



# SMART CONTRACT SECURITY AUDIT

Titanium Hand

September, 2021

Website: [soken.io](https://soken.io)

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# Disclaimer

This is a comprehensive report based on our automated and manual examination of cybersecurity vulnerabilities and framework flaws. We took into consideration smart contract based algorithms, as well. Reading the full analysis report is essential to build your understanding of project's security level. It is crucial to take note, though we have done our best to perform this analysis and report, that you should not rely on the our research and cannot claim what it states or how we created it. Before making any judgments, you have to conduct your own independent research. We will discuss this in more depth in the following disclaimer - please read it fully.

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Security analysis is based only on the smart contracts. No applications or operations were reviewed for security. No product code has been reviewed.

# Procedure

## Our analysis contains following steps:

1. Project Analysis;
2. Manual analysis of smart contracts:
  - Deploying smart contracts on any of the network(Ropsten/Rinkeby) using Remix IDE
  - Hashes of all transaction will be recorded
  - Behaviour of functions and gas consumption is noted, as well.
3. Unit Testing:
  - Smart contract functions will be unit tested on multiple parameters and under multiple conditions to ensure that all paths of functions are functioning as intended.
  - In this phase intended behaviour of smart contract is verified.
  - In this phase, we would also ensure that smart contract functions are not consuming unnecessary gas.
  - Gas limits of functions will be verified in this stage.
4. Automated Testing:
  - Mythril
  - Oyente
  - Manticore
  - Solgraph

# Terminology

**We categorize the finding into 4 categories based on their vulnerability:**

- Low-severity issue — less important, must be analyzed
- Medium-severity issue — important, needs to be analyzed and fixed
- High-severity issue — important, might cause vulnerabilities, must be analyzed and fixed
- Critical-severity issue — serious bug causes, must be analyzed and fixed.

# Limitations

The security audit of Smart Contract cannot cover all vulnerabilities. Even if no vulnerabilities are detected in the audit, there is no guarantee that future smart contracts are safe. Smart contracts are in most cases safeguarded against specific sorts of attacks. In order to find as many flaws as possible, we carried out a comprehensive smart contract audit. Audit is a document that is not legally binding and guarantees nothing.

# Token Contract Details for 30.09.2021

Contract Name: **TitaniumHand**

Deployed address: **0x7920805e72e9bf37b0f60c8405d05be402a96022**

Total Supply: **1,000,000,000,000**

Token Tracker: **\$TH**

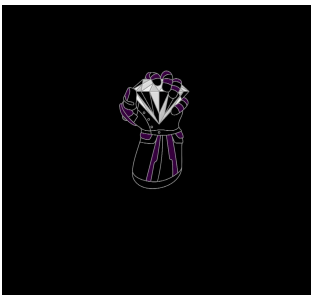
Decimals: **18**

Token holders: **1**

Transactions count: **1**

Top 100 holders dominance: **100%**

## Audit Details



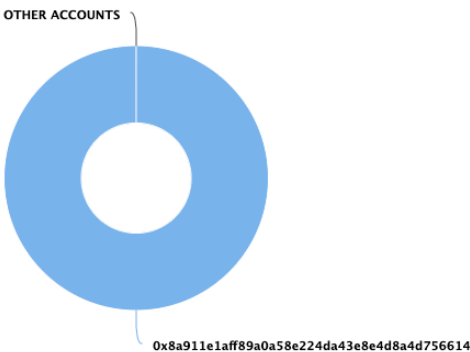
Project Name: **Titanium Hand**

Language: **Solidity**

Blockchain: **BSC**

Project Website: **titaniumhand.com**

# \$TH Token Distribution



# \$TH Top 10 Holders

Rank	Address	Quantity (Token)	Percentage
1	0x8a911e1aff89a0a58e224da43e8e4d8a4d756614	1,000,000,000,000	100.0000%

# Vulnerabilities checking

Issue Description	Checking Status
Compiler Errors	Completed
Delays in Data Delivery	Completed
Re-entrancy	Completed
Transaction-Ordering Dependence	Completed
Timestamp Dependence	Completed
Shadowing State Variables	Completed
DoS with Failed Call	Completed
DoS with Block Gas Limit	Low-issues
Outdated Compiler Version	Completed
Assert Violation	Completed
Use of Deprecated Solidity Functions	Completed
Integer Overflow and Underflow	Completed
Function Default Visibility	Completed
Malicious Event Log	Completed
Math Accuracy	Completed
Design Logic	Completed
Fallback Function Security	Completed
Cross-function Race Conditions	Completed
Safe Zeppelin Module	Completed



# Security issues

## 1) Volatile Code:

The return values of functions

*swapExactTokensForETHSupportingFeeOnTransferTokens* and *addLiquidityETH* are not properly handled.

## 2) Logical Issue: Incorrect Error Message

The error message in `require(!_isExcluded[account], "Account is already excluded")` does not describe the error correctly.

## 3) Out of Gas issue:

```
function includeInReward(address account) external onlyOwner() {
    require(!_isExcluded[account], "Account is already excluded");
    for (uint256 i = 0; i < _excluded.length; i++) {
        if (_excluded[i] == account) {
            _excluded[i] = _excluded[_excluded.length - 1];
            _tOwned[account] = 0;
            _isExcluded[account] = false;
            _excluded.pop();
            break;
        }
    }
}
```

The function `includeInRewards()` uses the loop to find and remove addresses from the `_excluded` list. Function will be aborted with `OUT_OF_GAS` exception if there will be a long excluded addresses list.

# Conclusion

Smart contract is free from any critical or high-severity issues. Low-severity issues exist within smart contract.

NOTE: Please check the disclaimer above and note, that audit makes no statements or warranties on business model, investment attractiveness or code sustainability.

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