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# ERC777 the new token standard, and trust-less payment channel tokenized loyalty points

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I certify that except where due acknowledgement has been given, the work presented in this thesis is that of the author alone; the work has not been submitted previously, in whole or in part, to qualify for any other academic award; and the content of the thesis is the result of work which has been carried out since the official commencement date of the approved research program.

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Jacques Dafflon  
Neuchâtel, 20 June 2018



# Abstract

This is a very abstract abstract.



# Acknowledgements

ACKS





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# Figures



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# Chapter 1

## Introduction

Introduce:

- Blockchain / Ethereum (briefly)
- Define Tokens, ERC20, the need for a new standard
- Introduce ERC777
- Define payment channels and reason for existence, use as credit card
- Define loyalty points for credit cards





## Chapter 2

# Ethereum, A Decentralized Computing Platform

Short chapter explaining the following concepts:

- Ethereum Blockchain
- Smart contracts



## Chapter 3

# Tokens, And The Current Standard ERC20

Short description of tokens and their use.

Explain ERC20:

- specifications
- issues (vulnerabilities, locking)
- examples of attacks and locked funds

Mention ERC223 and its own problems:

- tokensFallback on all contracts
- not backwards compatible with ERC20
- unusable by existing contracts
- community/human issues with the author



## Chapter 4

# ERC777, A New Advanced Token Standard For Ethereum Tokens

Explain ERC777 in thorough details:

- specifications
- ERC820
- TokensSender and TokensRecipient
- Operators
- ERC20 compatibility
- Collaboration with Jordi Baylina
- Public Reception



## Chapter 5

# Payment Channels

- Speed Issues With The Blockchain
- Off-chain Solutions (Basic Explanation of Payment Channels)
- Use Cases
- Current Implementation And Improvements Made





## Chapter 6

# Tokenized Loyalty Points

- Basic Idea of Loyalty Points From Payment channels
- Tx Based Tokens
- Volume Based Tokens
  - modifications to the payment channel
- Redeeming process
  - Burning strategies
    - by the token contract
    - allowed set of “burners” (contracts of the loyalty program)
    - anyone



## Chapter 7

# Future Research and Work

- ERC777
  - Generic operators
  - Generic TokensSender And TokensRecipient
  - Promote ERC777
  - Assist In The Implementation of ERC777 Technologies (Wallet, Exchanges, Blockchain Explorers)
- Payment Channel
  - Other use cases for tokens (actually voting with your wallet)
  - Tax deductions on some tx (add tag in payment channel?)
- Loyalty Programs
  - On chain (ETH rewards, tokens Rewards, Pay with Tokens)
  - Off chain (T-shirts, coffee machines and toasters)



## Chapter 8

# Conclusion

I'll do this one at the end



# Glossary