

Safe Signatures

This guide shows how Safe signatures work and how to generate them using the Protocol Kit.

Prerequisites

- [Node.js and npm\(opens in a new tab\)](#)

Install dependencies

yarn

install

@safe-global/protocol-kit

Setup

Safe accounts can be configured with different threshold values and types of owners. Safe owners can be any Ethereum address, such as:

- Externally-owned accounts (EOAs). They generate an ECDSA signature to approve Safe transactions.
- Smart accounts that implement the [EIP-1271\(opens in a new tab\)](#)
- for signature validation, like Safe does. They use a different signature algorithm depending on the implementation of the smart account.

In the following guides, there are different accounts involved that will be used as an example:

Who Description Address for this example safe3_4 3/4 Safe (3 signatures required out of 4 owners)

0xb3b3862D8e38a1E965eb350B09f2167B2371D652 owner1 EOA and owner of safe3_4

0x90F8bf6A479f320ead074411a4B0e7944Ea8c9C1 owner2 EOA and owner of safe3_4

0xFFcf8FDEE72ac11b5c542428B35EEF5769C409f0 safe1_1 1/1 Safe and owner of safe3_4

0x215033cdE0619D60B7352348F4598316Cc39bC6E owner3 EOA and owner of safe1_1

0x22d491Bde2303f2f43325b2108D26f1eAbA1e32b safe2_3 2/3 Safe and owner of safe3_4

0xf75D61D6C27a7CC5788E633c1FC130f0F4a62D33 owner4 EOA and owner of safe2_3

0xE11BA2b4D45Eaed5996Cd0823791E0C93114882d owner5 EOA and owner of safe2_3

0xd03ea8624C8C5987235048901fB614fDcA89b117

Each EOA owner described above is bound to an EthAdapter instance that should also be initialized.

Adapter Signer ethAdapter1 owner1 ethAdapter2 owner2 ethAdapter3 owner3 ethAdapter4 owner4 ethAdapter5 owner5

Guides

Transaction signatures

- The [Transaction signatures](#)
- guide explains how transactions are signed by Safe owners using the Protocol Kit.

Message signatures

- Using the Protocol Kit, the [Message signatures](#)
- guide explains how to generate and sign messages, including plain string messages and EIP-712 JSON messages.

[Protocol Kit Transactions](#)

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