Message Format

Formatting arbitrary and application-specific CCTP messages Suggest Edits

Message Header

The top-level message header format is standard for all messages passing through CCTP:

Field Bytes Type Index Description version 4 uint32 0 Version identifier sourceDomain 4 uint32 4 Source domain id destinationDomain 4 uint32 8 Destination domain id nonce 8 uint64 12 Unique message nonce sender 32 bytes32 20 Address of MessageTransmitter caller on source domain recipient 32 bytes32 52 Address to handle message body on destination domain destinationCaller 32 bytes32 84 Address permitted to call MessageTransmitter on destination domain, or bytes32(0) if message can be received by any address messageBody dynamic bytes 116 Application-specific message to be handled by recipient

Why we use bytes32 type for addresses

CCTP is built to support EVM chains, which use 20 byte addresses, and non-EVM chains, many of which use 32 byte addresses. We provide aMessage.sol library as a reference implementation for converting between address and bytes32 in Solidity.

Message Body

The message format includes a dynamically sized messageBody field, used for application-specific messages. For example, TokenMessenger defines aBurnMessage with data related to cross-chain transfers:

Field Bytes Type Index Description version 4 uint32 0 Version identifier burnToken 32 bytes32 4 Address of burned token on source domain mintRecipient 32 bytes32 36 Address to receive minted tokens on destination domain amount 32 uint256 68 Amount of burned tokens messageSender 32 bytes32 100 Address of caller of depositForBurn (or depositForBurnWithCaller) on source domain

Message Nonce

A message nonce is a unique identifier for a message that can only be used once on the destination domain. The next available nonce on a source domain is an integer. On the destination domain, messages can be received in any order, and used nonces are stored as a hash of the source domain and nonce integer value. Updated3 months ago * Table of Contents * * Message Header * * Message Body * * Message Nonce