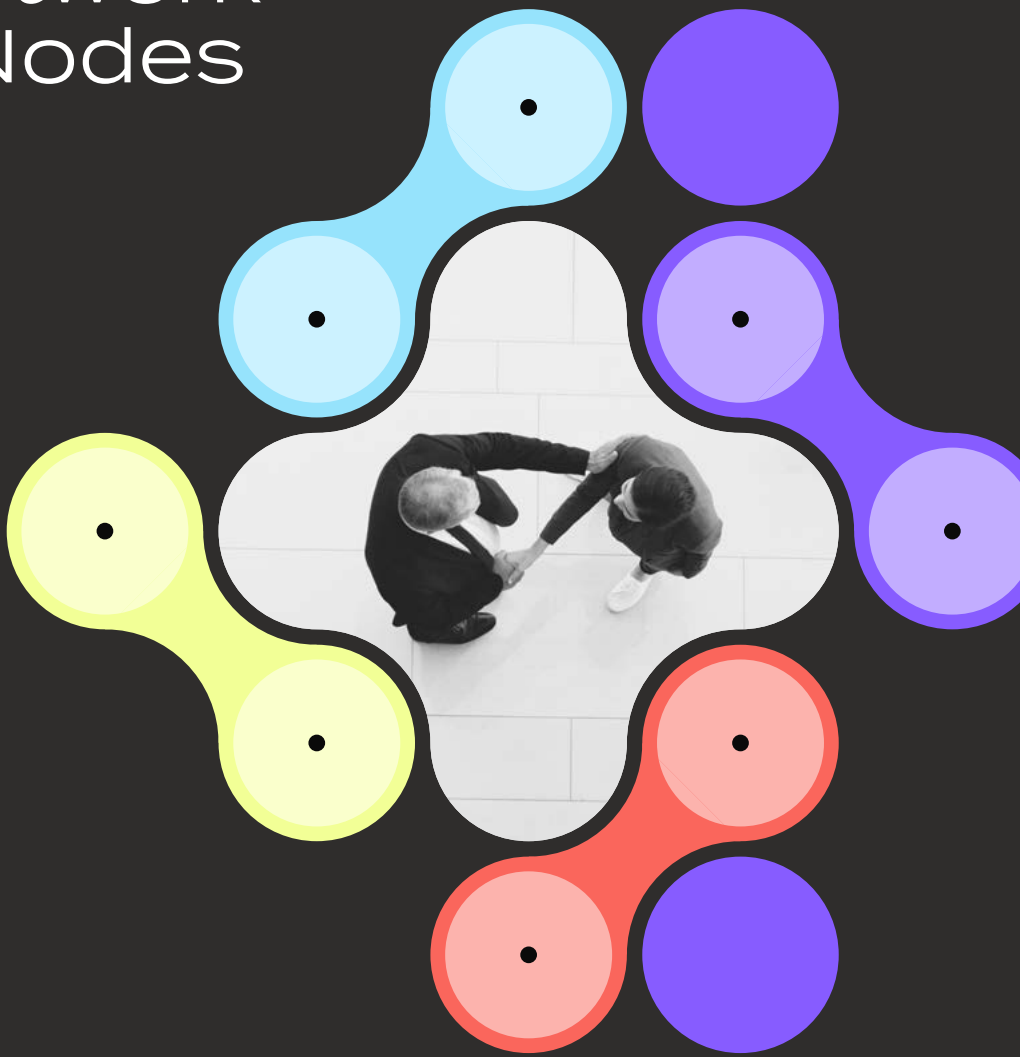
Canton Network Validator Nodes

Why run or access a node on the Canton Network?



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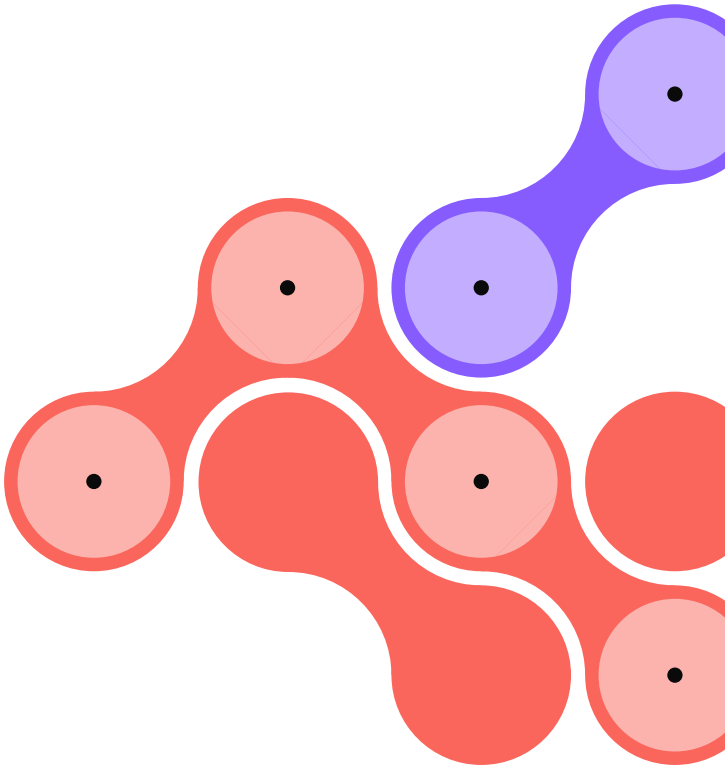

Why run or access a node on the Canton Network?

Accessing a node on the Canton Network provides your secure, private gateway to connect and transact with digital assets, services, and applications across the Canton ecosystem.

Your node is your private view, or slice, of the global virtual ledger created by the network of Canton nodes transacting via different smart contract applications and Canton synchronization infrastructure. Unlike other public blockchains, nodes in Canton are only active in transactions to which they are a party. Data is segmented and replicated only to those nodes permissioned to view the data. This segmentation is preserved even when composing transactions across privacy sets.

This means that running or accessing a node guarantees that you will stay in real-time synchronization with other participants, while maintaining complete control over privacy, and direct asset ownership.

Validator nodes

Connectivity with the Canton Network's decentralized synchronization infrastructure, the Global Synchronizer, and its public applications and utilities, is enabled with a validator node. Once connected you can unlock atomic cross-application transactions and the ability to interact directly or indirectly with the Global Synchronizer's native utility token, Canton Coin. Canton Coin is used to pay for traffic and application fees on the Global Synchronizer.

Canton Coin benefits from a healthy ecosystem of independent apps, users, and activity across the network and the utility they provide. Tokenomics favors infrastructure providers (nodes connected to, or running the Global Synchronizer) over application providers at the beginning, and favors applications over time. Read the Canton Coin Tokenomics whitepaper for details.

The primary ways to be eligible to mint Canton Coin are to run a validator or a super validator node—or to operate an application connected to the Global Synchronizer. Once connected, participants can explore different ways in which Canton Coin supports network utility and application usage. The use of the Global Synchronizer (and thus Canton Coin) is optional for application operators and users.

In summary, on the Canton Network your node is your computer, browser and primary entry point into the Canton Network. You can download and run multiple, interoperable smart contract applications on your node, whether permissioned, or available publicly.

1. Super validator nodes come packaged with the Byzantine Fault Tolerant Global Synchronizer software, distributed and run by the organizations that run the decentralized infrastructure. Governance of the Global Synchronizer and super validators is facilitated by The Global Synchronizer Foundation, managed by Linux

How to get started with a validator node on Canton

Whether self-hosted or through one of the network's node or custody service providers, running a validator allows you to participate in the Global Synchronizer ecosystem, and institutional-grade tokenization applications and assets on the Canton Network. The software is open-source, and optional enterprise support is available.

The Global Synchronizer mainnet is now live and operating in its invite-only phase. This means new validators and apps joining the network need to first be approved following a request made by an existing super validator, validator, application provider, or GSF member. This growing list of participating organizations is listed here, or you can request access via the Global Synchronizer Foundation.

Deploying a validator node

Deployment or access to a node is highly flexible, depending on your business requirements. You can:

1. **Self-host in your data center or chosen cloud environment**
2. **Use a pre-integrated Node-as-a-Service or crypto custody service provider**
3. **Access via a specific application's operator if they offer to distribute and maintain nodes on behalf of clients**

Self-hosted

Run a validator on-premise or in your chosen cloud with minimal hardware requirements.

Once approved, you will be given VPN access to full documentation, and the artifacts repo to download the build packages from your sponsoring super validator. You must then get your validator up and running on DevNet, before requesting access to TestNet and MainNet.

The steps are as follows, covered in greater detail in the documentation:

1. Prepare a container environment (i.e., a Kubernetes cluster) in any cloud or your own data center.
2. Set up a fixed egress IP address for the cluster that will run the validator node, and ask your sponsor to submit that address to the super validators for whitelisting on DevNet.
3. Prepare the OIDC authentication setup (follow the documentation to find the best route based on your enterprise's authentication system e.g., Auth0).
4. Download the packages and follow the installation instructions in the documentation and receive your onboarding secret from your sponsor super validator.
5. Use this to join DevNet, and follow the documentation to get your validator live.
6. Once on DevNet, you can then ask to connect your validator to TestNet and/or MainNet too. Your sponsor will submit a request to the Featured Applications and Validators committee at the Global Synchronizer Foundation.
7. Once completed, you will have a live validator connected to the Global Synchronizer! As the operator, you will be eligible to mint validator liveness rewards in the form of Canton Coin. All you have to do is keep your node running.

Obsidian Systems

Run a node exactly how you need to, with help from experts

Supported self-hosting provides enterprises with options to host validator nodes either on-premises, or in a cloud environment of their choice. This approach allows organizations to maintain complete control over node deployments without burdening in-house staff. A variety of technical support and outsourced DevOps options are available depending on the specific requirements.

Support tiers

Basic support

Ideal for teams with experienced DevOps capabilities, this package includes:

- Basic training on Canton DevOps essentials.
- Support for initial setup and configuration.
- Email-based support for troubleshooting during onboarding.

Enhanced support

Designed for teams seeking more hands-on guidance, this package offers:

- Step-by-step assistance during deployment and configuration.
- Access to advanced troubleshooting support for network connectivity, authentication, and upgrades.
- Regular software updates and security patches delivered directly to your team.

Full-service

Perfect for enterprises looking to offload all node management responsibilities, this package includes:

- Node deployment and operations, managed by our staff, in a cloud or on-premises environment owned by you.
- Proactive monitoring and maintenance of node uptime and performance.
- Dedicated account manager for real-time support and updates.
- Guaranteed response times and service-level agreements (SLAs).

Onboarding process

1. **Discovery and Planning:** Work with our team to select the right support tier based on your requirements and in-house expertise; each tier can be customized as necessary.
2. **Deployment Options:** For Basic and Enhanced support tiers, you'll receive guidance for deploying your node in your preferred environment (on-premises or cloud). With the Full-Service option, we handle deployment entirely, from environment setup to ongoing management.
3. **Testing and Validation:** Start on DevNet to test and validate your node before progressing to TestNet and MainNet.
4. **Ongoing Support:** For our Basic support tier, you'll receive documentation and limited email support, while Enhanced and Full-Service tiers provide ongoing technical support, monitoring, and updates tailored to your chosen tier.

Benefits

Flexibility:
Choose the level of support that matches your team's capabilities and operational strategy.

Scalability:
Easily transition between tiers as your business or technical needs evolve.

Peace of Mind:
For Full-Service clients, enjoy the confidence of a "set it and forget it" approach to node management.

For additional information, or to schedule a consultation, please contact our support team at info@obsidian.systems

IntellectEU Catalyst

Catalyst Blockchain Manager provides a robust infrastructure management solution designed to simplify and accelerate blockchain application implementation with enterprise-grade scalability, security, and seamless integration.

Catalyst offers **Node-as-a-Service for the Canton Network**, a fully self-managed service that eliminates the complexities of manual node management while unlocking the full potential of the Canton ecosystem. With Catalyst, Canton adoption becomes seamless, efficient, and future-proof.

Catalyst Blockchain Manager simplifies Canton node deployment and management with intuitive interfaces and APIs, streamlining processes like participant onboarding and smart contract deployment. It ensures operational efficiency, enabling systems to remain robust and resilient by automating backups, restoration, and disaster recovery while maintaining enterprise-grade security. Catalyst also supports real-time performance monitoring and scalable resource allocation, making it ideal for production-grade workloads. Its cloud-agnostic flexibility allows deployment across diverse infrastructures without cloud vendor lock-in and the ability to install on-premises, ensuring adaptability and cost efficiency for businesses.

How do I deploy a Canton validator node with Catalyst?

Catalyst Blockchain Manager can be installed with Infrastructure as Code (IaC) tools or HELM Charts. After installation, Catalyst features a powerful API console and a user-friendly interface that offers seamless access and operation for both technical and non-technical users.

To create a validator node, users navigate to the validator section, where they can see an overview of existing validator nodes and have the option to create a new one. When creating a new node, we define the network parameters and specify the required parameters, making the process intuitive and efficient. Catalyst handles the provisioning and setup of the Canton validator node and offers robust management tools to deploy applications, upgrade versions, manage participants, configure backups, recover, and integrate with monitoring systems. Once the node is operational, users can see an overview, navigate to the wallet interface, and perform all necessary operations through the Catalyst platform to participate in the Canton Network.

How is Catalyst different from self-hosting?

- **Expertise on demand:** Self-hosting demands in-house expertise for setup, management, and troubleshooting, often leading to delays and errors. Catalyst mitigates these challenges with built-in best practices and expert support.
- **Cost-effectiveness:** For a fixed monthly fee at a fraction of the cost of a full-time DevOps, Catalyst provides automated and streamlined processes that reduce the time and resources required to maintain and scale infrastructure.
- **Resilience and reliability:** Built-in disaster recovery and high-availability configurations ensure uptime and operational integrity, outperforming self-hosted setups.
- **Reduced complexity:** Catalyst's abstraction layer simplifies the deployment and maintenance process, allowing teams to focus on use cases instead of network intricacies.

For organizations looking to focus on innovation and scaling their applications rather than infrastructure management, Catalyst provides a turnkey solution that simplifies node deployment and management, automates operational tasks, and ensures enterprise-grade security and compliance.

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