

How to Start a Self-Hosted Chain

This guide provides an overview of how to start a self-hosted OP Chain with standard configuration. It walks you through how to build, configure, test, and launch your OP Chain. To skip ahead to custom features or settings, you can explore the [chain operator tutorials](#).

Build Your Chain

There are two main steps to get started building your own self-hosted OP Chain: learn fundamental components of OP chains and spin up an OP Stack testnet chain.

Learn Fundamental Components of OP Chains

To work with OP Chains, you'll need to understand the fundamental components of OP Chains.

- Chain Architecture
- : OP Chains use execution and consensus clients as well as the OP Stack's privileged roles. For more details, see the [Chain Architecture](#) guide.
- Smart Contracts
- : OP Chains use several smart contracts on the L1 blockchain to manage aspects of the Rollup. Each OP Stack chain has its own set of [L1 smart contracts](#) and [L2 contracts or predeploys](#)
- that are deployed when the chain is created.
- Preinstalls
- : OP Chains come with [preinstalled core contracts](#)
- , making them usable as soon as a chain is initialized on the OP Stack.

You should only use governance approved and audited smart contracts. The monorepo has them tagged with the following pattern `op-contracts/vX.X.X` and you can review the release notes for details on the changes.

Launch Your OP Stack Testnet Chain

- Now, you are ready to spin up your testnet chain.
- Just follow the [Creating Your Own L2 Rollup Testnet](#) tutorial to get started.

Configure Your Chain

OP Chains can be configured for throughput, cost, and other decentralization tradeoffs. The following steps are intended for standard configuration of OP Chains.

Setup Key Management and Privileged Roles

- Configure hot wallets and cold wallets using the guide for [Managing Your Keys](#)
- .
- Refer to the [Privileged Roles](#) guide for detailed security information.

Make Standard Chain Configurations

- Configure your [OP Chain parameters](#)
- based on your particular tradeoffs. You'll need to configure the rollup
- , batcher
- , and proposer
- for optimal performance.
- Update your batcher to [post transaction data within blobs](#)
- instead of call data to maximize your fee savings.
- Enable [snap sync](#)
- on your OP Chain to significantly improve the experience and speed of syncing an OP Stack node.

Set Public RPC Endpoint

- Set the [public RPC Endpoint](#)
- , so your OP Chain can handle large volumes of RPC requests from your users.

Enable Analytics for Onchain Data

- Enable [analytics tracking for your OP Chain](#)
- , to immediately generate onchain metrics after mainnet launch.

Test Your Chain

Before launching on Mainnet, thoroughly test and debug OP Chain contracts, features, and security. Here are your options.

Use a Block Explorer

Block explorers allow you to access transaction history and conduct chain debugging.

- Option 1: Select an [external block explorer](#)
- to use with your OP Chain.
- Option 2: Deploy your own block explorer for your OP Chain, such as [Blockscout](#)
- .

Send Test Transactions

As part of testing your OP Chain, you'll need to send test or example transactions to the new network.

- Test [sending L2 transactions\(opens in a new tab\)](#)
- to understand how much load your new chain can handle.
- Trace [deposits and withdrawals](#)
- using the SDK or viem.
- Run [basic transaction tests\(opens in a new tab\)](#)
- using Metamask.

Launch Your Chain on Mainnet

After testing is complete, you are ready to launch your OP Chain on Mainnet. Optionally, you can also request [launch support\(opens in a new tab\)](#) and subscribe to [receive chain upgrade notifications\(opens in a new tab\)](#).

Chain Operator Tutorials

Here's a curated collection of chain operator tutorials put together by the Optimism community. They'll help you get a head start deploying your first OP Stack chain.

Tutorial Name	Description	Difficulty	Level	Creating Your Own L2 Rollup	Learn how to spin up your own OP Stack testnet chain
		Medium		Using the OP Stack Client SDK	Learn how to use the OP Stack Client SDK when working with native and non-native supported chains.
		Easy		Adding Attributes to the Derivation Function	Learn how to modify the derivation function for an OP Stack chain to track the amount of ETH being burned on L1.
		Easy		Adding a Precompile	Learn how to run an EVM with a new precompile for OP Stack chain operations to speed up calculations that are not currently supported.
		Easy		Modifying Predeployed Contracts	Learn how to modify predeployed contracts for an OP Stack chain by upgrading the proxy.
		Easy		Pause and Unpause the Bridge	Learn how to pauseOptimismPortal as a backup safety mechanism on your OP Stack chain.
		Easy		You can also suggest a new tutorial(opens in a new tab) if you have something specific in mind. We'd love to grow this list!	

Next Steps

- After deploying your chain, check the [Rollup Operations](#)
- guide for common operations you'll need to run with your rollup.
- If you run into any problems, please visit the [Chain Troubleshooting Guide](#)
- for help.

[Architecture](#) [Creating Your Own L2 Rollup Testnet](#)