SuperchainERC20

Interop is currently in active development and not yet ready for production use. The information provided here may change. Check back regularly for the most up-to-date information. SuperchainERC20 is an implementation ofERC-7802(opens in a new tab)designed to enable asset interoperability in the Superchain. Asset interoperability allows for tokens to securely move across chains without asset wrapping or liquidity pools for maximal capital efficiency, thus unifying liquidity and simplifying the user experience.

Additional features:

- Simplified deployments
- : 0-infrastructure cost to make your token cross-chain. Provides a consistent, unified implementation for tokens across all Superchain-compatible networks and a common cross-chain interface for the EVM ecosystem at large.
- Permissionless propagation
- : Easily clone an existing token contract to a new OP Stack chain usingcreate2
- without requiring the original owner, which enables movement of assets to the new chain once Interop goes live. Importantly, permissionless propagation retains the integrity of the original owner on the contract and preserves security but proliferates the contract's availability to new chains.
- Common standard
- : Implements ERC-7802, a unified interface that can be used across all of Ethereum to enable cross-chain mint/burn functionality.

How it works

SuperchainERC20 facilitates secure token transfers between chains in the Superchain networks via native burning and minting.

- Token Burning
- : Initiating message where token isburned
- on the source chain. A user initiates a transfer of token from one blockchain to another and specifies the recipient wallet address on the destination chain. A specified amount of token is burned on the source chain.
- Token Minting
- : Executing message where token isminted
- on the destination chain. The specified amount of token is minted on the destination chain directly to the recipient wallet address.

An important thing to note is usingcrosschainBurn andcrosschainMint on theSuperchainERC20 to move your asset across the Superchain only affects which chain your asset is located on and does not change the overall supply of the token. This keeps the token's total amount the same across all networks, ensuring its value stays stable during the move and that theSuperchainERC20 retains a unified, global supply count.

This diagram illustrates the process where tokens are burned on the source chain and minted on the destination chain, enabling seamless cross-chain transfers without the need for asset wrapping or liquidity pools.

Major components

- Token Contract
- : implementsSuperchainERC20
- with bridging functionality.
- Factory Predeploy
- : uses acreate2
- -based factory for deployingSuperchainERC20
- tokens consistently across chains.
- Bridging Functions
- : using methods likesendERC20
- andrelayERC20
- for cross-chain transfers.

Comparison to other token implementations

SuperchainERC20 differs from other token implementations in its focus and implementation:

- SuperchainERC20
- implements ERC-7802, which provides a minimal crosschain mint/burn interface designed to be a common pattern for the EVM ecosystem.
- SuperchainERC20
- shares trust assumptions across all chains in the Superchain, such that custom assumptions around security and

latency are not required to account for when executing transfers.

Projects moving from other token implementations may need to adapt to theSuperchainERC20 specification.

Implementation details

Application developers must do two things to make their tokensSuperchainERC20 compatible. Doing this setup now ensures that tokens can benefit from Interop once the Interop upgrade happens.

1. Permission onlySuperchainERC20Bridge
2. to callcrosschainMint
3. andcrosschainBurn
4. .
5. Deployment at same address on every chain in the Superchain usingcreate2
6. function.

For now, application developers should viewSuperchainERC20 as ERC20 tokens with additional built-in functions that allow cross-chain asset movement that will be enabled once Interop goes live.

⚠ To enable asset interoperability,SuperchainERC20 must give access to the address where the futureSuperchainERC20Bridge will live.

Next steps

- Explore theSuperchainERC20 specifications(opens in a new tab)
- for in-depth implementation details.
- Watch theSuperchain interop design video walkthrough(opens in a new tab)
- for a visual explanation of the concepts.
- Review theSuperchain Interop Explainer
- for answers to common questions about interoperability.

Supersim Multichain Development Environment Interop message passing