Preparing for Holocene breaking changes

This page outlines breaking changes related to the Holocene network upgrade for chain operators, and node operators. If you experience difficulty at any stage of this process, please reach out to [developer support(opens in a new tab)](#) .

The Holocene upgrade for the Sepolia Superchain will be activated atTue Nov 26 at 15:00:00 UTC (1732633200).

The Holocene upgrade for the Unichain Sepolia will be activated atWed Dec 18 at 22:00:00 UTC (1734559200).

The Holocene upgrade for the Soneium Minato (Sepolia) will be activated atFri Dec 20 at 09:00:00 UTC (1734685200).

The Holocene upgrade for the Soneium Minato (Sepolia) will be activated atFri Dec 20 at 09:00:00 UTC (1734685200).

The Holocene upgrade for the Mainnet Superchain is scheduled forThu 9 Jan 2025 18:00:01 UTC [governance approval(opens in a new tab)](#) .

The Holocene upgrade for the Soneium Mainnet will be activated atMon Feb 03 at 09:00:00 UTC (1738573200). The Holocene upgrade for the Mainnet Superchain is scheduled forThu 9 Jan 2025 18:00:01 UTC ,[governance approval(opens in a new tab)](#) .

What's included in Holocene

Holocene contains three changes:

- Holocene block derivation
- : a set of changes that render the derivation pipeline stricter and simpler, improving worst-case scenarios for the Fault Proof System and Interoperability.
- EIP-1559 configurability
- : The elasticity and denominator EIP-1559 parameters become configurable via theSystemConfig
- L1 contract, allowing the gas target and gas limit to be configured independently.
- MIPS contract upgrade
- : Updates to support additional calls made by the newop-program
- version.

For more information on the Holocene implementation details, please review [Holocene specification(opens in a new tab)](#) .

For chain operators

Chain operators should upgrade their nodes ahead of the activation times to a release that contains the Holocene changes and has the activation times for their chains baked in, or set the activation times manually via overrides.

Besides this, several L1 contract updates must be performed, the fault proof contracts should be updated before the Holocene activation. TheSystemConfig should be upgraded after the Holocene activation. We have prepared an [upgrade script(opens in a new tab)](#) to automate most of the deployments and superchain-ops task generation or Safe multi-sig input bundle generation.

Chain operators must upgrade their chain'sSystemConfig to the latest OP Contracts [v1.8.0-rc.3 release(opens in a new tab)](#) to utilize the EIP-1559 configurability. The updatedSystemConfig implementations are deployed at addresses:

- Sepolia:0x33b83E4C305c908B2Fc181dDa36e230213058d7d
- -[Superchain Registry validation file(opens in a new tab)](#)
- Mainnet:0xAB9d6cB7A427c0765163A7f45BB91cAfe5f2D375
- -[Superchain Registry validation file(opens in a new tab)](#)

Chain operators need to update their proxy contracts to point to these new implementations. The upgrade script in the monorepo can be used to facilitate the upgrade, please follow the instructions in this [README(opens in a new tab)](#) . Note that it is recommended to upgrade theSystemConfig after the Holocene activation. You need to upgrade if you want to reconfigure your EIP-1559 parameters.

For fault proof enabled chains

Since the Holocene upgrade changes the execution and derivation rules, the version ofop-program used in the fault proof system has to be upgraded to a version that includes the Holocene activation date for the chain. Theop-program version used is specified via thefaultGameAbsolutePrestate setting, deployed as part ofFaultDisputeGame andPermissionedDisputeGame contracts. Additionally, theMIPS contract must be upgraded to support additional calls made by the newop-program .

TheFaultDisputeGame andPermissionedDisputeGame contracts must be deployed separately for each chain. TheMIPS

contract implementation can be shared by all chains and is deployed at:

- Sepolia:0x69470D6970Cd2A006b84B1d4d70179c892cFCE01
- -[Superchain Registry validation file(opens in a new tab)](#)
- Mainnet:0x5fE03a12C1236F9C22Cb6479778DDAa4bce6299C
- -[Superchain Registry validation file(opens in a new tab)](#)

Chain operators need to update theDisputeGameFactory to use the newFaultDisputeGame andPermissionedDisputeGame contracts by callingDisputeGameFactory.setImplementation . The same upgrade script in the monorepo can be used to facilitate the upgrade, please follow the instructions in this[README(opens in a new tab)](#) .

For node operators

Node operators will need to upgrade to the respective Holocene releases before the activation dates.

These following steps are necessary for every node operator:

Update to the latest release

- [op-node atv1.10.2 (opens in a new tab)](#)
- [op-geth atv1.101411.4 (opens in a new tab)](#)

Configure the Holocene activation date

⚠ If you are operating a node for an OP Chain that have opted into the[hardfork activation inheritance behavior(opens in a new tab)](#) , the Holocene activation date is part of theop-node andop-geth nodes. So, no action is needed for the sequencer after upgrading to the latest release. Please skip to[Step 3: Verify Your Configuration](#) .

For Sepolia that is:OP Sepolia ,Base Sepolia ,Mode Sepolia ,Zora Sepolia , andMetal Sepolia . For node operators of not included in the[hardfork activation inheritance behavior(opens in a new tab)](#) , you will need to manually configure the activation. This can be done one of two ways:

- Option 1:
- Set the activation time in therollup.json
- forop-node
- . You will still need to set theoverride.holocene
- flag inop-geth
- if you use this option.
- Option 2:
- Set the activation time via overrides (CLI) in bothop-node
- andop-geth
- . These will need to be set onop-node
- andop-geth
- for the sequencer and all other nodes.

Verify Your Configuration

Make the following checks to verify that your node is properly configured.

- op-node
- andop-geth
- will log their configurations at startup
- Check that the Holocene time is set toactivation-timestamp
- in the op-node startup logs
- Check that the Holocene time is set toactivation-timestamp
- in the op-geth startup logs