to either change data without permission or causes the data to appear to be changed when other users view it.
- Denial of service - a threat actor attempts to prevent legitimate users from accessing the system.
- Malicious code injection - a threat actor attempts to cause the system to distribute malicious payloads.
- Stealing cryptocurrency - there is a small amount of chia cryptocurrency (XCH) required to publish data using the Chia blockchain that a threat actor could attempt to steal.
- Blockchain attacks - a threat actor attempts to change data previously confirmed on the blockchain or stops the blockchain entirely.

Threat Analysis

The CAD Trust is designed to allow nodes to be deployed in a wide range of environments:

- Public cloud hosted
- Hybrid / private cloud hosted
- On-prem hosted
- Local install

The local install deployment model is only intended for observer nodes, which do not have cryptographic keys to change data. The effect of an attack on observer nodes installed locally would be limited to the experience of the local user.

All of the hosted deployment models mitigate most attacks using industry-standard technologies including:

- Isolated and secured subnet deployment
- Reverse proxy with SSL/TLS
- Web application firewall (WAF)
- Identity and access management system (IAM)
- Local firewall on the application server

Threat Analysis

- Exogenous factors such as compromised client computers or networks, leaked credentials, phishing and zero-day vulnerabilities are outside the scope of the CAD Trust and must be mitigated through good security hygiene practices among users and node administrators.
- Blockchain attack vectors and their mitigating factors are thoroughly described in documentation published by Chia Network, Inc.
- As a truly decentralized system, DDoS attacks would have very limited effectiveness and can only disable access to a single node. Users of all other nodes would be unaffected.
- A number of additional potential attack vectors are considered and mitigations addressed, including malicious source code commits, malicious upstream library releases, poisoned installers and leaked or lost cryptographic keys, among others.
- In summary, the application can be fully secured through the use of correct deployment and maintenance practices by node administrators, good security practices by users and good source code control and upstream monitoring by code maintainers.

Chia Technical FAQ

Q: Why was it important to use a public blockchain instead of a private blockchain?

A: Public blockchain is within the spirit of the Paris Agreement's decentralized bottom-up approach. It does not rely on the trust of any central authority, including the company managing the chain. It is a truly decentralized tool that democratizes access and cannot be manipulated by any authority or owner.

Q: More validators (nodes) on a blockchain network make it more decentralized and secure. Are there adequate incentives to ensure Chia's 200,000+ validators continue? Have there been any reductions in the hype leading to a decrease in validators?

A: Chia's Proof of Space & Time consensus mechanism rewards the storage ecosystem effectively and incentivizes validators. If validators start to leave the Chia ecosystem, that creates a higher rate of return for new validators allocating storage to Chia and thus incentivizes more validators to add space to the network.

Q: Carbon credit project data is often very high volume. Is this costly? Are all participants expected to store all the data in order to participate with the CAD Trust?

A: Chia's blockchain was designed to be simple, extremely resource-efficient and functional. Chia's unique Data Layer is a decentralized database that is calculable on-chain and secured by Chia's entire network. The CAD Trust Data Model is limited to critical fields to ensure fast and ultra-low-cost datasync on blockchain. Although uniquely "calculable on-chain" the blockchain only stores proofs (hashes) of the transactional data, so each node is not required to store every other node's data, but rather proofs that the other nodes' data are all provable, calculable, and correct.

Technical FAQ

Q: What are transaction fee projections? How are the projections calculated?

A: Settling transactions on the blockchain can incur a fee when block-space is limited. This fee to secure block-space accrues to validators (nodes), not to Chia. Today blocks are below capacity, so no fees are charged and there is enough excess capacity that the Chia Network does not expect fees of even 1 US cent to be required for a long time to come. Although the Chia Network cannot control when small fees could be required, Chia has been developed to easily add layer 2 functionality that would exponentially increase Chia's data capacity while still executing all smart contracts.

Q: How is Chia addressing the complications other blockchains are having in terms of regulatory problems?

A: In order to deliver on the promise of the next-generation blockchain technology, we believe that we must be regulatory compliant globally. We let our securities be securities and our commodities be commodities, with the view that both the SEC and the CFTC have a place in regulating our activities. We intend to become a public reporting company.

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