

## **Drosera Orange Paper**

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Imagine a world where smart contracts could react to on-chain stimuli autonomously. Smart contracts that can use historical state/event data to take any action without human intervention. Development of such technology would enable a new paradigm for all Ethereum development. A paradigm where decentralized applications go far beyond their infrastructure limitations to create a greater ecosystem built on bleeding edge cryptographic technology. An evolution that allows protocols to create an oasis within Ethereum's ever-changing dark forest

Drosera is a smart contract automation protocol that enables this new paradigm for Ethereum via a novel smart contract standard called a Trap. The name Drosera comes from a genus of carnivorous plants that have worldwide distribution and react to external stimuli by trapping their prey. In biology, organisms survive by adapting to their surroundings, and we feel the same is true on Ethereum. According to Charles Darwin, "It is not the strongest of the species that survive, nor the most intelligent, but the one most responsive to change."

A Trap is a smart contract that is executed every block by Drosera nodes on a shadow fork of Ethereum. While Trap logic is being executed by a node, the Trap calculates whether it should signal for the nodes to perform on-chain actions or off-chain actions like alerts. A Trap provides a multitude of benefits such as, zero-knowledge verifiability, built-in decentralization, time-series analysis, gasless smart contract execution, infrastructure as smart contract code, infinite bandwidth for application specific execution, and asynchronous composability between off-chain and on-chain compute. All this means that a Trap can be used to power services for defi, security, governance, general purpose monitoring, and entirely new cryptographic primitives that weren't possible until now.

Drosera nodes, also known as Operators, act as the engines responsible for off-chain and on-chain Trap execution. If conditions are detected, nodes provide consensus data on-chain and trigger the Traps configured response action. Drosera was built so that anyone can run a node and participate in the network by opting into a Trap, this creates a model where infrastructure can be natively decentralized. Running a node allows you to support your own infrastructure while also allowing you to support others. When more protocols use Traps it will create a stronger root system between applications that depend on each other. You can think of this like the tree groves that have grown together for hundreds of years. They share minerals, nutrients, and water. Allowing them to grow strong and fight off forest fires and drought. This symbiotic relationship is what makes Drosera unique.

In order to democratize automation and create an automation economy, Drosera has built-in mechanisms for operator gas reimbursements as well as active and passive reward

streams. In a decentralized network, it's important to create incentive structures that allow for participants to collaborate in a trustless manner. The Drosera protocol accomplishes this with two features called Bloom Boost and Hydration Streams. Bloom Boost allows for anyone to place ETH on Trap. This acts as a gas tank that pays Drosera nodes back for performing on-chain actions. An additional ETH fee is paid out to the acting operator in order to take a profit from the opportunity. Hydration streams act as an incentive mechanism that passively streams payments to nodes running a Trap while also providing a bonus incentive to operators that quickly perform on-chain actions. These streams actively split rewards to all participants.

The Drosera token, \$DRO, was built as a foundational component of the Drosera protocol. The token serves to support the nodes, users of the protocol, and further ecosystem development. There are multiple core utilities for the token:

Trap Creation: a \$DRO fee is paid to the protocol as yield to the staking pool

Trap Updates: a \$DRO fee is paid to the protocol as yield to the staking pool

Hydration Streams: \$DRO is vested over a 90 day period to operators, treasury, and staking pool.

Staking: \$DRO is staked and users are minted \$\$DRO. Protocol revenue is shared proportionally with \$\$DRO holders as yield for staking.

Imagine a world where smart contracts could react to on-chain stimuli autonomously. Drosera makes this vision reality. By transforming weeks of infrastructure development into days of Solidity code, Traps democratize access to bleeding-edge cryptography, zero-knowledge proofs, and decentralized automation.

Just as carnivorous plants evolved specialized mechanisms to thrive in harsh environments, Drosera equips protocols with survival instincts for Ethereum's dark forest—smart contracts that run continuously, see everything, and adapt instantly to threats. Through symbiotic operator networks and shared root systems, applications no longer stand alone but grow together like ancient tree groves, sharing resources and fighting off attacks as one. In the ever-changing landscape of Ethereum, Drosera proves that survival doesn't require being the strongest or most complex—it requires being the most responsive to change. This is the new paradigm: an evolution that transforms the dark forest into an oasis where security, automation, and innovation flourish together, driven by the community, for the community.



"I care more about Drosera than the origin of all the species in the world" - Charles Darwin