

OT-RFC 11

OriginTrail Polkadot Integration (Starfleet stage)

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Table of contents

[Abstract](#)

[About OriginTrail parachain](#)

[Kusama/Polkadot integration](#)

[Implementation roadmap](#)

[Conclusion & Next steps](#)

Abstract

The purpose of this document is to detail the approach to launching OriginTrail integration into the Polkadot ecosystem by launching OriginTrail parachain network (Starfleet stage). OriginTrail parachain network's purpose is to host a smart contract capable blockchain, tailor-made to facilitate the needs and features of the Decentralized Knowledge Graph. The initial implementation of OriginTrail parachain is planned as a parachain on Kusama and Polkadot, crafted by the OriginTrail core developers with support of the Parity team.

Details of the Starfleet initiative have previously been described in several OT-RFCs and blog posts, having this document focus on the initiation and direction of development of its parachain implementation.

About OriginTrail parachain

The Starfleet initiative of the Trace Alliance Decentralization and Tokenomics Working Group and its dedicated Starfleet task force has been actively in development since September 2020. The main goals of the Starfleet Initiative are to develop and deploy a secure and efficient smart contract capable blockchain to both facilitate the features of the OriginTrail Decentralized Knowledge Graph and provide a blockchain environment for the development of the upcoming Knowledge economy tools with TRAC as the native token.

In parallel, the second initiative of the Trace Alliance Decentralization and Tokenomics Working Group was focused on bringing the OriginTrail Decentralized Knowledge Graph to the Polkadot ecosystem. The "Polkadot initiative" was joined by the Parity team in September 2020 and since then together with the OriginTrail Core Developers have been evaluating and conceptualizing the integration process.

The OriginTrail Decentralized Knowledge Graph (DKG) provides a neutral middleware for trusted data exchange between organizations and individuals, tackling the problems of interoperability, integrity and interconnectivity of data. The DKG leverages a blockchain agnostic consensus layer, supporting a multitude of blockchains, for the purposes of decentralized identity, verifiable credentials and protocol implementation. However the blockchain based applications and contracts leverage the DKG for operations based on trusted, highly structured information coming from enterprise systems in the form of verifiable credentials and standardized information (already utilized by a multitude of

international organizations and consortiums such as the British Standards Institution, Swiss railways, Next Generation Initiative projects and many others)

The development roadmap of the OriginTrail Decentralized Knowledge Graph focuses on enabling a set of knowledge tools for the blockchain ecosystems - knowledge tokens, knowledge wallets, knowledge tenders and knowledge marketplaces, the first implementations of which will be deployed on the Starfleet blockchain.

After extensive efforts of the Starfleet and Polkadot initiatives of the Trace Alliance Decentralization and Tokenomics Working Group, the two task forces have agreed to propose an expedited and fast-tracked development route to directly integrate the Starfleet blockchain as a dedicated OriginTrail parachain of within the Polkadot technological ecosystem.

Kusama/Polkadot integration

The initial proposal of [OT-RFC-07](#) has introduced Starfleet as an independent, Substrate based blockchain with a set of associated services, most notable being the Starfleet bridge to the Ethereum blockchain. Since the original proposal, several benefits for the direct integration with Polkadot as an OriginTrail dedicated parachain have been identified:

- Increased adoption by bringing the capabilities of the Decentralized Knowledge Graph to the entire emerging Polkadot ecosystem, due to inherent interoperability of the technology. In this way all of the projects building on Polkadot will be able to utilize the knowledge graph tools and trusted semantic data within their applications & smart contracts
- Leveraging the security of the Kusama/Polkadot blockchain validator pool to further increase resilience of the blockchain implementation, instead of the envisioned dedicated Starfleet validator pool
- Leveraging native bridges in Kusama/Polkadot ecosystem for extended interoperability with Ethereum and Bitcoin blockchains, instead of the envisioned Starfleet - Ethereum bridge
- Enabling OriginTrail parachain & DKG to gain benefits from any new developments in the Polkadot ecosystem
- Extending the collaboration with Parity technologies through the Trace Alliance Decentralization and Tokenomics Working Group

In order to pursue the trajectory and outlined benefits, the implementation of Starfleet within Polkadot will be accelerated in the following way.

- The tokens formerly staked during the Boarding process will be immediately available on the OriginTrail Parachain, in the same way as previously planned
- The Starfleet bridge availability will be accelerated as the Polkadot bridge implementations are expected to be available even prior to the original Starfleet bridge deployment
- The OriginTrail parachain will no longer require its own validator pool, with collator nodes producing blocks then validated and finalized by the relay chain validators.
- The OriginTrail Parachain will support the EVM in order to maintain full compatibility with existing OriginTrail smart contracts and tools (such as wallets), but is expected to expand the feature set with new developments of the Substrate framework and general Polkadot ecosystem

Implementation roadmap

The stages of the proposed implementation are the following:

- **[Completed]** Starfleet Alpha Testnet phase - stable release of independent Substrate based blockchain running in the local environment
- **[In progress]** OriginTrail parachain beta testnet phase - running a stable local integration of the OriginTrail parachain, connected with a local relay chain implementation
- **[Upcoming]** OriginTrail public parachain testnet on Rococo/Westend - deployment of the open parachain testnet with Polkadot testnet integration, supporting the OriginTrail Warp Testnet
- **[Upcoming]** Crowd Loan & Slot auction phase - OriginTrail community bidding for a parachain slot on Kusama/Polkadot
- **[Upcoming]** Kusama/Polkadot OriginTrail parachain mainnet launch immediately after winning the parachain slot auction (Q3)
- **[Upcoming]** Bridge availability (Q3)

The detailed steps and parachain slot auction strategy will be published in a separate document.

Conclusion & Next steps

The Trace Alliance Decentralization and Tokenomics Working group has proposed this RFC for public discussion and invites the members of the wider OriginTrail and Polkadot community to provide feedback on the RFC repository. Once the collected feedback is reviewed and implemented, further details on the timeline and parachain auction strategy will be revealed.