

ERCx Summary report

(This report is generated on January 3rd, 2023 13:04:36.)

Using its ERCx tool, Runtime Verification analyzed the properties of existing ERC-20 tokens. In what follows, we report on token and test analytics

- (i) on a comprehensive set of around 218475 MainNet ERC-20 tokens and
- (ii) a focus on the top 20 tokens listed on Etherscan.io.

The following analytics were obtained by running 74 parametric property tests on the tokens.

At a high level of abstraction, each test is assigned a level depending on the expressed requirement on the token: see this [page](#) for more information.

In the following, we report:

1. An analysis at large of 45712 tested tokens
2. A detailed analysis of the top 20 ERC-20 tokens listed on Etherscan.io.

Analyzing the ERC-20 tokens at Large

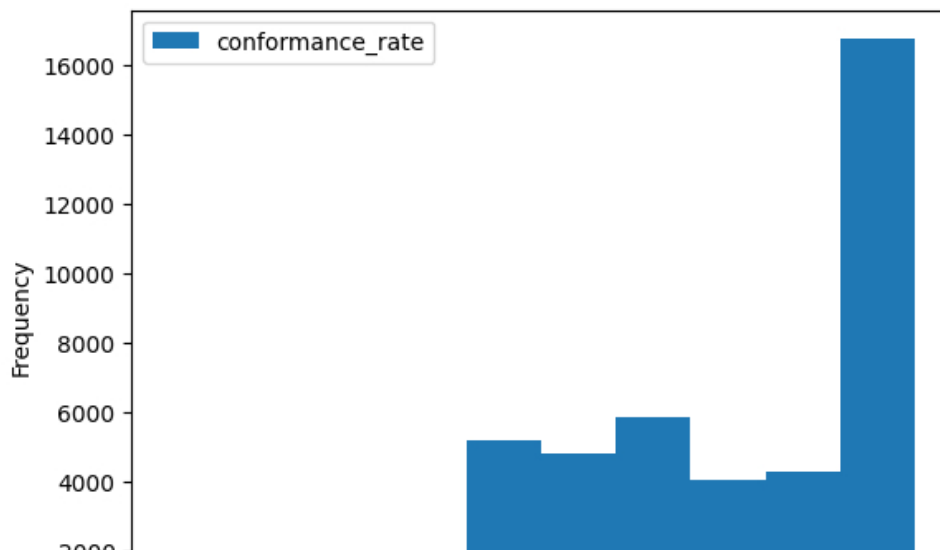
Number of conformant tokens

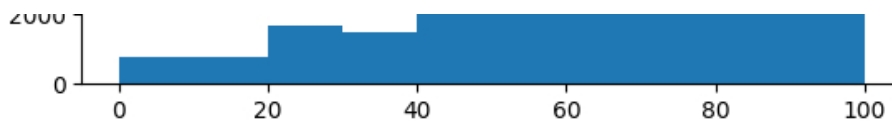
Out of 45712 ERC-20 tokens tested, we observed that

- 32.79% of them are conformant and
- 35.72% meet 95% of the standard.

The average standard conformance rate is 71.37%.

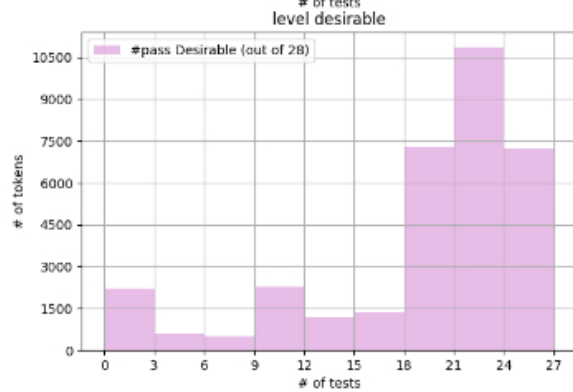
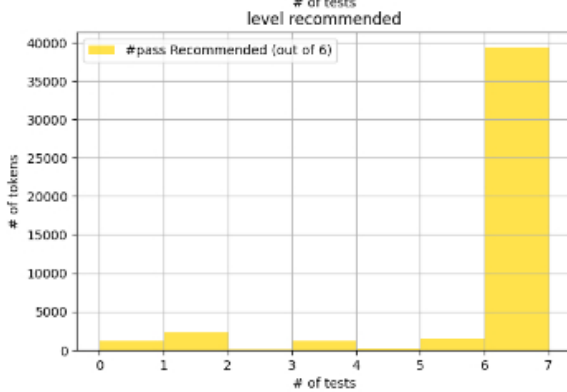
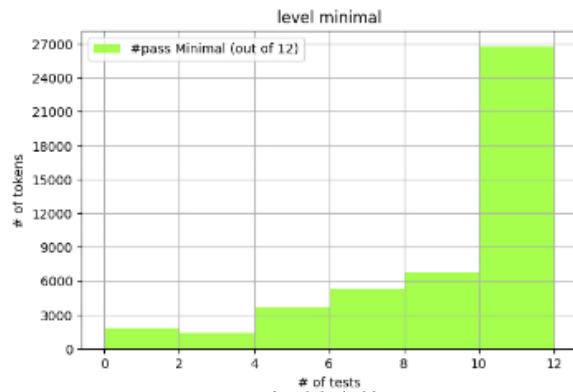
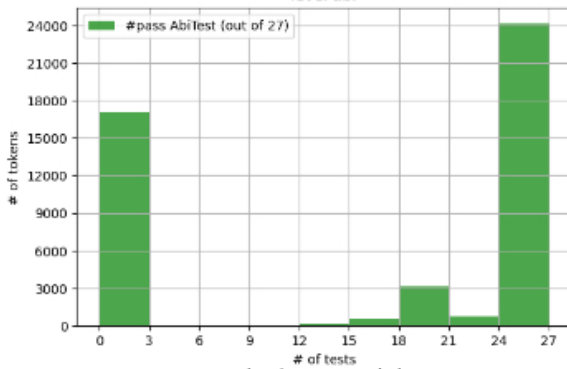
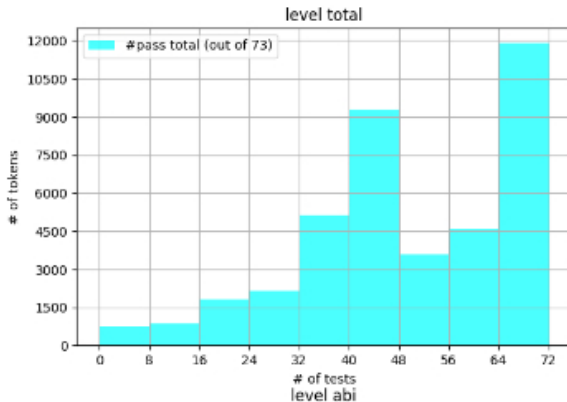
The histogram below shows the distribution of the standard conformance rate:





Then, we looked at how many properties are satisfied by the tokens in each level. The distribution of satisfaction of properties lets us know how the properties in each level are satisfied, the typical satisfaction expectation.

Distribution of passing tests counts per level for tested tokens



Focus on the top 20 tokens listed on Etherscan

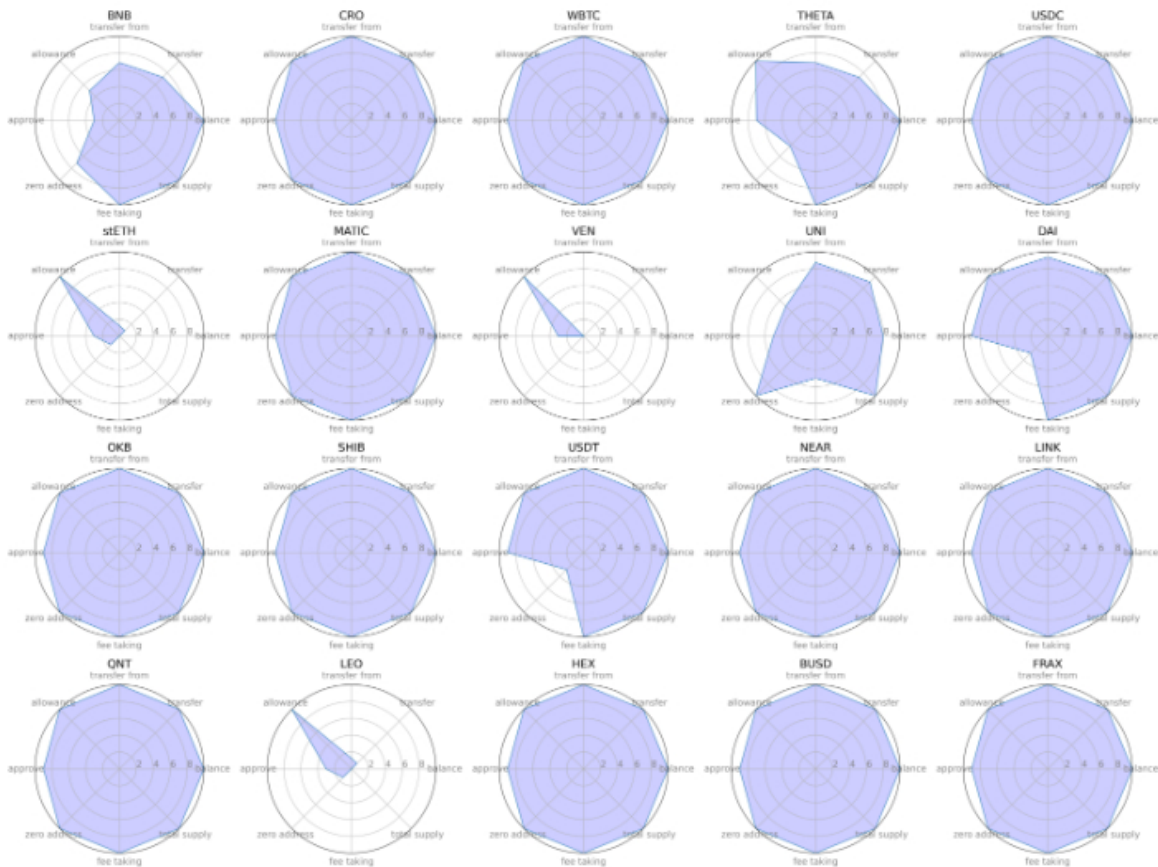
Runtime Verification analyzed the top 20 ERC-20 listed on [Etherscan](https://etherscan.io) using ERCx.

Scoring tokens

Runtime Verification evaluated those tokens against 7 important dimensions in the behavior of

the token: approve, transfer, transfer from, balance, total supply, zero address, fee taking. Based on the number of satisfied properties by each token, we assigned tokens a score in each of these dimensions. The following radar plots display the score for each of the tokens:

Scores of Etherscan for top 20 tokens



Based on the above, we can conclude that the top ERC-20 tokens comply with the properties, especially for minimal and recommended properties. Properties of level desirable are harder to meet. It is interesting to see how the satisfaction rates of the properties for the top 20 ERC-20 tokens compare to the vast majority of tokens.