

# Account Abstraction

All operations in the Ambient dex can be undertaken with account abstraction, where a user signs an operation off-chain and a third party relayer executes it on their behalf. Relayers can be made in any arbitrary token from a user's balance. There are multiple reasons why a user would want to do this:

- Avoid the inconvenience of managing transactions
- Pay an exact cost with easier to manage tokens (like USDC) instead of worrying about calculating gas fees.
- Save on execution costs by having the relayer bundle their actions with other similar actions to amortize the gas cost.
- Make a pre-signed transaction and save it for later
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There are two types of account abstraction, one is immediate and the other is conditional. Immediate account abstraction occurs when a user signs an intention and sends it to a relayer with the hope of imminent and unconditional execution.

Conditional account abstraction is when a user signs a transaction but prefers for it to be executed only after some condition is met, such as a fixed time delay or a certain market condition such as a stop loss. All intentions in Ambient can be gated with a check to an arbitrary oracle contract with arbitrary calldata. E.g. to implement a stop loss, the intention can be signed with a call to an oracle that checks the Chainlink price has exceeded a given threshold.

Intentions in Ambient use a multi-dimensional nonce system, so unlike Ethereum transactions they can be executed with arbitrary dependence and a user doesn't have to wait for one to finish before the next executes.

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