

2.3.3.1.2.1 Authority Node

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Traditionally, the participation in [DIDO node networks](#) to perform tasks is permissionless, requiring no outside authority from anyone or anything. Having permissionless access to a node network is one of the original guiding principles that is integral to the decentralized nature of DIDOs¹⁾.

Note: Unfortunately, there are drawbacks to this approach. Solutions involving a level of centralization for granting permission can provide benefits like increased speed because there is no need for the costly, time consuming consensus algorithms such as [delegated_proof_of_stake_dpos](#), [delegated_byzantine](#), [proof_of_authority_poa](#) and others. However, centralized permissioned systems are vulnerable to malicious attacks such as denial of service, thereby undermining many of the “democratizing” aspects of the DIDO.

Networks making use of PoA networks define a fixed number of **authority nodes**. The number of nodes and associated PoA designation is voted on by the PoA community or defined by the development team. Authority nodes are similar to [full nodes](#) and can create and validate blocks. All other nodes in the node network run as [lightweight nodes](#), depending on broadcasted data to participate in the blockchain.²⁾

[Iota](#) refers to authority nodes as **permanodes** ([definition](#)) because they keep all transaction data even after [snapshots](#) are made (concept introduced by Iota³⁾)

¹⁾
S. Nakamoto, “Bitcoin: A Peer-to-Peer Electronic Cash System,” 24 May 2009. [Online]. Available: <https://bitcoin.org/bitcoin.pdf>.

²⁾
“Blockchain Nodes: An In-Depth Guide”, <https://nodes.com/>

³⁾
“Full node vs permanode”, Helmar, 5 January 2018, <https://iota.stackexchange.com/questions/782/full-node-vs-permanode/783>

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Last update: **2020/11/13 02:21**

