

ZARELA

Decentralized Platform based on Biosignals

Technical instructions for launching Zarela Smart Contract

developer manual

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Introduction

Collecting datasets has been one of the most important topics in recent years that researchers, scientists, private and public companies, organizations, need them to test their hypothesis, and find answers to their questions by analyzing the collected data.

Zarela is an open source network platform based on blockchain which helps providing complete transparent, P2P and secure infrastructure for data sharing exchange between the parties as well as the collection of data sets. by tokenizing the data exchange process, Zarela encourages people to create Datasets. As proved in most studies, no special incentives are considered for participants or The fact that incentives are provided does not motivate the participant.

In Zarela, each participant Receives some tokens from the data requester for each study. In addition, if a payment made for transaction fee, Zarela's pool will reward that party with some tokens.

Zarela Smart Contract has been developed on the Ethereum network infrastructure and is available as open source through Zarela GitHub. The Project Zarela.io is implemented and launched as one of the decentralized businesses (DApp) on this smart contract. This document describes all the steps of starting a business on the basis of Zarela's smart contract.

1. Main Mechanism

Various projects and organizations might want to use the Zarela's mechanism and smart contract for their data collection activities. In order to achieve this each project needs to choose its own unique code base category inside organization on the Zarela Network so that all the requests submit with a unique identifier on its system. With specifying this code all of the contribution requests and responses will be displayed separately on their application. The mentioned process will be delivered in two scenarios that can be implemented privately and publicly, which we will discuss in detail below.

1.1.Private Implementation

In this scenario, submitting a request will be done only in private. The procedure is such that the submission process' Submit function request (submitNewRequest) in static environment is done statically on frontend so that only certain people (e.g. managers of a company) can make a request on the network. It should be noted that the public can response to these requests using the function" Contribute" and provide the requested data.

1.2.Public Implementation

In this scenario, both the request submission via requester and contributions that are made on the submitted requests, are being delivered publicly. Therefore, it should Provide an environment for users to submit their requests on the network. This scenario is the same scenario as the Zarela's application uses it.

2- Setup

In order for different institutions to be able to use the mechanism or the same smart contract Zarla, in other words, projects similar to Zarela, for themselves to implement, they must use the following tools.

It should be noted that Zarla application based on React.js has been implemented and the suggested tools have been provided with this default:

- 1. **Installation of a digital web-based wallet (e.g. MetaMask)**: Zarela in addition to launch on the Ethereum mainnet, has been implemented in the testnet on the Ropsten test network, so to perform your tests You must configure your Ethereum wallet on this test network. Also to perform transactions on Network you must have some Ethereum in your wallet to pay for the transaction fees.
- 2. **Git to clone Web App repo from Zarela's github repository**: the whole web application code base can be found on its github repository: <u>https://github.com/Zarela-dev/zarela-WebApp</u> and developers can use it as their own Boilerplate and modify it to fit for their application needs.

Using the command below you can clone the latest version of the application on your system:

git clone https://github.com/Zarela-dev/zarela-WebApp

- 3. Installing Node.js and npm package manager: the preferred version of the Node.js is > 12.0+
- 4. By executing the command below inside the zarela-WebApp directory, download and install required modules of the application:

cd zarela-WebApp

npm install

5. Thereafter, run the command below to start the application on your local environment at <u>http://localhost:3000/</u>:

npm run start

3- Dockerized container

Docker's main goal is to provide a performant and isolated environment for applications. to achieve the abovementioned, Docker utilizes the operating system's virtualization capability (docker container) to run the apps on an isolated environment.

To preserve the essence of "Open-Source Software" Zarela's application also provides the configuration file of the docker container.

this file is called Dockerfile and is accessible on github.

3-1 Docker Container

After cloning the repository of Zarela-WebApp on your system, execute the command below to create a container:

docker build . -t zarelaWebApp

After running the command above, the corresponding container will be created and an Image with the name of zarelaWebApp will be generated.

To run the docker image use this command:

docker run -d zarelaWebApp -p 127.0.0.1:80:80

with this command the corresponding container will run and the webapp will be accessible through the port 80.

4- Github Contributions

Contribution through development or optimization of the code base:

In case you want to modify the application or the files hosted on Zarela's github, follow these steps:

1- Make a fork from the zarela's repository into your own account on github. To do this on Zarela's github page click on "fork" button on the top right corner of the page

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<> Code	⊙ Issues	រ៉ឺ) Pull requests		凹 Projects	🛱 Wiki	

2- After doing the latter step, a version of the project will be created on your github account as shown in the figure below:

📮 Your Acc	ount / zarel	a-WebApp Public		
<> Code	Issues	1 Pull requests 1	▶ Actions	III Projects

3- After this step, you have the ability to modify the code on your forked version. when you have done with the modifications you can commit the changes and make a pull request to merge the changes.

4- In order to make a pull request click on the contribute button to go to the open pull request section.



5- Then you can follow the pull request:

Image: Second system Image: Second system <th>2</th>	2
<> Code ⊙ Issues 11 Pull requests ⊙ Actions III Projects II Wiki	
Comparing changes Choose two branches to see what's changed or to start a new pull request. If you need to, you can also compare across forks.	
thead repository: Zarela-dev/zarela-WebApp	
Discuss and review the changes in this comparison with others. Learn about pull requests	

6- Provide the change description in the relevant fields as shown below:

Open a pull request

Create a new pull request by comparing changes across two branches. If you need to, you can also compare across forks.

Able to n	merge. These branches can be automatically merged.	
write o	changes to pull here	
Write	Preview	
н в		
H B	a comment	
H B	a comment	
H B	a I i i i i i i i i i i i i i i i i i i	

7- After submitting a pull request, you will see the log as below:



Your pull request will go through a careful analysis and if it doesn't cause any merge conflicts on the original code base, it will be merged.

5- Prepare the variables needed to launch the application

In Zarela's application in order for optimize user experience, the history of user transactions are displayed on the wallet page. These information are fetched from Etherscan. Also to estimate the required gas fee for a new request submission on the system, we need some sort of reliable data, this data is fetched from <u>https://ethgasstation.info/</u>. You need to put the required API_KEY in the .env file.

Make a copy of the .env.example and rename it to .env.local and follow the instructions below to set your own variables according to your needs.

5-1 Bussiness Category ID (Zarela Business Category)

There is a variable called ZARELA_BUSINESS_CATEGORY. The value of "1" is assigned to Zarela.

if you need to setup your very own business, first you have to define your Business_category in Zarela's github page:

REACT_APP_ZARELA_BUSINESS_CATEGORY=YOUR_BUSINESS_CATEGORY_ID

5-2 Acquiring API KEY from etherscan.io

- 1- Navigate to <u>https://etherscan.io/apis</u>
- 2- Register an account and choose one of the offered plans
- 3- In the API_KEYS section create a new API_KEY

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III. 33,237.43 (10.30%) EP 47 GWC1			Home	Blockchain ~	lokens v	Resources ~	More ~	HUSSAZADI -	\$
	Create a new API-KEY loken								
My Profile	My API Keys 🖬 🚧 🧲								
Watch List	1 used (Out of 3 max guota)						First K	Page 1 of 1	Last
Txn Private Notes									
Address Private Notes	Action	Api-Key Token						Created	
	Edit all Stat	6NFG8CA82JHE	AGAWVW22W	DN15I8BTEM1TK				2021-06-10	
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₽ API-KEYs	* API keys created on Etherso	can.io can be used fo	r the Kovan, Rir	nkeby, Ropsten, a	nd Goerli Testn	ets.			
Verified Addresses									
≅ Custom ABIs	Current ADI Dian								
	Current API Plan								
i Api-Key?	API plan	FREE API PI	an						
For developers interested in building applications	API calls allow per second	5 calls							
using our API Service, please create an Api-Key Token which you can then use with all your ani	Upgrade Plan								
requests									

4- insert that API_KEY in the .env file as below:

REACT_APP_ETHEREUM_API_KEY=YOUR_API_KEY

5-3 Acquiring API KEY from Gasstation

- 1- Navigate to https://data.defipulse.com/
- 2- Register and account
- 3- Select the EthGasStation from the project list:

azadi.hess@gmail.com	Select Project	
	EthGasStation	
	DeFi Pulse	
	DEX.AG	
	ENABLE 2 FACTOR AUTHENTICATION Welcome! For increased account security, DeFI Pulse Data	

4- Create an API_KEY

azad hoss@gmail.com	ENABLE 2 FACTOR AUTHENTICATION Welcome! For increased account security, DeFi Pulse Data recommends enabling 2 Factor Authentication on your account.	Enable 2FA
Lo Account Settings		
Log Out	0% Used Monthly Allowance	4cd62a57dabcea 👁 👔
	2,000 - API Credits Remaining	Regenerate API Key

5- Insert the API_KEY in the .env file:

REACT_APP_GASSTATION_API_KEY=YOUR_API_KEY -۶

Important note: make sure to set these variables in the .env file as a missing variable will cause issues in the Wallet and New Request pages, but it won't cause any problems in overall application functionality.

5-4 Storing files on IPFS

Zarela uses the IPFS-Gateway as default on its application that you can access it on <u>https://ipfs.zarela.net/</u>.

In case you want to connect your own gateway to the application, you should put them in the .env file for example:

REACT_APP_IPFS=https://ipfs.io/ REACT_APP_IPFS_LINK=https://ipfs.io/ipfs/

if you don't prefer using the public IPFS-Gateway, you can install IPFS on your system/server.