Cross-chain messaging overview

The Arbitrum protocol and related tooling makes it easy for developers to build cross-chain applications; i.e., applications that involve sending messages from Ethereum to an Arbitrum chain, and/or from an Arbitrum chain to Ethereum.

Ethereum-to-Arbitrum messaging

Arbitrary L1 to L2 contract calls can be created via theInbox 'screateRetryableTicket method; upon publishing the L1 transaction, the L2 side will typically get included within minutes. Happily / commonly, the L2 execution will automatically succeed, but if reverts, and it can be rexecuted via a call to theredeem method of theArbRetryableTx precompile.

For details and protocol specification, seeL1 to L2 Messages .

For an example of retryable tickets in action, see theGreeter tutorial, which uses theArbitrum SDK .

Arbitrum-to-Ethereum messaging

Similarly, L2 contracts can send Arbitrary messages for execution on L1. These are initiated via calls to theArbSys precompile contract'ssendTxToL1 method. Upon confirmation (about 1 week later), they can executed by retrieving the relevant data via a call toNodeInterface contract'sconstructOutboxProof method, and then executing them via theOutbox 'sexecuteTransaction method.

For details and protocol specification, seeL2 to L1 Messages .

For a demo, see theOutbox Tutorial . Edit this page Last updatedonMar 22, 2024 Previous Arbitrum chains overview Next Differences between Arbitrum and Ethereum: Overview