

How can you scale enterprise-grade privacy solutions in the world's biggest blockchain ecosystem?

Nightfall

Shape the future with confidence

The better the question. The better the answer. The better the world works.

* EY does not control or manage Nightfall and retains no ownership over the Nightfall code. Nightfall is a public domain, open-source initiative to which any person or firm can contribute and EY continues to contribute new ideas and code as well based on our own thinking about how privacy technology needs to develop to support widespread adoption. You can find the original Nightfall information at https://github.com/eyblockchain/

Use case – Nightfall

Nightfall is a zero-knowledge (ZK) ZK-ZK Roll-Up which helps enable private transactions on the public Ethereum blockchain. Using Nightfall, enterprises can orchestrate private transactions efficiently on the Ethereum Mainnet without compromising the transparency, data immutability and security that Ethereum provides. Nightfall is public domain code that enables the private transfer of tokens on Ethereum-compatible blockchains. It provides AML/KYC gating mechanisms to support AML/KYC compliance processes without significantly compromising decentralization. It can potentially make the transfer transaction up to 3.5x cheaper than standard ERC-20 transfers on Ethereum, with the additional benefit of instant finality.

Your business needs

- Transferring blockchain tokens privately
- At low cost and instant finality
- With guaranteed delivery

And high assurance that counterparties are bona fide organizations.

Your specific challenges

Public blockchains lack privacy and are vulnerable to centralization and value capture. At the same time, businesses are required to comply with AML/KYC regulations—something that becomes challenging to demonstrate when blockchain transactions are fully private.

How the solution can help

Nightfall is an enterprise-focused privacy solution for public Ethereum. Businesses can perform blockchain transactions with their customers and suppliers in private. Users can now transfer tokens privately on a public blockchain through autonomous, decentralized identification and authorization of participants.

Potential business benefits

Businesses can transfer ERCx tokens privately between themselves, their customers, and suppliers, preventing competitors from tracking transactions, while gaining the benefits of public blockchains.

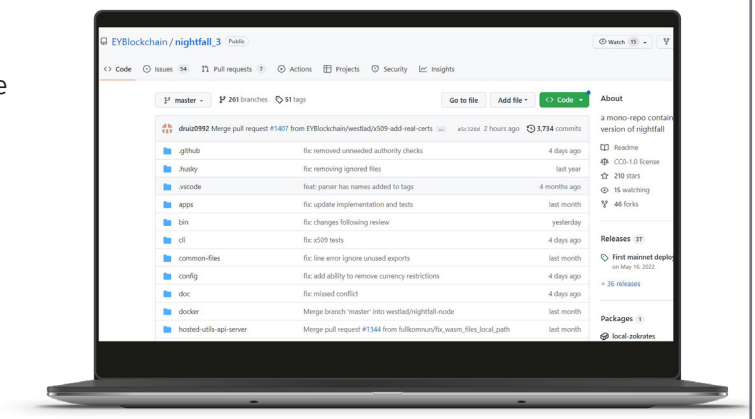
- Transfer Gas cost ~19KGas/ transaction.
- Peak throughput approximately 0.043 TPS.

Supports ERC20, ERC721, ERC1155 and ERC3525 tokens.

Solution features and functionality

Nightfall will remain in the public domain to facilitate the adoption of privacy-focused enterprise solutions among companies seeking to enter Ethereum and conduct meaningful business on the network.

- Private token transfers on a public blockchain
- Decentralized permissioning and KYC-gating
- Cost reduction for ERCx token transfers with instant finality
- No out-of-band communication — all data is for synchronisation and is available onchain
- Public domain code



Business benefits

This update to Nightfall helps enable the development of enterprise solutions for enabling supply chain and business operations. Enterprises can transfer value without intermediaries and maintain confidentiality of data.

Nightfall benefits include:

- A definitive view of transaction status
- Decentralized authorisation mechanisms
- Lower transaction costs compared to an equivalent, conventional blockchain transaction

Why EY?

Nightfall's code is public domain and free to use without restrictions. You can also contribute to it. For support, our team is better suited to assist you.

Continuing the conversation

For more information about Nightfall, contact one of the team below.



Swati Rawal
Associate Director
EYGS LLP
swati.rawal@uk.ey.com



Sooraj Janardanan
Associate Director
EYGS LLP
sooraj.janardanan1@uk.ey.com

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