



**ENTERPRISE  
ETHEREUM  
ALLIANCE**

# **DLT Interoperability Working Group**

**July 2024**

# Agenda

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- ❑ Welcome and Introduction
- ❑ Enterprise Ethereum Alliance (EEA) Overview
- ❑ EEA DLT Interoperability Working Group
- ❑ EEA DLT Interoperability Specification
- ❑ Case Study
- ❑ Technical Deep Dive
- ❑ Future Plans
- ❑ Q&A Session

## Mission

Be the credible voice of reason that commercial entities can rely on for a clear understanding of the Ethereum ecosystem.

## Vision

Create an environment to do business in the Ethereum ecosystem by bringing together enterprise leaders, start ups, builders, and innovators.

# EEA Core activities

## Industry Insights

The EEA Business Readiness Report is the gold standard for the latest in enterprise Ethereum use cases and the future trajectory of the ecosystem. Share your use case today and access hundreds of others.

## Events

From EthDenver to Devcon, the EEA provides an in-person presence alongside the Ethereum community for enterprise. You can also join us for online office hours and webinars.

## Viewpoints

Our standards groups establish an environment where industries can collaborate to generate clarity. From DeFi to security, you can join a team or create your own to pave a clear path forward in the Ethereum ecosystem for your business.

## Community

Access a community of participants in the Ethereum enterprise ecosystem working on similar challenges and developing solutions.

# Board of Directors

Comprised of industry leaders, visionaries, and experts, the board leads the EEA in its mission to foster collaboration, drive innovation, and promote the adoption of Ethereum-based solutions across enterprises worldwide. With a shared commitment to advancing decentralized technologies, the board guides the EEA toward its vision of a more interconnected, secure, and efficient business landscape powered by Ethereum.

Aglaé  
VENTURES

ethereum  
foundation

J.P.Morgan

CONSENSYS

Microsoft

EY

Santander

Palm  
NFT  
Studio

BlockApps

# Viewpoints

The Ethereum Enterprise Alliance (EEA) Working Groups play a pivotal role in establishing standards and fostering collaboration within the enterprise blockchain space.

By bringing together industry leaders, developers, and innovators, the EEA Working Groups facilitate dialogue and knowledge sharing to address the unique needs and challenges faced by enterprises adopting blockchain technology.

Through a collaborative approach, they develop industry standards, frameworks, and best practices that enable interoperability, scalability, and security within enterprise blockchain solutions.



## Latest Developments

- ✓ [EthTrust released v2 of Security Levels Spec](#)
- ✓ [DRAMA released their Defi Risk Guidelines paper for comment](#)

# EEA DLT Interoperability WG

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Send and receive messages across DLT networks.

Initiate actions across DLT networks.

Transfer assets from one DLT network to another DLT network.

# Our Work

## Published EEA Documents

### Crosschain Decentralization Guidelines

[[eeaciw-crosschaindecentralization-v1.0](#)] *EEA CIW - Crosschain Decentralization Guidelines Version 1.0*. Edited by Weijia Zhang, Peter Robinson and Aiman Bahama. September 2022. EEA CIW. <https://entethalliance.github.io/crosschain-interoperability/crosschaindecentralizationguidelines.html>. Latest stage: <https://entethalliance.github.io/crosschain-interoperability/crosschaindecentralizationguidelines.html>

### Crosschain Security Guidelines

[[eeaciw-crosschainsecurity-v1.0](#)] *EEA CIW - Crosschain Security Guidelines Version 1.0*. Edited by Weijia Zhang, Peter Robinson and Aiman Bahama. 24 September 2021. EEA CIW. <https://entethalliance.github.io/crosschain-interoperability/crosschainsecurityguidelines.html>. Latest stage: <https://entethalliance.github.io/crosschain-interoperability/crosschainsecurityguidelines.html>

### Crosschain Interoperability Use Case

[[eeaciw-crosschainusecasesv1.0](#)] *EEA CIW - Crosschain Interoperability Use Case Version 1.0*. Edited by Weijia Zhang and Peter Robinson. 04 June 2020. EEA CIW. [https://entethalliance.github.io/crosschain-interoperability/CIFT\\_Use\\_Case.pdf](https://entethalliance.github.io/crosschain-interoperability/CIFT_Use_Case.pdf). Latest stage: [https://entethalliance.github.io/crosschain-interoperability/CIFT\\_Use\\_Case.pdf](https://entethalliance.github.io/crosschain-interoperability/CIFT_Use_Case.pdf)

## Educational Videos

### Token Economics & Blockchain Security

*Tokenization 1G x Crosschain Interop WG: Token Economics & Blockchain Security*. Presented by Benjamin Bukari and Weijia Zhang. 13 September 2022. <https://www.youtube.com/watch?v=alyjDpDchj4>

### Crosschain asset transfer for Non-Fungible Tokens

*Crosschain asset transfer for Non-Fungible Tokens*. Presented by Weijia Zhang. 22 June 2022. <https://www.youtube.com/watch?v=3U4FFHCT7LC>

### Crosschain Applications using Crosschain Protocol Stack & GPACK

*Crosschain Applications using Crosschain Protocol Stack & GPACK*. Presented by Peter Robinson. 01 June 2022. <https://www.youtube.com/watch?v=zORcdGcB3so>

### Transferring Value to and from the Ethereum Mainnet and Other Cross-Chain Interactions

*Transferring Value to and from the Ethereum Mainnet and Other Cross-Chain Interactions*. Presented by Weijia Zhang and Peter Robinson. 18 October 2021. EEA CIW. <https://www.youtube.com/watch?v=AGOSpSyG0I>

### Blockchain / Crosschain / DeFi Bridge Design

*Blockchain / Crosschain / DeFi Bridge Design*. Presented by Peter Robinson. 13 October 2021. EEA CIW. <https://www.youtube.com/watch?v=zq4cbS3q-4Y>

### General Purpose Atomic Crosschain Transactions (GPACK)

*General Purpose Atomic Crosschain Transactions (GPACK)*. Presented by Peter Robinson. 03 February 2021. EEA CIW. [https://www.youtube.com/watch?v=sk00\\_lIjr8k](https://www.youtube.com/watch?v=sk00_lIjr8k)

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## Enterprise Ethereum Alliance Distributed Ledger Technology Interoperability Technical Specification Draft Version 1.0

EEA Publication 14 June 2024



### Latest published version:

[https://entethalliance.github.io/crosschain-interoperability/draft\\_crosschain\\_techspec.html](https://entethalliance.github.io/crosschain-interoperability/draft_crosschain_techspec.html)

### Editors:

Weijia Zhang, PhD (Wanchain)  
Marelize Kriel (Adhara)  
Anals Ofranc (QualitaX)

### EEA Contributors:

Chaals Neville (EEA), Susumu Toriumi PhD (DataChain), Luke Riley PhD (Quant), Cosimo Bassi (Algorand), Roberto Durscki (Stellar), Thomas Hardjono PhD (MIT), Peter Robinson PhD, Erymas Abebe PhD, Aiman Bahama (Clearmatics)

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## 1. Introduction

### 1.1 Executive Summary

#### 1.1.1 Purpose

The Enterprise Ethereum Alliance (EEA) Distributed Ledger Technology Interoperability Specification aims to establish a secure and efficient framework for interoperability between different blockchain networks, focusing on enterprise applications. This specification addresses the need for various blockchain platforms to interact and transact seamlessly, especially in complex and regulated sectors like financial services and supply chain management. The specification includes architectural guidelines, protocol stack, and interfaces definitions, which are crucial for asset and data exchange across different blockchain systems, thereby enhancing their functionality and utility.

# EEA DLT Interoperability Specification

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## Key Features

- Open standard
- Secure framework
- Seamless transactions

## Target Sectors

- Financial services
- Supply chain management
- Regulated enterprises

## Supported Technologies

- EVM networks
- Non-EVM networks
- Multi-chain ecosystems

# EEA DLT Interoperability Specification

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**Protocol Stack**

**Architecture  
Guidelines**

**Interfaces  
Definitions**

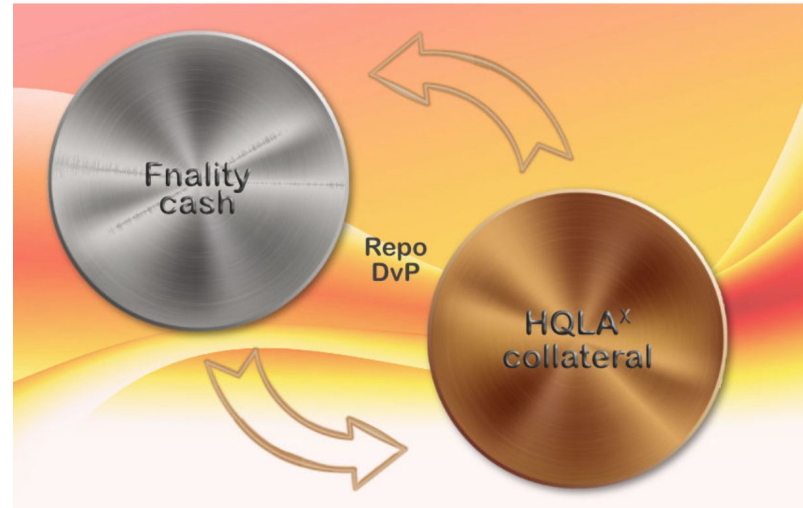
# Case Study



Blockchain for Banking · News

## Fnality, HQLA<sup>x</sup> aim to launch blockchain intraday repo this year

June 18, 2024 · by Ledger Insights



# Intraday Repo - business drivers

- ❑ Banks require mechanisms to manage intraday liquidity risk (BCBS 248)
- ❑ Banks can achieve quantifiable benefits by reducing their required intraday liquidity buffers
- ❑ An intraday repo that can be settled in real time using central bank backed settlement tokens is an ideal solution for managing intraday liquidity risk
- ❑ The decision was made up front to use the most comprehensive interoperability specification available at the time

# Intraday Repo - Settlement steps

- ❑ The trade is executed on Eurex F7
- ❑ The cash provider earmarks the required funds on the Fnality Payment System with the counterparty marked as the beneficiary
- ❑ A Digital Collateral Record (DCR) is created on HQLA<sup>x</sup> and collateralized using securities on the designated underlying securities ledger
- ❑ The DCR is earmarked for ownership transfer to the counterparty and a proof of that earmark is sent to the Fnality Payment System via Fnality Access (either through the bank or via a proof relay).

# Intraday Repo - Settlement steps

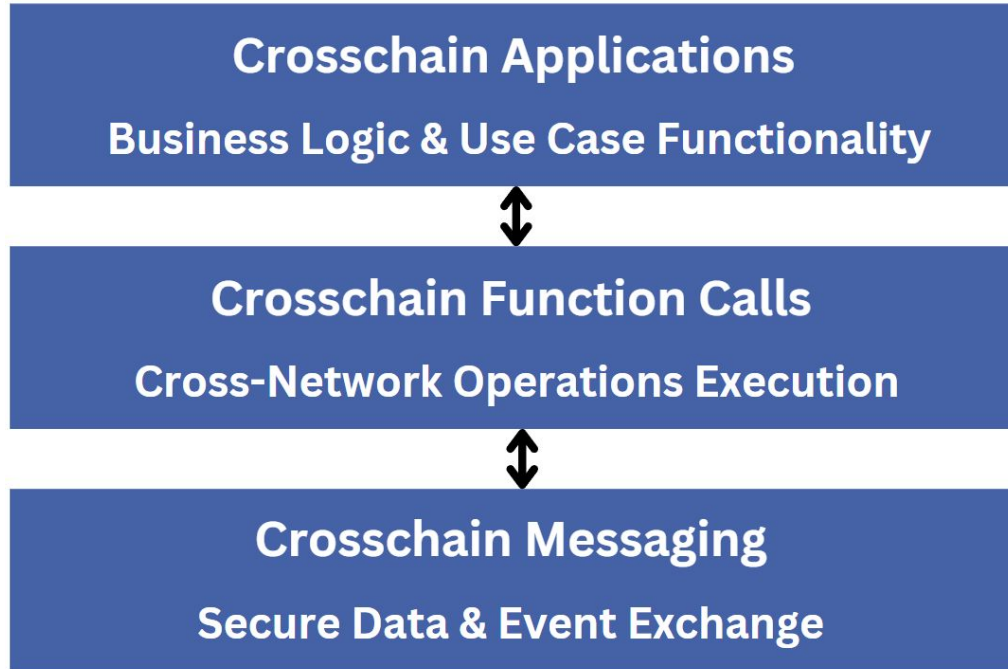
- ❑ Once the proof has been verified by the Fnality Smart Contracts (at this point the settlement is considered final and irrevocable), the Fnality earmark is executed resulting in settlement on the Fnality Payment System
- ❑ Proof of settlement is sent to HQLA<sup>x</sup> who execute the earmark on the DCR resulting in a transfer the ownership of the DCR to the counterparty (cash provider)
- ❑ When the closing time (far leg) of the repo is reached, the reverse process happens and the cash provider receives the funds back via the Fnality Payment System

# Intraday Repo - Cancellation

- ❑ In the case where settlement needs to be cancelled and the settlement is not yet final and irrevocable, the following steps need to happen
  
- ❑ If the DCR has not yet been earmarked
  - ❑ HQLA<sup>x</sup> cancels the trade settlement on their platform and sends a proof of cancellation to the Fnality Payment System
  - ❑ Fnality Smart Contracts validate the cancellation proof and cancel any cash earmark that has been placed before cancelling the trade settlement
  
- ❑ If the Fnality Tokens have not yet been earmarked
  - ❑ Fnality cancels the trade settlement on their platform and sends a proof of cancellation to the HQLA<sup>x</sup>
  - ❑ HQLA<sup>x</sup> validates the cancellation proof and cancels any DCR earmark that has been placed before cancelling the trade settlement

# EEA DLT Interoperability Stack

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# What types of crosschain messaging is supported?

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## Event-based

Identified with events emitted from the source network

### Example:

Trade finance  
invoice approval  
event triggers  
accounting update

## State-based

Identified with source network state updates

### Example:

Supply chain  
inventory updates  
trigger procurement  
workflows

## Transaction-based

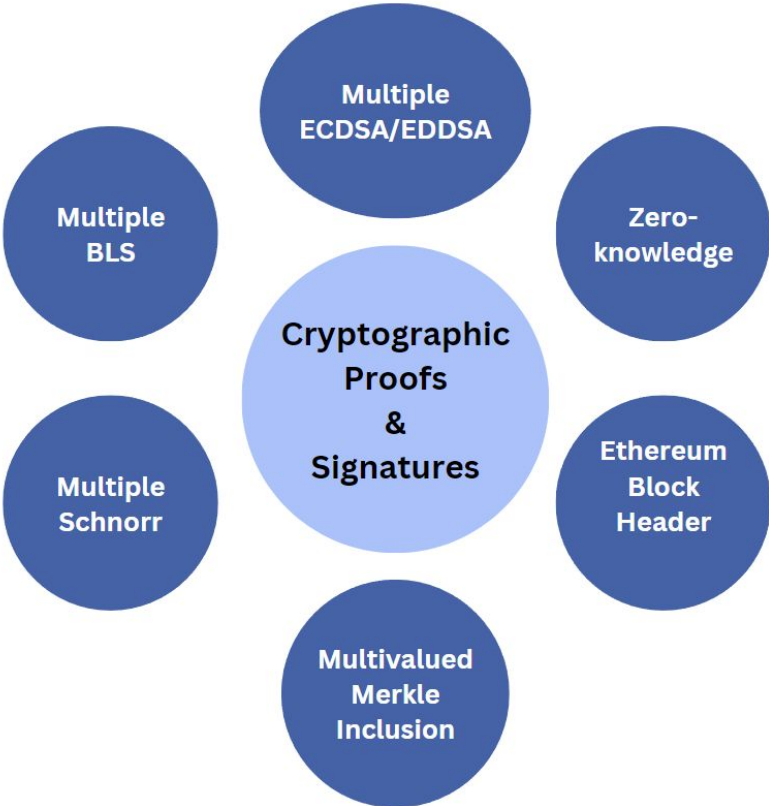
Identified with transactions executed on source network

### Example:

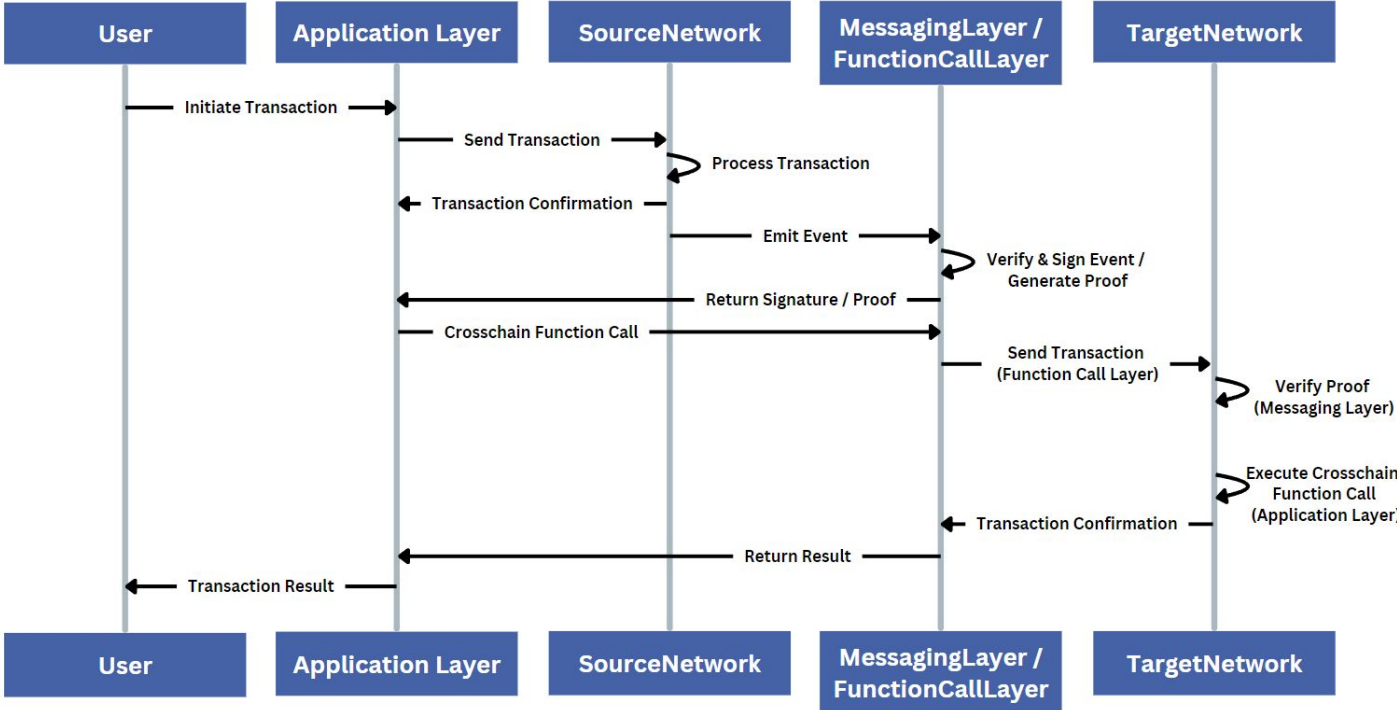
Private asset  
transfer  
transactions relay  
digests to public  
regulatory ledger

# Supported cryptographic proofs & Signatures

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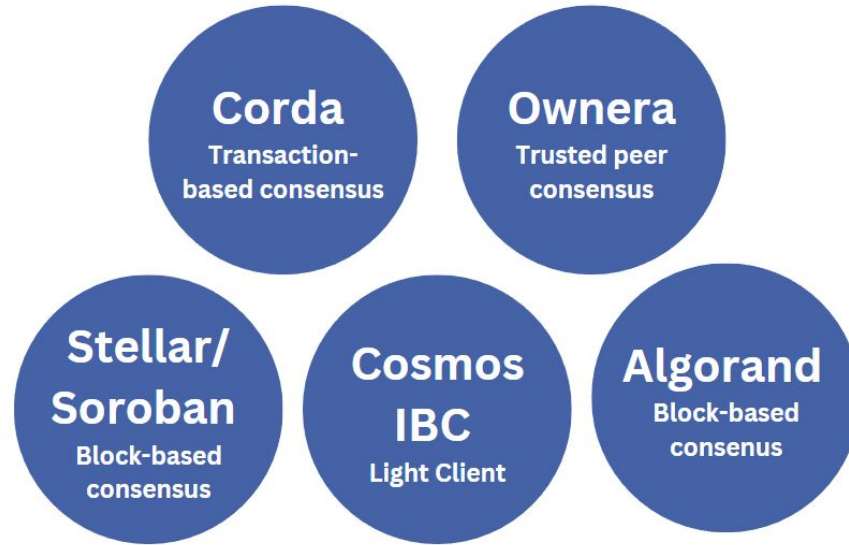


# Crosschain Event-based Messaging Sequence Example



# Adaptability to Non-EVM Architectures

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# What is next?

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## Complete Public Review Process

- Address comments and feedback from industry experts and stakeholders
- Analyze and incorporate relevant suggestions

## Official Publication

- Target: September 2024
- Release EEA DLT Interoperability Specification as an official EEA standard

## Outreach and Adoption

- Collaborate with industry partners for implementations

## Security and Decentralization

- Update and revise decentralization guidelines
- Enhance security guidelines and best practices

# Thank you !

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**Any questions**

