Dev Portals Research

May 31, 2023 · 5 min read

Goals

- Explore principles behind the best dev portals in the fintech industry.
- Find patterns that can be used to build a new dev portal or significantly improve the existing one.
- Look for uncommon things to implement in a fresh dev portal.

Participants (66)

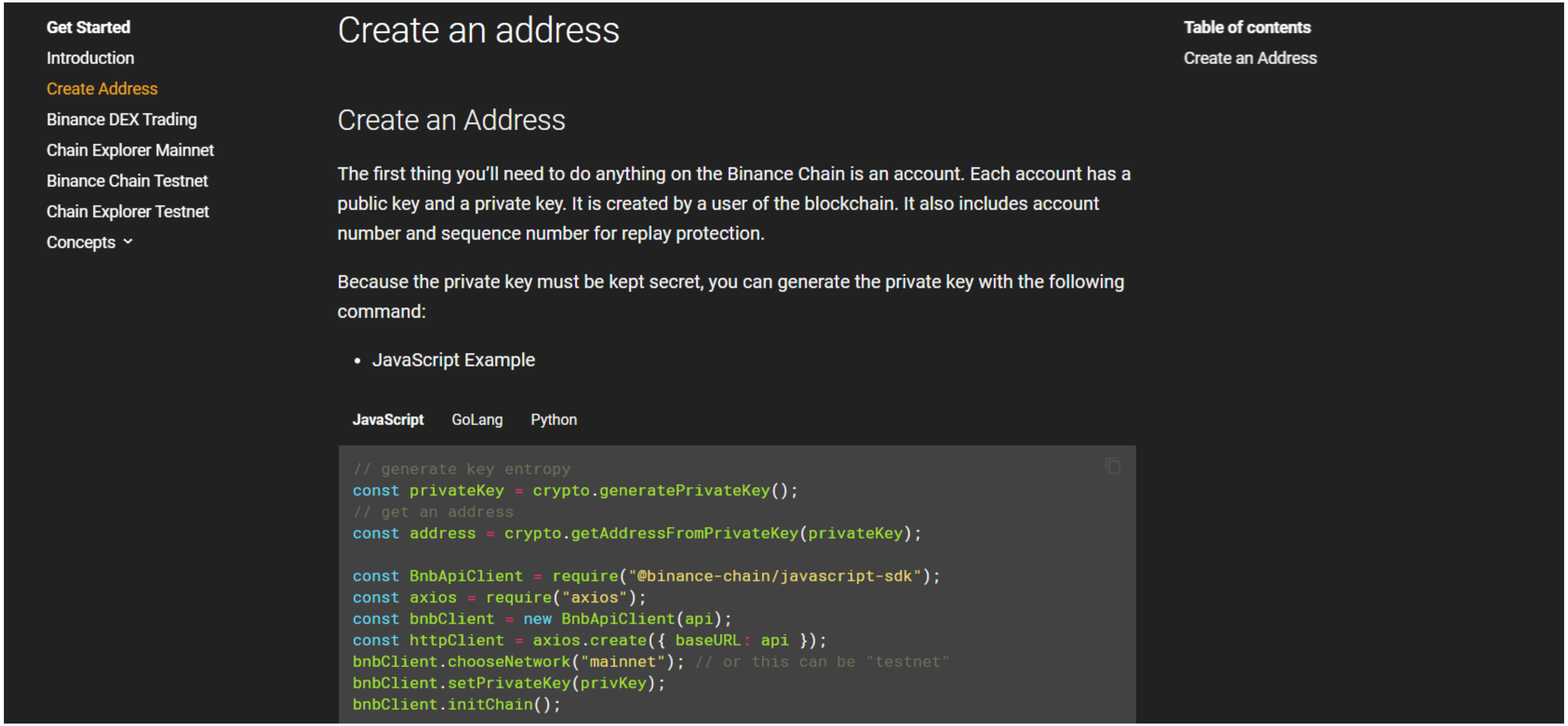
The participants of research include dev portals, API documentation, etc. of big companies and fintech/blockchain industries:

- Crypto Exchanges: Binance, Coinbase Pro, Kraken, Bitmex, Huobi, OKex, Upbit, Bitfinex, HitBTC, ZB.com, Bittrex.
- Blockchains: Binance Chain, Libra, Dash, Klaytn, Ethereum, EOSIO.
- Crypto Wallets: Coinbase, Trezor, Ledger, Electrum, Copay, Blockchain.info, Parity, imToken, MetaMask.
- DeFi: ChainLink, Ox, MakerDAO, Matic, Kyber Network, Uniswap, Synthetics, Compound, Iconomi, Polymath, Aave, DeFiZap, IDEX, Bancor.
- E-wallets/Payment Gateways: WeChat, Alipay, Paytm, Omise, Stripe, Bitgo, Square, Maybank QR Pay, Zalo Pay, Grab Pay, Google Pay, Ingenico ePayments, Apple Pay, Samsung Pay, Paypal, Revolut.
- Stock Exchanges (or services that can provide data from them): NASDAQ, Alpha Vantage, UniBit, Quandl, Deutsche Bourse.
- GAFAM: Google, Amazon, Facebook, Apple, Microsoft.

Documentation

Patterns

- Explanation on what the product or network can do (capabilities, functionalities). Samples: Coinbase Pro, Binance Chain.
- Security best practices. Samples: Coinbase Pro, Omise, Ledger.
- Guides include code samples, instead of user UI walkthrough. Samples: Coinbase Pro, Binance Chain, Trezor, Ledger, Electrum, Instagram, Microsoft.



Create an address

Create an Address

The first thing you'll need to do anything on the Binance Chain is an account. Each account has a public key and a private key. It is created by a user of the blockchain. It also includes account number and sequence number for replay protection.

Because the private key must be kept secret, you can generate the private key with the following command:

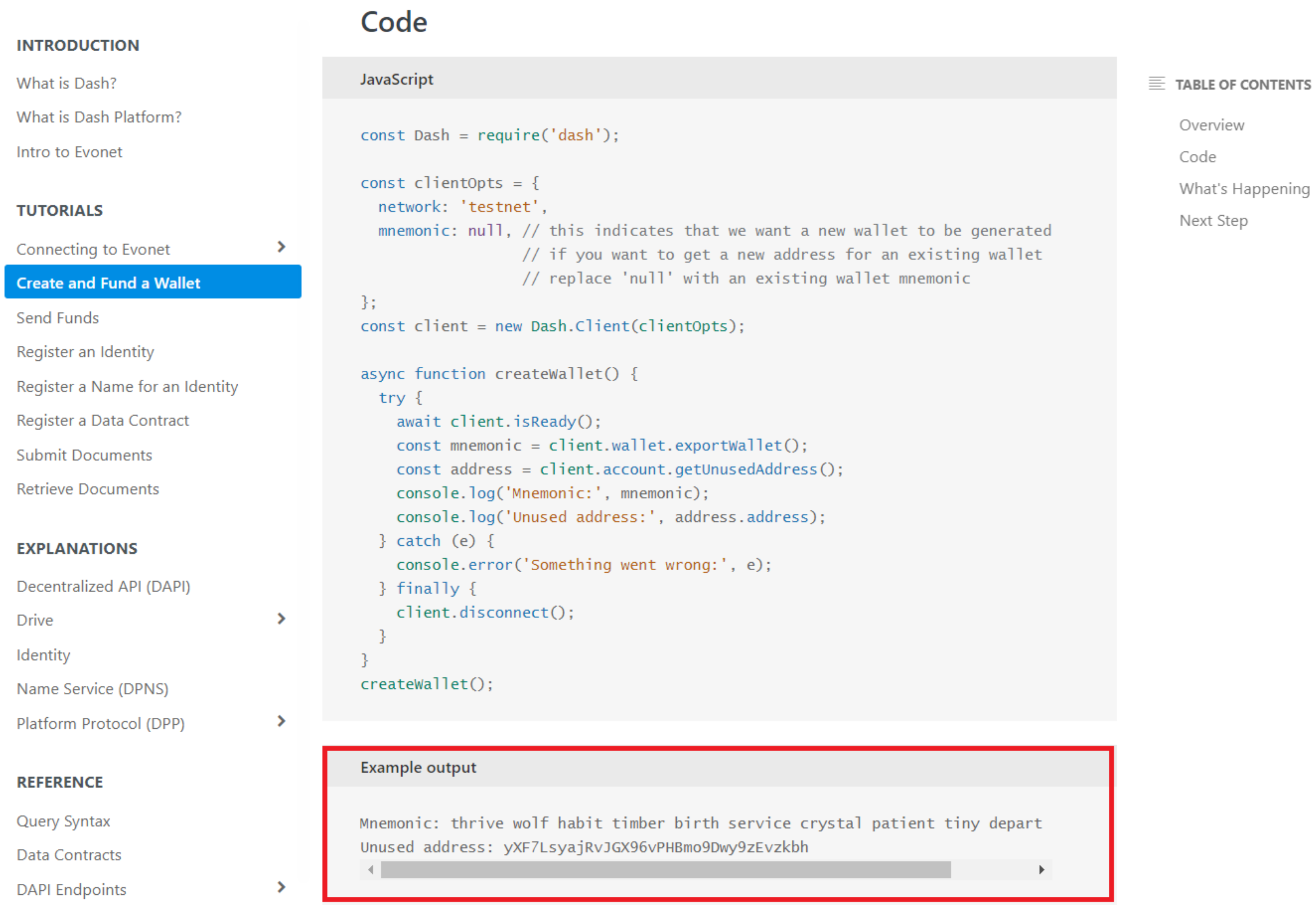
- JavaScript Example

```
// generate key entropy
const privateKey = crypto.generatePrivateKey();
// get an address
const address = crypto.getAddressFromPrivateKey(privateKey);

const BnbApiClient = require("@binance-chain/javascript-sdk");
const axios = require("axios");
const bnbClient = new BnbApiClient(api);
const httpClient = axios.create({ baseURL: api });
bnbClient.chooseNetwork("mainnet"); // or this can be "testnet"
bnbClient.setPrivateKey(privKey);
bnbClient.initChain();
```

Binance Chain

- Code samples in guides include `Example output` and explain `What's happening` in a short paragraph, instead of a step-by-step process. Sample: Dash, Libra.



INTRODUCTION

What is Dash?

What is Dash Platform?

Intro to Evonet

TUTORIALS

Connecting to Evonet

Create and Fund a Wallet

Send Funds

Register an Identity

Register a Name for an Identity

Register a Data Contract

Submit Documents

Retrieve Documents

EXPLANATIONS

Decentralized API (DAPI)

Drive

Identity

Name Service (DPNS)

Platform Protocol (DPP)

REFERENCE

Query Syntax

Data Contracts

DAPI Endpoints

Code

JavaScript

```
const Dash = require('dash');

const clientOpts = {
  network: 'testnet',
  mnemonic: null, // this indicates that we want a new wallet to be generated
                  // if you want to get a new address for an existing wallet
                  // replace 'null' with an existing wallet mnemonic
};
const client = new Dash.Client(clientOpts);

async function createWallet() {
  try {
    await client.isReady();
    const mnemonic = client.wallet.exportWallet();
    const address = client.account.getUnusedAddress();
    console.log('Mnemonic:', mnemonic);
    console.log('Unused address:', address.address);
  } catch (e) {
    console.error('Something went wrong:', e);
  } finally {
    client.disconnect();
  }
}
createWallet();
```

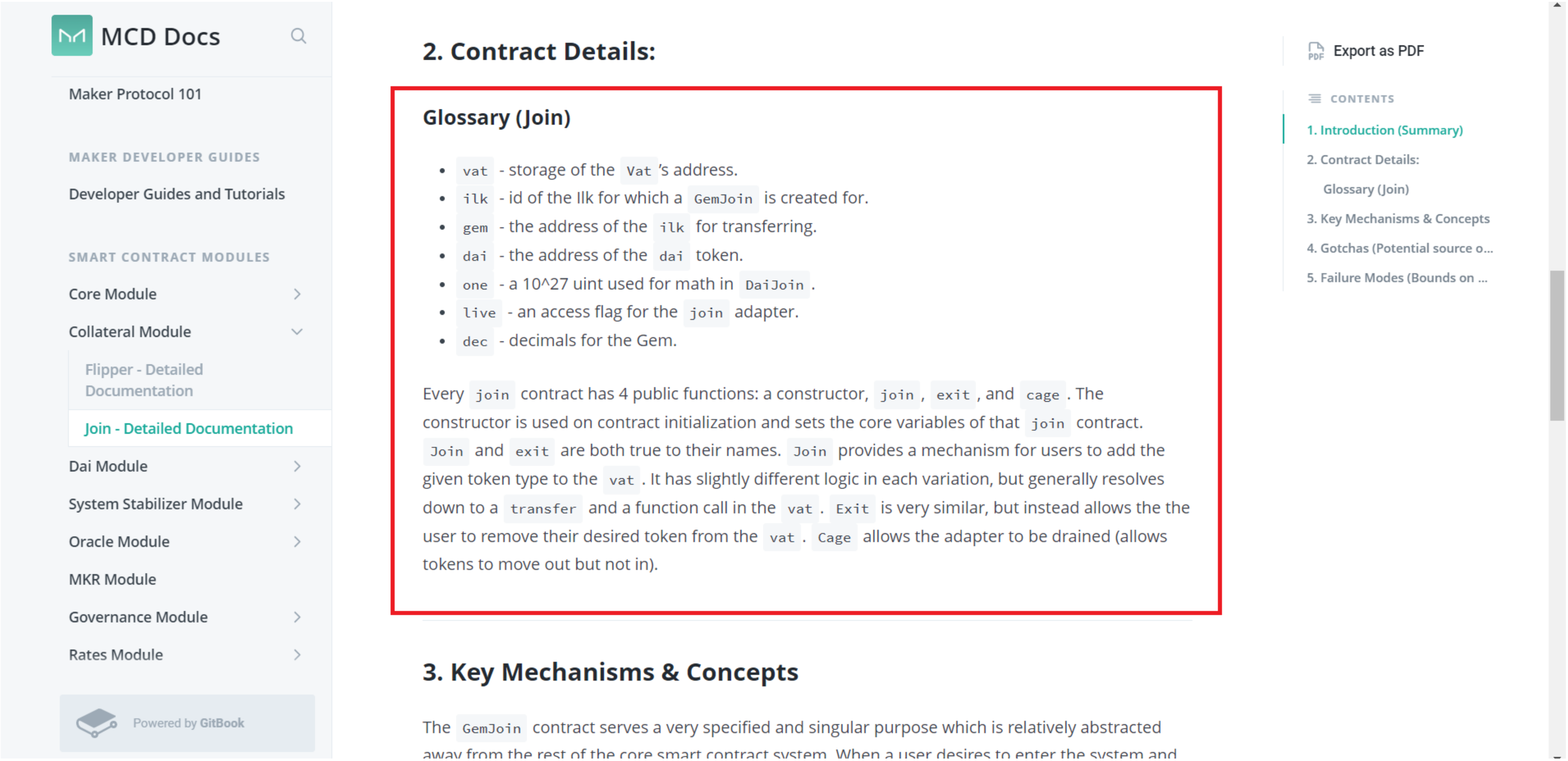
Example output

```
Mnemonic: thrive wolf habit timber birth service crystal patient tiny depart
Unused address: yXF7LsyajRvJGX96vPHBmo9Dwy9zEvzkbh
```

TABLE OF CONTENTS

Dash

- If this is a blockchain, there's a guide on how to set up your own node. Samples: Binance Chain, Libra, ChainLink.
- Each smart contract is described in details, including intro, the purpose of all functions, reference to Github, etc. Sample: MakerDAO, Synthtics, Compound, Bancor.



MCD Docs

Maker Protocol 101

MAKER DEVELOPER GUIDES

Developer Guides and Tutorials

SMART CONTRACT MODULES

Core Module

Collateral Module

Flipper - Detailed Documentation

Join - Detailed Documentation

Dai Module

System Stabilizer Module

Oracle Module

MKR Module

Governance Module

Rates Module

Powered by GitBook

2. Contract Details:

Glossary (Join)

- `vat` - storage of the `Vat` 's address.
- `ilk` - id of the Ilk for which a `GemJoin` is created for.
- `gem` - the address of the `ilk` for transferring.
- `dai` - the address of the `dai` token.
- `one` - a 10^27 uint used for math in `DaiJoin` .
- `live` - an access flag for the `join` adapter.
- `dec` - decimals for the Gem.

Every `join` contract has 4 public functions: a constructor, `join` , `exit` , and `cage` . The constructor is used on contract initialization and sets the core variables of that `join` contract. `Join` and `exit` are both true to their names. `Join` provides a mechanism for users to add the given token type to the `vat` . It has slightly different logic in each variation, but generally resolves down to a `transfer` and a function call in the `vat` . `Exit` is very similar, but instead allows the the user to remove their desired token from the `vat` . `Cage` allows the adapter to be drained (allows tokens to move out but not in).

3. Key Mechanisms & Concepts

The `GemJoin` contract serves a very specified and singular purpose which is relatively abstracted away from the rest of the core smart contract system. When a user desires to enter the system and

Export as PDF

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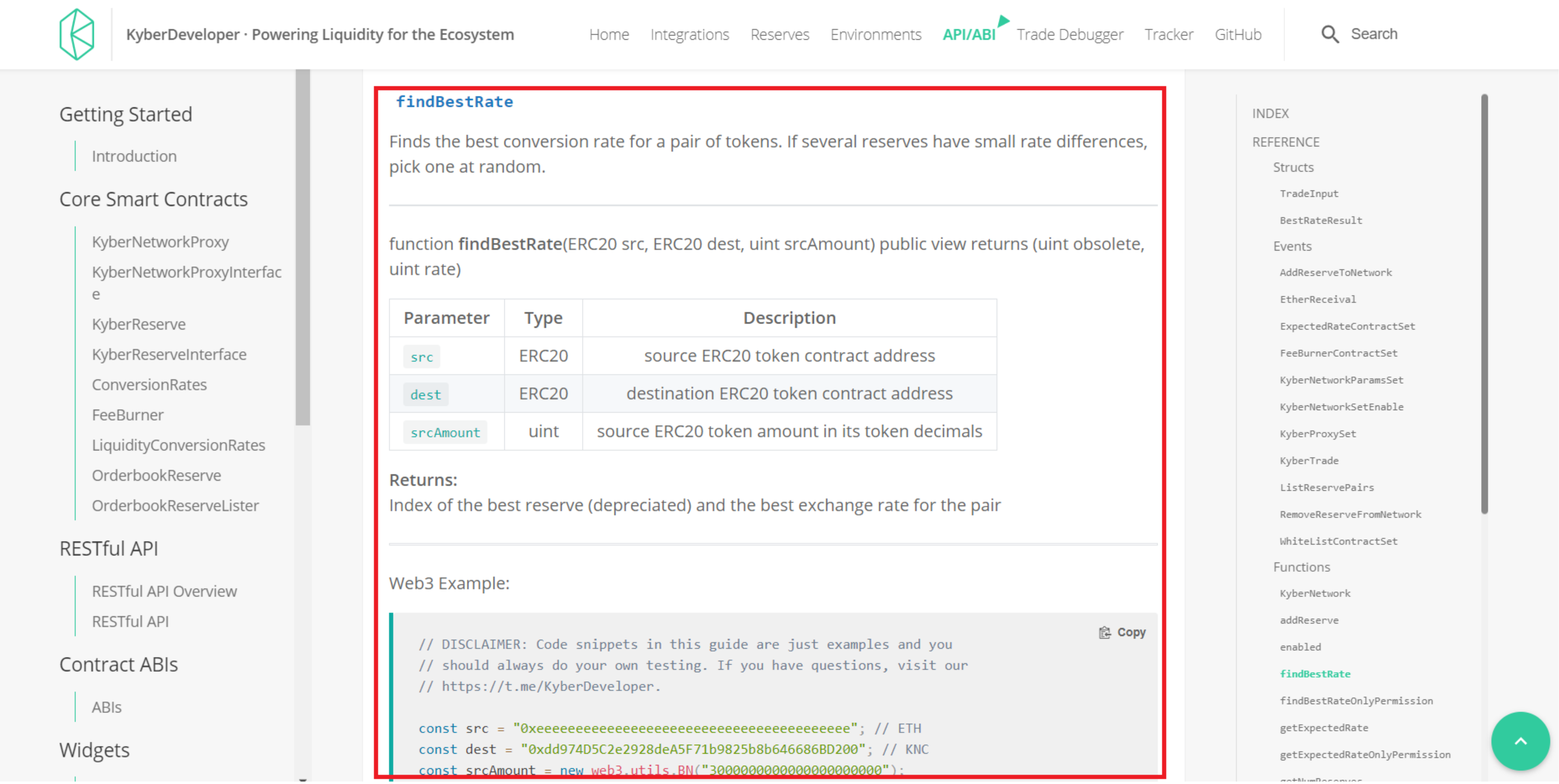
MakerDAO



`findBestRate`

Finds the best conversion rate for a pair of tokens. If several reserves have small rate differences, pick one at random.

function **findBestRate**(ERC20 src, ERC20 dest, uint srcAmount) public view returns (uint obsolete, uint rate)

Parameter	Type	Description
`src`	ERC20	source ERC20 token contract address
`dest`	ERC20	destination ERC20 token contract address
`srcAmount`	uint	source ERC20 token amount in its token decimals

Returns:
Index of the best reserve (depreciated) and the best exchange rate for the pair

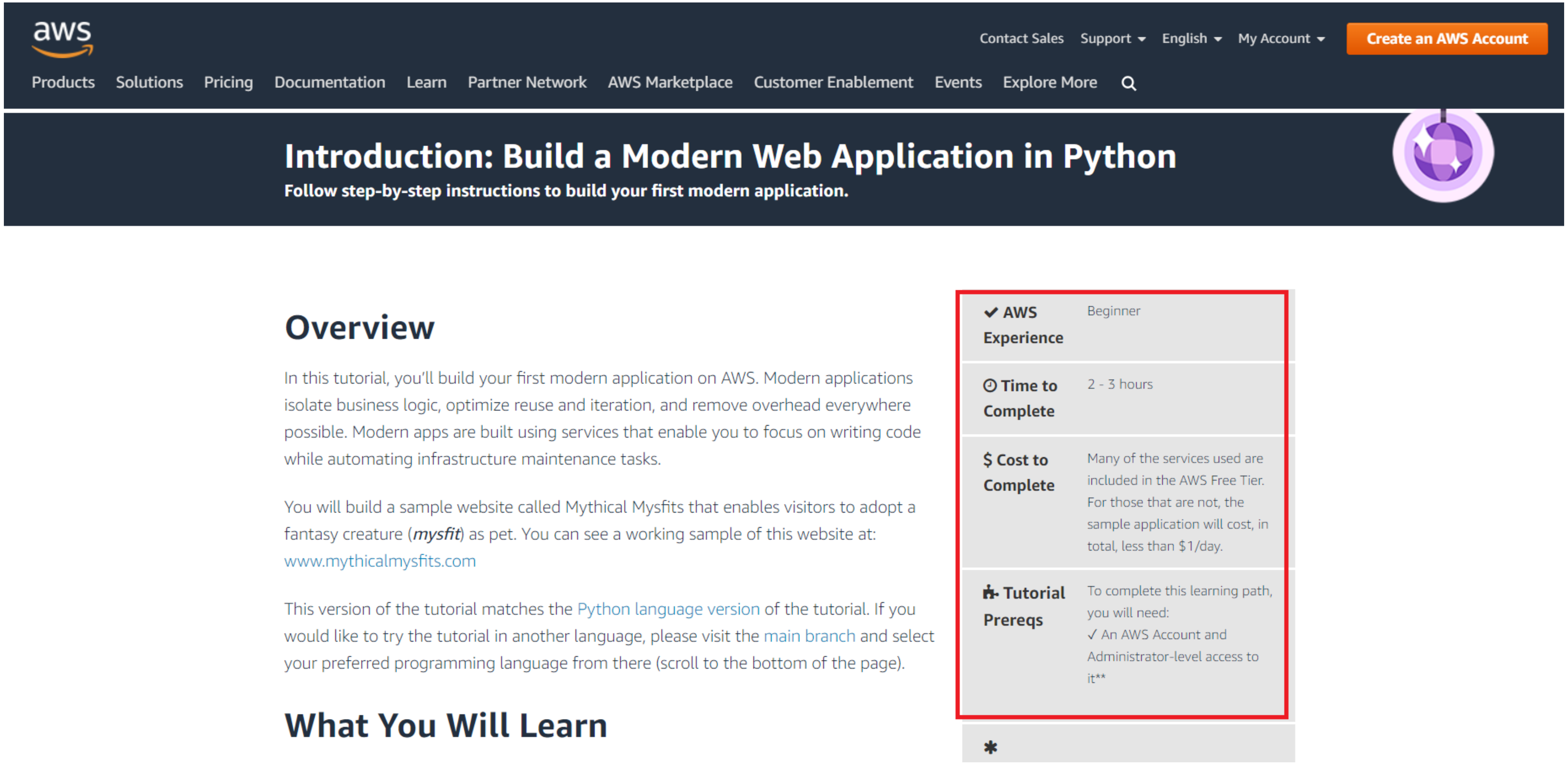
Web3 Example:

```
// DISCLAIMER: Code snippets in this guide are just examples and you
// should always do your own testing. If you have questions, visit our
// https://t.me/KyberDeveloper.

const src = "0xeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeeee"; // ETH
const dest = "0xdd974D5C2e2928deA5F71b9825b8b646686BD200"; // KNC
const srcAmount = new web3.utils.BN("3000000000000000000000");
```

Kyber Network

- Build your first app. Sample: Matic, Amazon AWS, Android, Microsoft.



Introduction: Build a Modern Web Application in Python

Follow step-by-step instructions to build your first modern application.

Overview

In this tutorial, you'll build your first modern application on AWS. Modern applications isolate business logic, optimize reuse and iteration, and remove overhead everywhere possible. Modern apps are built using services that enable you to focus on writing code while automating infrastructure maintenance tasks.

You will build a sample website called Mythical Mysfits that enables visitors to adopt a fantasy creature (***mysfit***) as pet. You can see a working sample of this website at: www.mythicalmysfits.com

This version of the tutorial matches the Python language version of the tutorial. If you would like to try the tutorial in another language, please visit the main branch and select your preferred programming language from there (scroll to the bottom of the page).

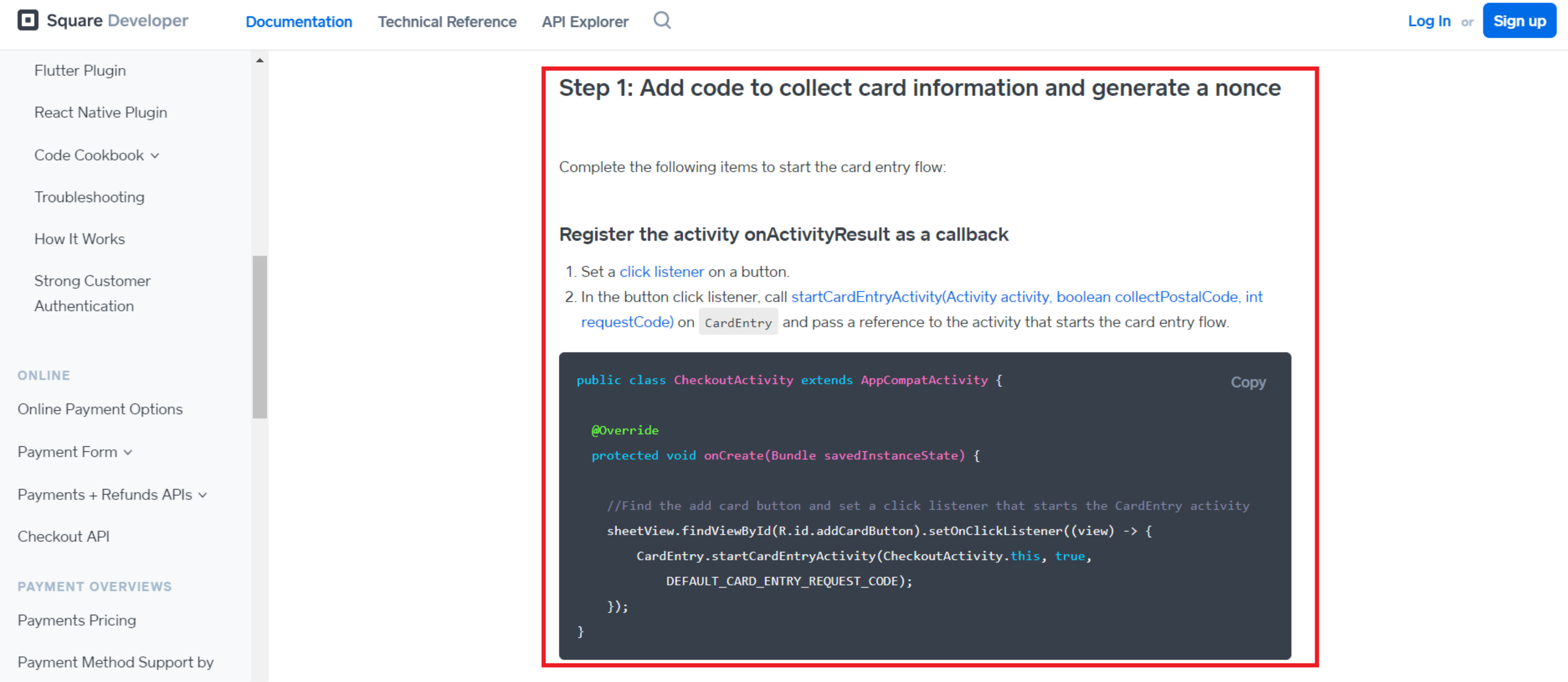
What You Will Learn

✓ **AWS Experience**	Beginner
Time to Complete	2 - 3 hours
$ Cost to Complete	Many of the services used are included in the AWS Free Tier. For those that are not, the sample application will cost, in total, less than $1/day.
Tutorial Prereqs	To complete this learning path, you will need: ✓ An AWS Account and Administrator-level access to it**

✱

Amazon AWS

- Clear structure of content for SDK explanation. Samples: Paytm, Square, Zalo Pay, Google Pay, Facebook.



Step 1: Add code to collect card information and generate a nonce

Complete the following items to start the card entry flow:

Register the activity onActivityResult as a callback

1. Set a click listener on a button.
2. In the button click listener, call startCardEntryActivity(Activity activity, boolean collectPostalCode, int requestCode) on `CardEntry` and pass a reference to the activity that starts the card entry flow.

```
public class CheckoutActivity extends AppCompatActivity {

  @Override
  protected void onCreate(Bundle savedInstanceState) {

    //Find the add card button and set a click listener that starts the CardEntry activity
    sheetView.findViewById(R.id.addCardButton).setOnClickListener((view) -> {
        CardEntry.startCardEntryActivity(CheckoutActivity.this, true,
            DEFAULT_CARD_ENTRY_REQUEST_CODE);
    });
}
```

Square

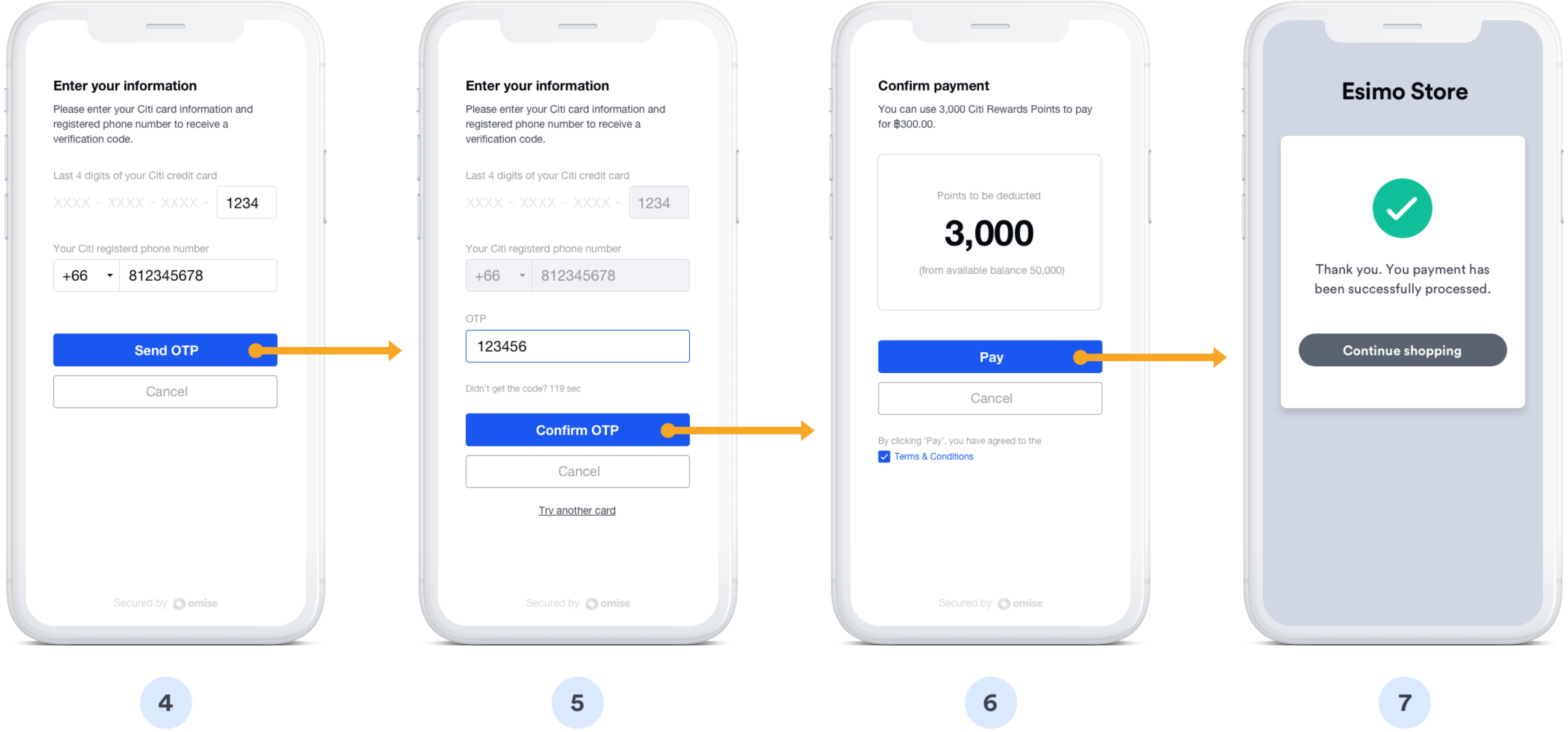
Uncommon/Cool Things

- A list of official and community libraries. Samples: Coinbase Pro.
- Notifications for updates or usage of certain API endpoints. Samples: Coinbase Pro.
- Guides include the level of difficulty. Samples: Coinbase Pro, 0x.
- Licenses for all open-source software. Samples: Coinbase Pro.
- Developer Agreement (Terms). Samples: Coinbase Pro, Bitfinex.

- Highlights on specific parts of the app/website. Samples: Binance Chain, Klatn, Facebook.

Klaytn

- A separate section for community: open principles, contribution guide, coding guidelines, bug reporting. Samples: Libra.
- The entire payment flow UI is described in 2 paragraphs and 2 images. Instead, the focus is put on the code. Samples: Omise.



4

Enter your information

Please enter your Citi card information and registered phone number to receive a verification code.

Last 4 digits of your Citi credit card: XXXX - XXXX - XXXX - 1234

Your Citi registerd phone number: +66 812345678

5

Enter your information

Please enter your Citi card information and registered phone number to receive a verification code.

Last 4 digits of your Citi credit card: XXXX - XXXX - XXXX - 1234

Your Citi registerd phone number: +66 812345678

OTP: 123456

Didn't get the code? 119 sec

6

Confirm payment

You can use 3,000 Citi Rewards Points to pay for ฿300.00.

Points to be deducted

3,000

(from available balance 50,000)

By clicking 'Pay', you have agreed to the

☑ Terms & Conditions

7

Esimo Store

Thank you. You payment has been successfully processed.

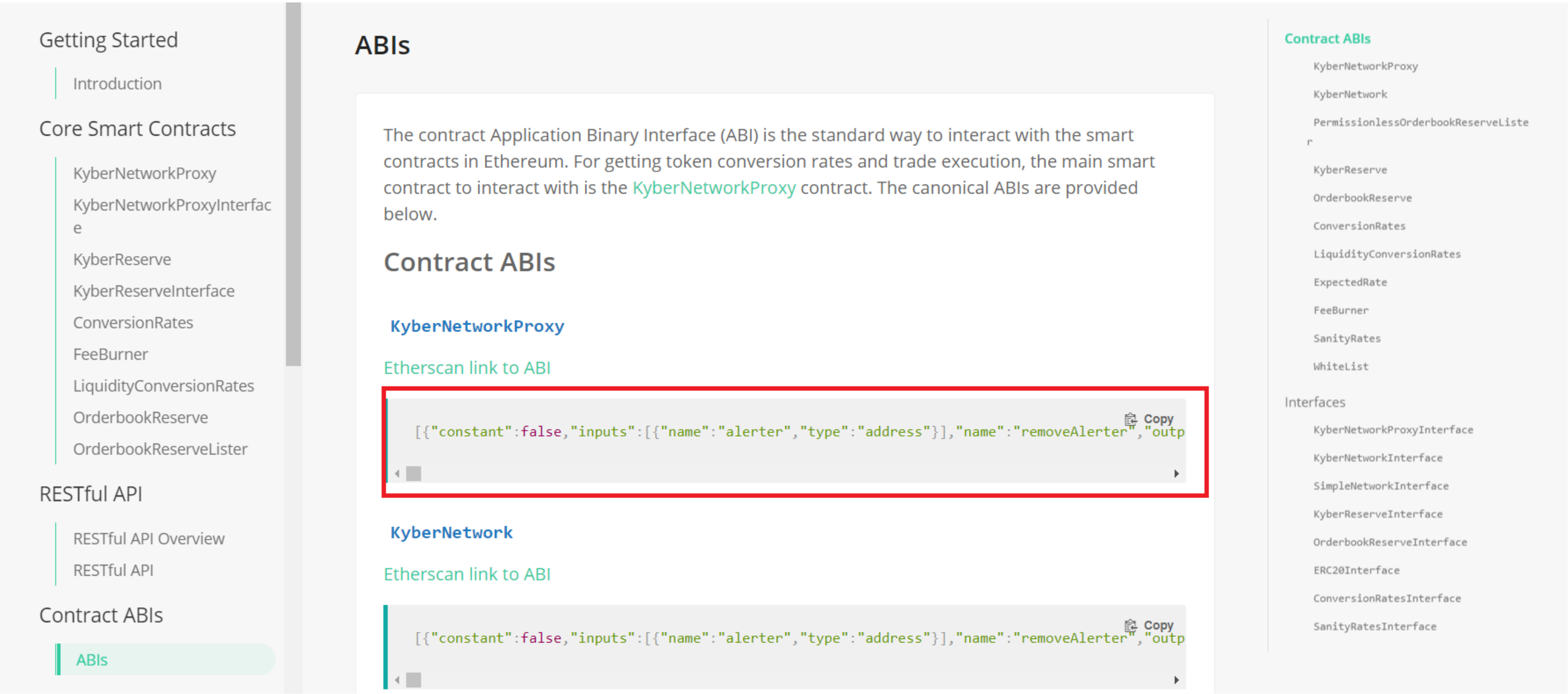
Omise

- A single page to explain the entire js library without compromising on an explanation of core features. Samples: Omise, Stripe.
- Specific features of this particular blockchain/network (built-in governance, privacy, etc.). Samples: Dash.

- A separate page for wallets that a network has. Samples: Dash.
- A document on how the law applies to the network. Samples: Dash.
- Integration guides for Android and iOS. Samples: TrustWallet.
- Every function has a `Logic` explanation where it shows what happens if you execute this particular function. Sample: 0x.

0x

- A full-stack Dapp (Airbnb). Sample: Matic.
- Application Binary Interface (ABI). Sample: Kyber Network, Compound.



ABIs

The contract Application Binary Interface (ABI) is the standard way to interact with the smart contracts in Ethereum. For getting token conversion rates and trade execution, the main smart contract to interact with is the KyberNetworkProxy contract. The canonical ABIs are provided below.

Contract ABIs

KyberNetworkProxy

Etherscan link to ABI

```
[{"constant":false,"inputs":[{"name":"alerter","type":"address"}],"name":"removeAlerter","outp
```

KyberNetwork

Etherscan link to ABI

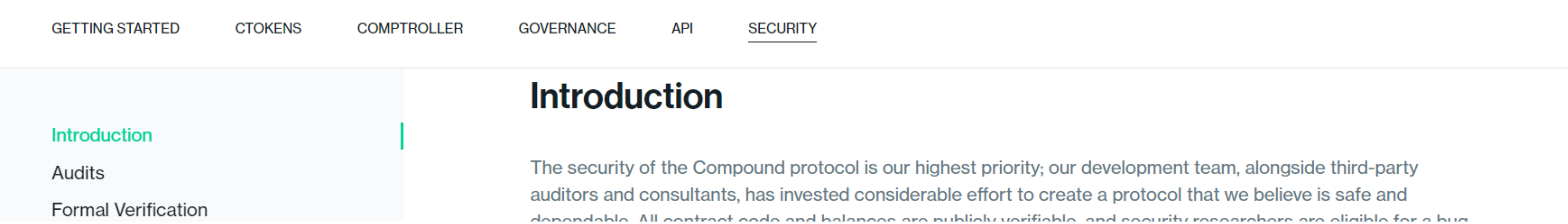
```
[{"constant":false,"inputs":[{"name":"alerter","type":"address"}],"name":"removeAlerter","outp
```

Kyber Network

- A very neat table for network connections. Samples: Compound.

Compound

- Security page with smart contract audits, formal verification, economic security, bug bounty program. Samples: Compound.



Introduction

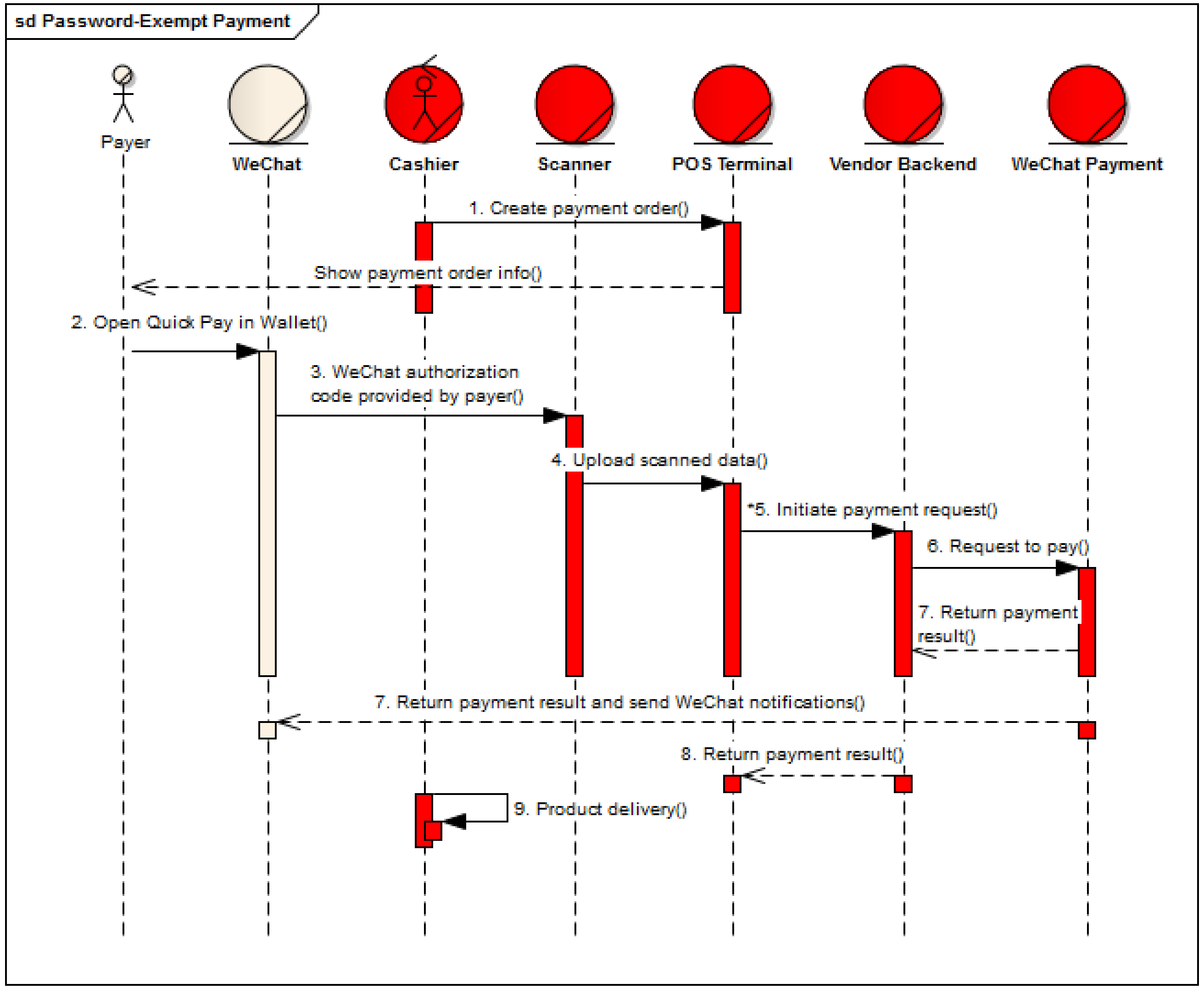
The security of the Compound protocol is our highest priority; our development team, alongside third-party auditors and consultants, has invested considerable effort to create a protocol that we believe is safe and dependable. All contract code and balances are publicly verifiable, and security researchers are eligible for a bug

Compound

- Code samples in Solidity and Web3. Samples: Aave.

Aave

- Sequence Chart for payment flow. Samples: WeChat.


sd Password-Exempt Payment
Payer
WeChat
Cashier
Scanner
POS Terminal
Vendor Backend
WeChat Payment
1. Create payment order()
Show payment order info()
2. Open Quick Pay in Wallet()
3. WeChat authorization code provided by payer()
4. Upload scanned data()
*5. Initiate payment request()
6. Request to pay()
7. Return payment result()
7. Return payment result and send WeChat notifications()
8. Return payment result()
9. Product delivery()

WeChat

- If there are multiple ways to do the same thing (via APIs or Dashboard for instance), it is divided into tabs. Samples: Paytm.

Paytm

- Cool landing page for SDK that explains the benefits of using this product. Samples: Square.
- Integration Checklist. Samples: Google Pay.

Google Pay

- A good way to explain lifecycles. Samples: Android.

Android

- Getting Started guides for SDKs. Samples: Facebook.
- A plugin that shows open and closed Github issues. Samples: Microsoft.

Microsoft

API

Patterns

- Infinite scroll page with auto-expandable hierarchy of document's structure on the left and request/response objects on the right. One of the tools used is Slate. Samples: Coinbase Pro, Stripe, Binance, Huobi, OKex, Upbit, HitBTC, ZB.com, Bittrex, Coinbase Custody, imToken, NASDAQ.

Binance

- Change Log. Samples: Binance, Bitmex, Huobi, Bitfinex, Bitgo

Huobi

- Clear examples of requests and response bodies. Samples: Coinbase Pro.

Coinbase Pro

- Code samples for each request in multiple languages. Samples: Upbit, Bitfinex, ZB.com, Stripe.

Upbit

Uncommon/Cool Things

- Upcoming changes. Samples: Coinbase Pro.
- A guide on how to read API docs. Samples: Bitfinex.
- API uptime. Samples: Blockchain.info.
- All APIs and SDKs docs are in one place. Sample: imToken.
- There are API endpoints for both mainnet and testnet. Samples: Binance Chain.
- Each function explains the use cases where it can be implemented. Samples: Paytm.

Paytm

- Embedded Swagger into dev portal website. Samples: Amazon.

Amazon

Tags: tech writing web3

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