



RIF Lumino Network and the Broader Vision of RIF Payments

The RIF Lumino Network is the first off-chain state channel network launched on RSK. It is also a cornerstone of a broader vision called RIF Payments which will allow users to seamlessly interact with multiple cross-blockchain off-chain networks such as Lumino, Lightning and Raiden.

RIF Lumino allows to make off-chain payments on any token deployed on RSK in a fast, reliable, with low fees and secured by the Bitcoin network. RIF Lumino will be the first payment network supported by RIF Payments in his path to a global financial inclusion. If you want to read more about RIF Lumino and how to be part of the network please follow the link <https://explorer.lumino.rifos.org/>

RIF Payments is a set of protocols whose primary goal is to enable fast and cheap peer-to-peer payments that could scale to achieve true world-wide financial inclusion.

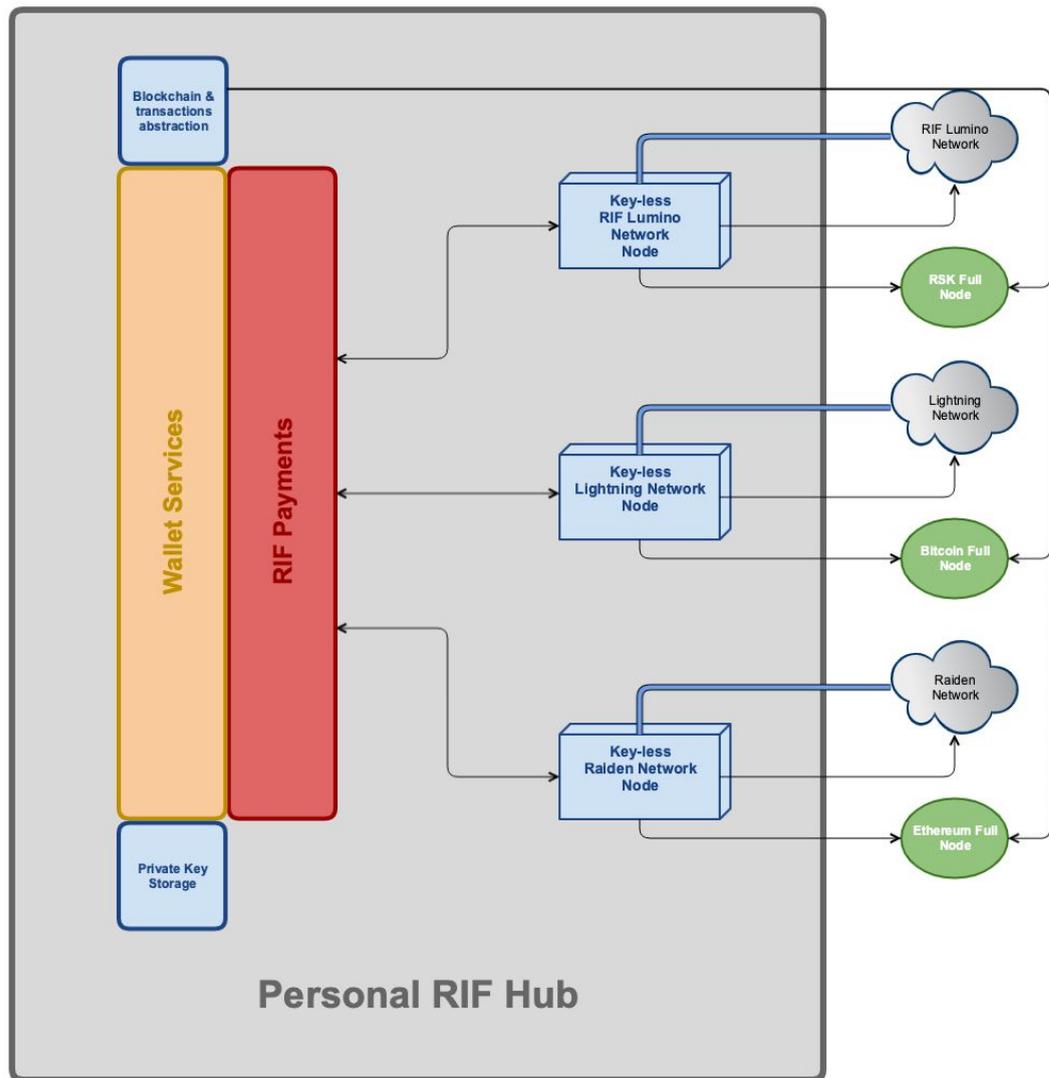
RIF Payments is composed of three main protocols:

1. RIF Payments Full: it is a protocol which creates an abstraction layer to access different payment networks allowing cross-token and cross-network payments.
2. RIF Payments Light: it is a protocol to allow light clients to access RIF Payments Full without jeopardizing security and decentralization.
3. RIF Payments Exchange: this protocol will be used to discover intra-token exchange rates, optimizing the routing of payments to a great extent, selecting the nodes to route payments based on their scoring, exchange rate, and fees among other criteria.

RIF Payments Full

This protocol provides a layer of abstraction to access the different available payment networks like RIF Lumino, Lightning Network, Raiden, among others. It also provides an interface to allow any other payment network not initially supported to be included into RIF Payments.

The main objective of this module is to store the user private keys securely and to provide access to external services.



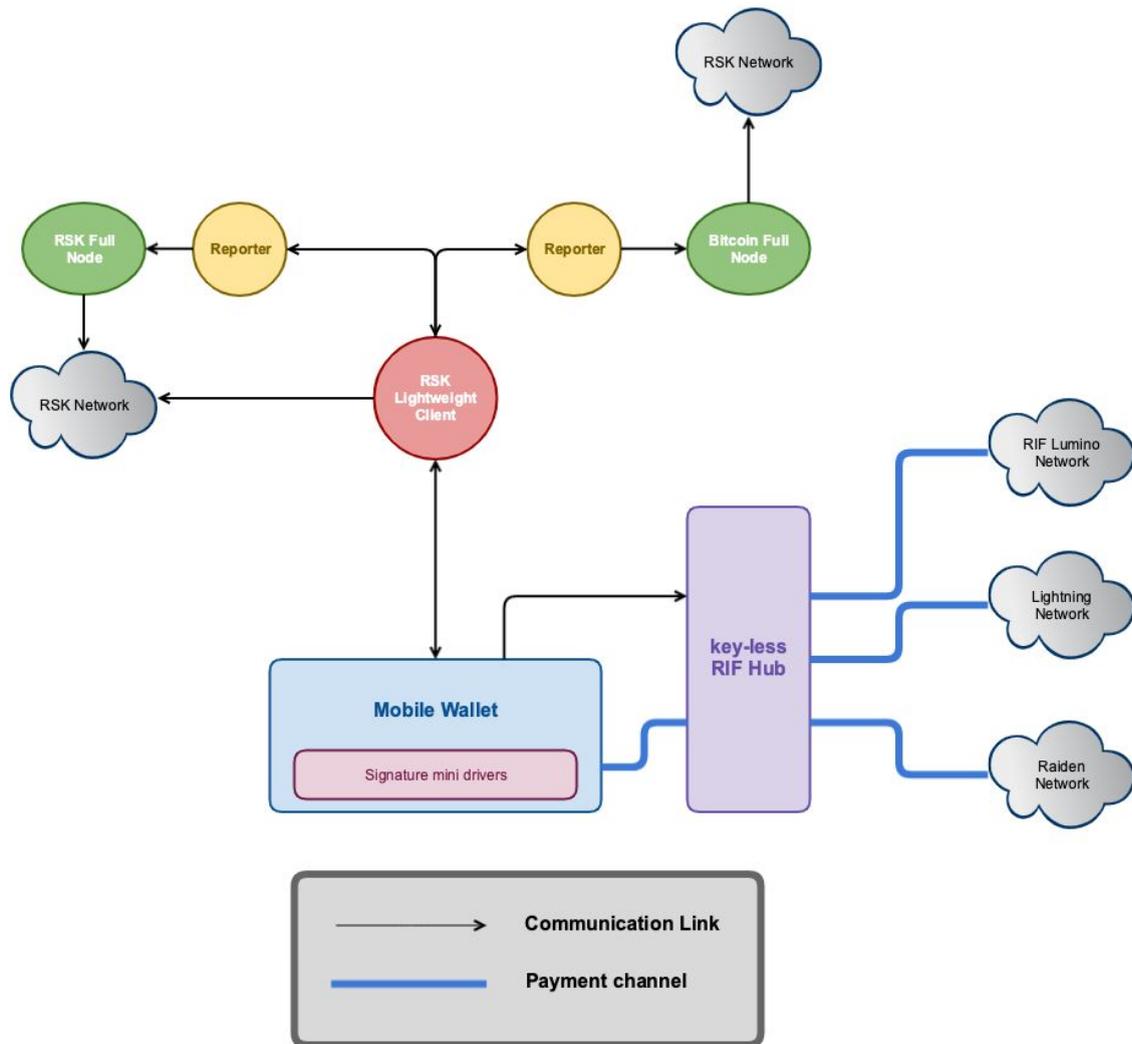
RIF Payments Full is composed of the following components:

Component	Description
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Private Key Storage	Secure component to store the user private keys
Blockchain & transactions abstractions	Allows to create onchain transactions in the different networks
Key-less node	Node to interact with the different payment networks but without storing user private keys

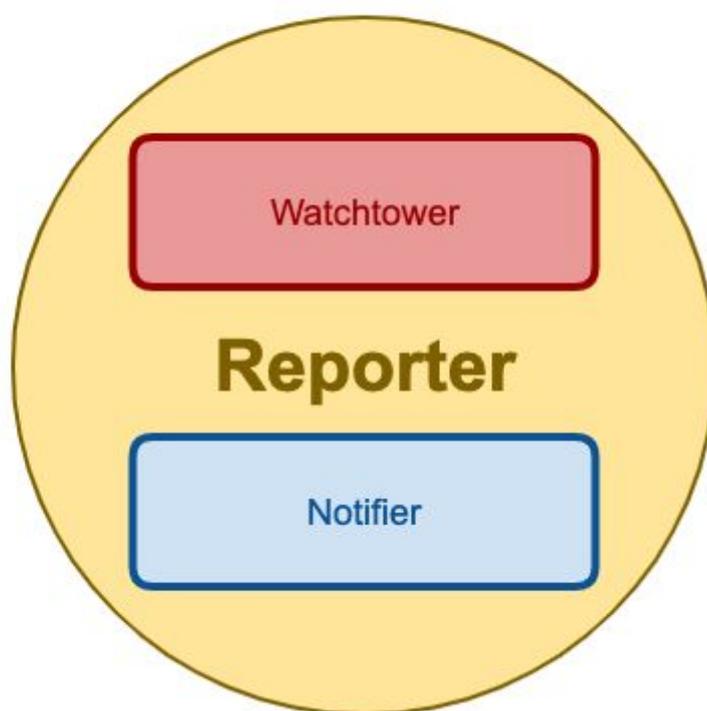
RIF Payments Light

This module provides the necessary protocols and components to create fully secure and decentralized clients for RIF Payments Full.



Component	Description
Mobile Wallet	Secure component to store the user private keys
Signature mini drivers	Components in charge to sign the transactions for the different networks and protocols, this will be a plugin module allowing to easily add new drivers.
Key-less RIF Hub	In charge on maintain the channels with the different payment networks. It doesn't store any user keys
Reporters	Explained with more details later in this document

Reporters



The Reporters are vital for the user's security.

Each reporter has two main components:

- **Watchtower:** it is in charge of listening for events from the underlying Blockchain network (e.g., RSK, Bitcoin, Ethereum, etc.) and react to such events, by issuing onchain transactions to protect user assets. For example, watchtowers can detect when a channel is being closed unilaterally with a non-last balance message.
- **Notifier:** it is responsible for notifying the lightweight client about the different events that occur in the blockchain, such as channel opening, channel closes and account balance changes.. By querying a diverse set of notifiers, a light-client can obtain information about transactions in a blockchain that is not light-client friendly.

Conclusion

The RIF Payments protocols are designed to facilitate the interaction with multiple off-chain payment networks with a set of unified user interfaces and libraries. The main goal of RIF Payments is to foster mass adoption of Blockchain technology and interoperability between networks and tokens to promote the anti-fragility of the ecosystem as a whole and the

development of real use cases that can contribute in building a more innovative, fair and inclusive financial system for all.