

What is ERC-4337?

[ERC-4337](#) addresses the challenges associated with account abstraction without requiring changes to the consensus-layer protocol. It serves as a transaction relayer for smart accounts like Safe. It does so by introducing a pseudo-transaction object called `aUserOperation`, which sends a transaction on behalf of the user.

Nodes in Ethereum can act as a Bundler, which picks up multiple `UserOperation`(s) and packs them into a single transaction known as a bundle transaction. The bundle transactions are then sent to a global smart contract on Ethereum (of which there is only one) called the `EntryPoint`.

ERC-4337 enhances usability by introducing paymasters. This decentralized mechanism allows users to pay gas fees using ERC-20 tokens (like USDC) instead of native tokens like ETH or to seek a third party to cover their gas fees entirely.

ERC-4337 is currently under development and still needs to be finalized, so developers should pay attention to new changes that may occur.

Why ERC-4337?

ERC-4337 provides a bunch of benefits along with all the inherent advantages of utilizing smart accounts:

```
.mui-style-qv0uhk{box-sizing:border-box;display:-webkit-box;display:-webkit-flex;display:-ms-flexbox;display:flex;-webkit-box-flex-wrap:wrap;-webkit-flex-wrap:wrap;-ms-flex-wrap:wrap;flex-wrap:wrap;width:100%;-webkit-flex-direction:row;-ms-flex-direction:row;flex-direction:row;margin-top:-16px;width:calc(100% + 16px);margin-left:-16px;display:-webkit-box;display:-webkit-flex;display:-ms-flexbox;display:flex;-webkit-align-content:flex-start;-ms-flex-line-pack:flex-start;align-content:flex-start;margin-top:24px;}.mui-style-qv0uhk>.MuiGrid-item{padding-top:16px;}.mui-style-qv0uhk>.MuiGrid-item{padding-left:16px;}
```

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.mui-style-ts6zic{box-sizing:border-box;margin:0;-webkit-flex-direction:row;-ms-flex-direction:row;flex-direction:row;-webkit-flex-basis:100%;-ms-flex-preferred-size:100%;flex-basis:100%;-webkit-box-flex:0;-webkit-flex-grow:0;-ms-flex-positive:0;flex-grow:0;max-width:100%;}@media (min-width:600px){.mui-style-ts6zic{-webkit-flex-basis:100%;-ms-flex-preferred-size:100%;flex-basis:100%;-webkit-box-flex:0;-webkit-flex-grow:0;-ms-flex-positive:0;flex-grow:0;max-width:100%;}}@media (min-width:900px){.mui-style-ts6zic{-webkit-flex-basis:33.333333%;-ms-flex-preferred-size:33.333333%;flex-basis:33.333333%;-webkit-box-flex:0;-webkit-flex-grow:0;-ms-flex-positive:0;flex-grow:0;max-width:33.333333%;}}@media (min-width:1200px){.mui-style-ts6zic{-webkit-flex-basis:33.333333%;-ms-flex-preferred-size:33.333333%;flex-basis:33.333333%;-webkit-box-flex:0;-webkit-flex-grow:0;-ms-flex-positive:0;flex-grow:0;max-width:33.333333%;}}@media (min-width:1630px){.mui-style-ts6zic{-webkit-flex-basis:33.333333%;-ms-flex-preferred-size:33.333333%;flex-basis:33.333333%;-webkit-box-flex:0;-webkit-flex-grow:0;-ms-flex-positive:0;flex-grow:0;max-width:33.333333%;}}.mui-style-x3r9fo{overflow:hidden;-webkit-transition:all 0.2s ease-in-out;transition:all 0.2s ease-in-out;border:1px solid;border-color:transparent;background-color:transparent;height:100%;width:100%;}.mui-style-x3r9fo:hover{border-color:var(--mui-palette-secondary-light);}.mui-style-1vkna86{background-color:var(--mui-palette-background-paper);color:var(--mui-palette-text-primary);-webkit-transition:box-shadow 300ms cubic-bezier(0.4, 0, 0.2, 1) 0ms;transition:box-shadow 300ms cubic-bezier(0.4, 0, 0.2, 1) 0ms;border-radius:6px;box-shadow:var(--mui-shadows-1);background-image:var(--mui-overlays-1);overflow:hidden;-webkit-transition:all 0.2s ease-in-out;transition:all 0.2s ease-in-out;border:1px solid;border-color:transparent;background-color:transparent;height:100%;width:100%;}.mui-style-1vkna86:hover{border-color:var(--mui-palette-secondary-light);}.mui-style-2ea2lo{box-sizing:border-box;display:-webkit-box;display:-webkit-flex;display:-ms-flexbox;display:flex;-webkit-box-flex-wrap:wrap;-webkit-flex-wrap:wrap;-ms-flex-wrap:wrap;flex-wrap:wrap;width:100%;margin:0;-webkit-flex-direction:row;-ms-flex-direction:row;flex-direction:row;-webkit-flex-direction:column;-ms-flex-direction:column;flex-direction:column;-webkit-box-pack:center;-ms-flex-pack:center;-webkit-justify-content:center;-webkit-align-items:center;-webkit-align-items:center;-ms-flex-align:center;align-items:center;}.mui-style-1stacw4{margin:0;font-family:DM Sans,sans-serif;font-weight:400;font-size:20px;line-height:30px;font-weight:500;margin-top:8px;margin-bottom:8px;}.mui-style-1stacw4{font-size:24px;line-height:32px;} #### Flexibility of payments .mui-style-30ww2h{margin:0;font-family:DM Sans,sans-serif;font-weight:400;font-size:14px;line-height:24px;color:var(--mui-palette-text-secondary);} Users can decide how to pay the gas fees. Use native tokens like ETH, ERC-20 tokens, or even sponsored transactions. #### Freedom of Authentication It enables the use of different authentication mechanisms, such as multi-signature, passkeys, and future quantum-proof cryptography. #### Decentralization It's supported by various providers, avoiding lock-in to a single-relayer technology, offering an anti-fragile approach with no single point of failure.
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Further reading

- [Official documentation\(opens in a new tab\)](#)
- [EIP document\(opens in a new tab\)](#)

[Safe\(Core\) Safe and ERC-4337](#)

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