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SMART CONTRACT CODE REVIEW AND SECURITY ANALYSIS REPORT

Customer: The Truth
Date: July 14th, 2021

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Document

Name	Smart Contract Code Review and Security Analysis Report for The Truth - Initial Audit
Approved by	Andrew Matiukhin | CTO Hacken OU
Type	ERC20 Token with service fee on deploy
Platform	Ethereum / Solidity
Methods	Architecture Review, Functional Testing, Computer-Aided Verification, Manual Review
Deployed in mainnet	https://etherscan.io/address/0x249e38ea4102d0cf8264d3701f1a0e39c4f2dc3b#code
Timeline	12 JULY 2021 - 14 JULY 2021
Changelog	14 JULY 2021 - INITIAL AUDIT

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Introduction

Hacken OÜ (Consultant) was contracted by The Truth (Customer) to conduct a Smart Contract Code Review and Security Analysis. This report presents the findings of the security assessment of Customer's smart contract and its code review conducted between July 12th, 2021 - July 14th, 2021.

Scope

The scope of the project is the smart contracts deployed in ethereum mainnet:

```
https://etherscan.io/address/0x249e38ea4102d0cf8264d3701f1a0e39c4f2dc3b#code

Contracts:
Context
ERC20
ERC20Decimals
StandardERC20
ServicePayer

Interfaces:
IERC20
IERC20Metadata
IPayable
```

We have scanned these smart contracts for commonly known and more specific vulnerabilities. Here are some of the commonly known vulnerabilities that are considered:

Category	Check Item
Code review	▪ Reentrancy ▪ Ownership Takeover ▪ Timestamp Dependence ▪ Gas Limit and Loops ▪ DoS with (Unexpected) Throw ▪ DoS with Block Gas Limit ▪ Transaction-Ordering Dependence ▪ Style guide violation ▪ Costly Loop ▪ ERC20 API violation ▪ Unchecked external call ▪ Unchecked math ▪ Unsafe type inference ▪ Implicit visibility level ▪ Deployment Consistency ▪ Repository Consistency ▪ Data Consistency

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Functional review	▪ Business Logics Review ▪ Functionality Checks ▪ Access Control & Authorization ▪ Escrow manipulation ▪ Token Supply manipulation ▪ Asset’s integrity ▪ User Balances manipulation ▪ Kill-Switch Mechanism ▪ Operation Trails & Event Generation

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Executive Summary

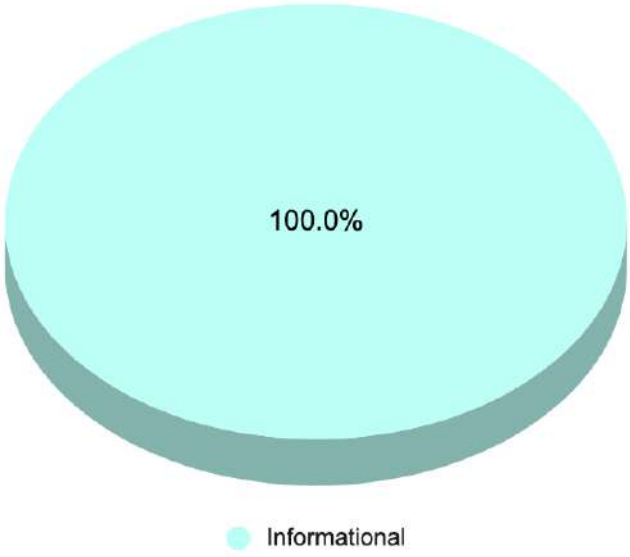
According to the assessment, the Customer's smart contracts are well-secured.

Insecure	Poor secured	Secured	Well-secured
		You are here	

Our team performed an analysis of code functionality, manual audit, and automated checks with Mythril and Slither. All issues found during automated analysis were manually reviewed, and important vulnerabilities are presented in the Audit overview section. All found issues can be found in the Audit overview section.

Security engineers found **2** informational issues during the first review.

Graph 1. The distribution of vulnerabilities after the first review.



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Severity Definitions

Risk Level	Description
Critical	Critical vulnerabilities are usually straightforward to exploit and can lead to assets loss or data manipulations.
High	High-level vulnerabilities are difficult to exploit; however, they also have a significant impact on smart contract execution, e.g., public access to crucial functions
Medium	Medium-level vulnerabilities are important to fix; however, they can't lead to assets loss or data manipulations.
Low	Low-level vulnerabilities are mostly related to outdated, unused, etc. code snippets that can't have a significant impact on execution
Lowest / Code Style / Best Practice	Lowest-level vulnerabilities, code style violations, and info statements can't affect smart contract execution and can be ignored.

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Audit overview

Critical

No High severity issues were found.

High

No High severity issues were found.

Medium

No High severity issues were found.

Low

No High severity issues were found.

Lowest / Code style / Best Practice

1. **Issue:** Public function that could be declared external.

   public functions that are never called by the contract should be declared **external** to save gas.

   Lines: #203

   ```
   function name() public view virtual override returns (string memory) {
   ```

   Lines: #211

   ```
   function symbol() public view virtual override returns (string memory)
   {
   ```

   Lines: #235

   ```
   function totalSupply() public view virtual override returns (uint256) {
   ```

   Lines: #242

   ```
   function balanceOf(address account) public view virtual override
   returns (uint256) {
   ```

   Lines: #254

   ```
   function transfer(address recipient, uint256 amount) public virtual
   override returns (bool) {
   ```

   Lines: #273

```
function approve(address spender, uint256 amount) public virtual
override returns (bool) {
```

Lines: #291

```
function transferFrom(address sender, address recipient, uint256
amount) public virtual override returns (bool) {
```

Lines: #313

```
function increaseAllowance(address spender, uint256 addedValue) public
virtual returns (bool) {
```

Lines: #332

```
function decreaseAllowance(address spender, uint256 subtractedValue)
public virtual returns (bool) {
```

2. **Issue:** Maximum line length.

   Solidity declares recommended maximum line length.

   Recommendation: Please follow the solidity style guide

   Lines: #70, 262, 291 and 332

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Conclusion

Smart contracts within the scope were manually reviewed and analyzed with static analysis tools.

Audit report contains all found security vulnerabilities and other issues in the reviewed code.

Security engineers found **2** informational issues during the first review.

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Disclaimers

Hacken Disclaimer

The smart contracts given for audit have been analyzed in accordance with the best industry practices at the date of this report, in relation to cybersecurity vulnerabilities and issues in smart contract source code, the details of which are disclosed in this report (Source Code); the Source Code compilation, deployment, and functionality (performing the intended functions).

The audit makes no statements or warranties on security of the code. It also cannot be considered as a sufficient assessment regarding the utility and safety of the code, bugfree status or any other statements of the contract. While we have done our best in conducting the analysis and producing this report, it is important to note that you should not rely on this report only - we recommend proceeding with several independent audits and a public bug bounty program to ensure security of smart contracts.

Technical Disclaimer

Smart contracts are deployed and executed on the blockchain platform. The platform, its programming language, and other software related to the smart contract can have its vulnerabilities that can lead to hacks. Thus, the audit can't guarantee the explicit security of the audited smart contracts.