

Privileged Roles in OP Stack Chains

OP Stack chains follow a [Pragmatic Path to Decentralization \(opens in a new tab\)](#). In their current state, OP Stack chains still include some "privileged" roles that give certain addresses the ability to carry out specific actions. Read this page to understand these roles, why they exist, and what risks they pose.

L1 Proxy Admin

The L1 Proxy Admin is an address that can be used to upgrade most OP Stack chains system contracts.

Risks

- Compromised L1 Proxy Admin could upgrade contracts to malicious versions.
- Compromised L1 Proxy Admin could remove or lock ETH or tokens in the Standard Bridge.
- Compromised L1 Proxy Admin could fail to mitigate a risk as described on this page.

Mitigations

- L1 Proxy Admin owner is a 2-of-2 [multisig\(opens in a new tab\)](#)
- . One owner is an Optimism Foundation 5/7 [multisig\(opens in a new tab\)](#)
- and the other owner is the [Security Council\(opens in a new tab\)](#)
- [multisig\(opens in a new tab\)](#)
- .

Addresses

- Ethereum
- [0x5a0Aae59D09fccBdDb6C6CcEB07B7279367C3d2A \(opens in a new tab\)](#)
- Sepolia:
- [0x1Eb2fFc903729a0F03966B917003800b145F56E2 \(opens in a new tab\)](#)

L2 Proxy Admin

The L2 Proxy Admin is an address that can be used to upgrade most OP Stack chains system contracts on L2. The L2 Proxy Admin owner is the [aliased address](#) of the L1ProxyAdmin owner, which means the L2 ProxyAdmin Owner is equal to the L1 ProxyAdmin Owner, but due to aliasing it's a different address. Here's how that works:

- [illegible]

Risks

- Compromised L2 Proxy Admin could upgrade contracts to malicious versions.
- Compromised L2 Proxy Admin could remove or lock ETH or tokens in the Standard Bridge.
- Compromised L2 Proxy Admin could fail to mitigate a risk as described on this page.

Mitigations

- L2 Proxy Admin is controlled by the same L1 account as the [L1 Proxy Admin](#)
- This is enabled by [address aliasing](#)
-

Addresses

These addresses are controlled by the same L1 Proxy Admin addresses. Please read the descriptions above for more details. * OP Stack chains * :[0x6B1BAE59D09fCcbdDB6C6cceb07B7279367C4E3b \(opens in a new tab\)](#) * OP Sepolia: * [0x2FC3ffc903729a0f03966b917003800B145F67F3 \(opens in a new tab\)](#)

System Config Owner

The System Config Owner is an address that can be used to change the values within the [SystemConfig \(opens in a new tab\)](#) contract on Ethereum.

Risks

- Compromised System Config Owner could cause a temporary network outage.
- Compromised System Config Owner could cause users to be overcharged for transactions.

Mitigations

- System Config Owner is a 5-of-7 [multisig \(opens in a new tab\)](#)
- .
- System Config Owner may eventually be operated by a [Security Council \(opens in a new tab\)](#)
- .
- System Config Owner can be replaced by the [L1 Proxy Admin](#)
- .

Addresses

- Ethereum
- :[0x9BA6e03D8B90dE867373Db8cF1A58d2F7F006b3A \(opens in a new tab\)](#)
- Sepolia
- :[0xfd1D2e729aE8eEe2E146c033bf4400fE75284301 \(opens in a new tab\)](#)

Batcher

Description

The Batcher is a software service that submits batches of transactions to Ethereum on behalf of the current OP Stack chains Sequencer. OP Stack chains nodes will look for transactions from this address to find new batches of L2 transactions to process.

Risks

- Batcher address is typically a hot wallet.
- Compromised batcher address can cause L2 reorgs or sequencer outages.

Mitigations

- Compromised batcher address cannot publish invalid transactions.
- Compromised batcher address can be replaced by the [L1 Proxy Admin](#)
- .

Addresses

- Ethereum
- :[0x6887246668a3b87F54DeB3b94Ba47a6f63F32985 \(opens in a new tab\)](#)
- Sepolia
- :[0x8F23BB38F531600e5d8FDDaAEC41F13FaB46E98c \(opens in a new tab\)](#)

Proposer

Description

The Proposer is a role that is allowed to create instances of the `PermissionedDisputeGame` dispute game type. The `PermissionedDisputeGame` can be used as a fallback dispute game in the case that the `FaultDisputeGame` is found to include a critical security vulnerability. The Guardian role is responsible for changing the respected dispute game type if necessary.

Capabilities

- Can create instances of the `PermissionedDisputeGame`
- dispute game type.
- Can participate in the `PermissionedDisputeGame`
- dispute game process.

Risks

- Proposer address is typically a hot wallet.
- Compromised proposer address could propose invalid state proposals.
- Invalid state proposals can be used to execute invalid withdrawals after 7 days.

Mitigations

- Compromised proposer address can be replaced by the [L1 Proxy Admin](#)
- .
- Invalid state proposals can be challenged by the [Challenger](#)
- within 7 days.

Addresses

- Ethereum
- [:0x473300df21D047806A082244b417f96b32f13A33 \(opens in a new tab\)](#)
- Sepolia
- [:0x49277EE36A024120Ee218127354c4a3591dc90A9 \(opens in a new tab\)](#)

Challenger

Description

The Challenger is an address that can participate in and challenge `PermissionedDisputeGame` instances created by the [Proposer](#) role.

Capabilities

- Can participate in the `PermissionedDisputeGame`
- dispute game process.

Risks

- Compromised challenger could invalidate valid state proposals.
- Compromised challenger could fail to challenge invalid state proposals.

Mitigations

- Compromised challenger address can be replaced by the [L1 Proxy Admin](#)
- .
- Challenges can be executed by replaced challenger address.

Addresses

- Ethereum
- [:0x9BA6e03D8B90dE867373Db8cF1A58d2F7F006b3A \(opens in a new tab\)](#)
- Sepolia
- [:0xfd1D2e729aE8eEe2E146c033bf4400fE75284301 \(opens in a new tab\)](#)

Guardian

Description

The Guardian is an address that can be used to pause several system contracts on OP Stack chains. This is a backup safety mechanism that allows for a temporary halt, particularly of withdrawal logic, in the event of a security concern. The Guardian can also manage various aspects of the `OptimismPortal` contract to address active security concerns.

Capabilities

- Pause several system contracts on OP Stack chains.
- Disable the ability for specific dispute game types from being used to execute withdrawals.
- Disable the ability for specific dispute game instances from being used to execute withdrawals.

Risks

- Compromised guardian could pause withdrawals indefinitely.

Mitigations

- Compromised guardian address can be replaced by the [L1 Proxy Admin](#)
- .
- Withdrawals can be unpaused by replaced guardian address.

Addresses

- Ethereum
- [:0x09f7150D8c019BeF34450d6920f6B3608ceFdAf2 \(opens in a new tab\)](#)
- Sepolia
- [:0xf64bc17485f0B4Ea5F06A96514182FC4cB561977 \(opens in a new tab\)](#)

Mint Manager Owner

The Mint Manager Owner is an address that controls the [MintManager \(opens in a new tab\)](#) contract that can be used to mint new OP tokens on OP Stack chains.

Risks

- Compromised Mint Manager Owner could mint arbitrary amounts of OP tokens.
- Compromised Mint Manager Owner could prevent OP tokens from being minted.

Mitigations

- Mint Manager Owner is a 3-of-5 [multisig \(opens in a new tab\)](#)
- .

Addresses

- Ethereum
- [:0x2a82ae142b2e62cb7d10b55e323acb1cab663a26 \(opens in a new tab\)](#)
- Sepolia
- [:0x5c4e7ba1e219e47948e6e3f55019a647ba501005 \(opens in a new tab\)](#)