



MOTECH AUDIT

SMART CONTRACT SECURITY AUDIT

SECURITY ASSESSMENT

**LESS TOKEN
AUDIT REPORT**

2021



28 NOV 2021

SECURITY ASSESSMENT

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SECURITY ASSESSMENT SUMMARY

This report has been prepared for Less Token smart contracts, to discover issues and vulnerabilities in the source code of their Smart Contract as well as any contract dependencies that were not part of an officially recognized library. A comprehensive examination has been performed, utilizing Static Analysis and Manual Review techniques.

The auditing process pays special attention to the following considerations:

- Testing the smart contracts against both common and uncommon attack vectors.
- Assessing the codebase to ensure compliance with current best practices and industry standards.
- Ensuring contract logic meets the specifications and intentions of the client.
- Cross referencing contract structure and implementation against similar smart contracts produced by industry leaders.
- Thorough line-by-line manual review of the entire codebase by industry experts.

The security assessment resulted in findings that ranged from critical to informational. We recommend addressing these findings to ensure a high level of security standards and industry practices. We suggest recommendations that could better serve the project from the security perspective:

- Enhance general coding practices for better structures of source codes;
- Add enough unit tests to cover the possible use cases given they are currently missing in the repository;
- Provide more comments per each function for readability, especially contracts are verified in public;
- Provide more transparency on privileged activities once the protocol is live.



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DISCLAIMER

This is a limited report on our findings based on our analysis, in accordance with good industry practice as at the date of this report, in relation to cybersecurity vulnerabilities and issues in the framework and algorithms based on smart contracts, the details of which are set out in this report. In order to get a full view of our analysis, it is crucial for you to read the full report. While we have done our best in conducting our analysis and producing this report, it is important to note that you should not rely on this report and cannot claim against us on the basis of what it says or doesn't say, or how we produced it, and it is important for you to conduct your own independent investigations before making any decisions. We go into more detail on this in the below disclaimer below – please make sure to read it in full.

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The analysis of the security is purely based on the smart contracts alone. No applications or operations were reviewed for security. No product code has been reviewed.



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BACKGROUND

MotechAudit was commissioned by Less Token to perform an audit of smart contracts:

<https://bscscan.com/address/0xb698ac9bc82c718d8eba9590564b9a5aa53d58e6>

The purpose of the audit was to achieve the following:

- Ensure that the smart contract functions as intended.
- Identify potential security issues with the smart contract.

The information in this report should be used to understand the risk exposure of the smart contract, and as a guide to improve the security posture of the smart contract by remediating the issues that were identified.



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AUDIT DETAILS



AUDITED PROJECT

LESS TOKEN



DEPLOYER ADDRESS

0x6b012B20c2075055F87A885d7E7C42586bAF7978



CLIENT CONTACTS:

LESS TOKEN TEAM



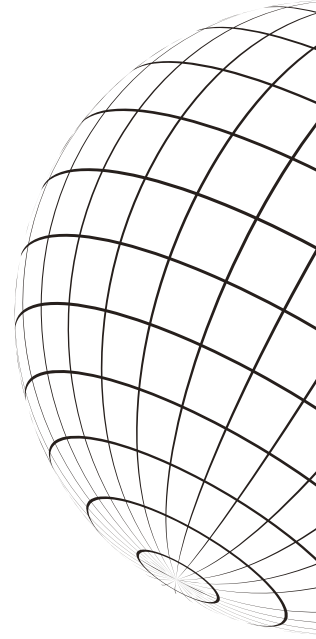
BLOCKCHAIN

BSC Project



WEBSITE:

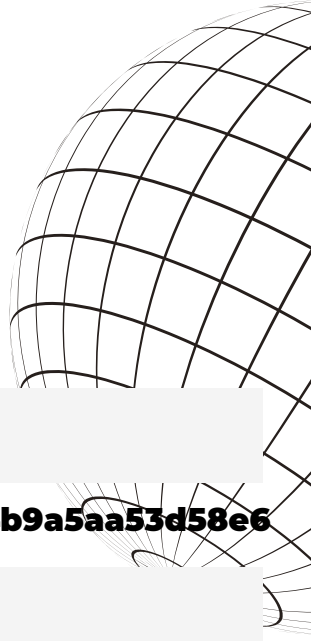
<https://less.xyz/>



SECURITY ASSESSMENT

CONTRACT DETAILS

Token contract details for May-27-2021



| | |
|--|---|
| Contract name | LESS TOKEN |
| Contract address | 0xb698ac9bc82c718d8eba9590564b9a5aa53d58e6 |
| Total supply | 125,000,000 LESS |
| Token ticker | LessToken (LESS) |
| Decimals | 18 |
| Token holders | 2,067 |
| Transactions count | 18,355 |
| Top 100 holders dominance | 95.9587% |
| Contract deployer address | 0x6b012B20c2075055F87A885d7E7C42586bAF7978 |
| Contract's current owner address 0x6b012B20c2075055F87A885d7E7C42586bAF7978 | |



SECURITY ASSESSMENT

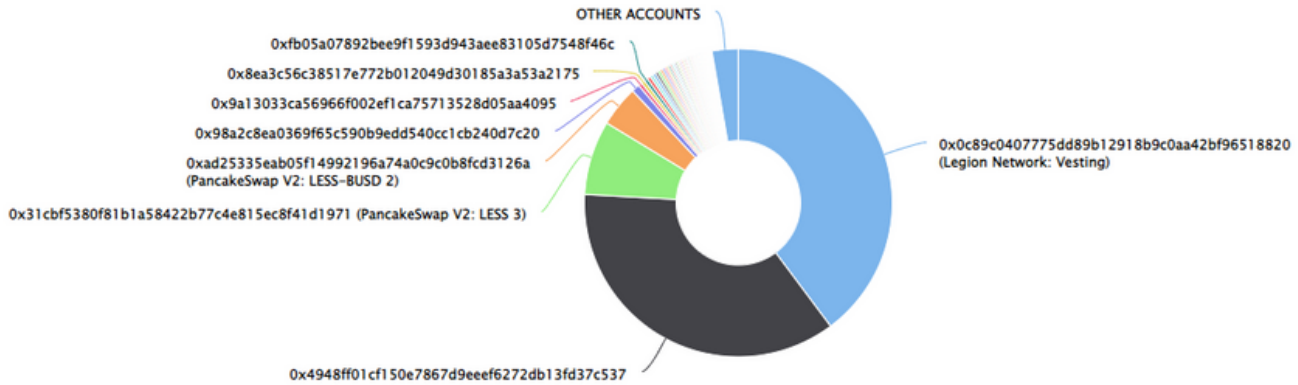
LESS TOKEN DISTRIBUTION

The top 100 holders collectively own 97.26% (121,573,813.70 Tokens) of LessToken

Token Total Supply: 125,000,000.00 Token | Total Token Holders: 2,067

LessToken Top 100 Token Holders

Source: BscScan.com



(A total of 121,573,813.70 tokens held by the top 100 accounts from the total supply of 125,000,000.00 token)

LESS TOKEN CONTRACT INTERACTION DETAILS

Time Series: Token Contract Overview

Thu 27, May 2021 - Fri 26, Nov 2021

Token Contract 0xb698ac9bc82c718d8eba9590564b9a5aa53d58e6 (LessToken)














Source: BscScan.com



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TOP 10 TOKEN HOLDERS

| Rank | Address | Quantity | Percentage | Value | Analytics |
|------|--|-------------------------------|------------|----------------|---|
| 1 |  Legion Network: Vesting | 49,740,806.511275053538896332 | 39.7926% | \$1,321,815.67 |  |
| 2 |  0x4948f01cf150e7867d9eef6272db13fd37c537 | 45,104,868.95973745514 | 36.0839% | \$1,198,619.95 |  |
| 3 |  PancakeSwap V2: LESS 3 | 9,755,563.845684246420863927 | 7.8045% | \$259,245.04 |  |
| 4 | PancakeSwap V2: LESS-BUSD 2 | 5,345,296.957625084726469724 | 4.2762% | \$142,046.30 |  |
| 5 | 0x98a2c8ea0369f65c590b9edd540cc1cb240d7c20 | 1,060,897.889934632522891405 | 0.8487% | \$28,192.37 |  |
| 6 | 0x9a13033ca56966f002ef1ca75713528d05aa4095 | 478,570.601033441782372104 | 0.3829% | \$12,717.57 |  |
| 7 | 0x8ea3c56c38517e772b012049d30185a3a53a2175 | 467,399 | 0.3739% | \$12,420.69 |  |
| 8 | 0xfb05a07892bee9f1593d943aee83105d7548f46c | 467,115.32224033366135522 | 0.3737% | \$12,413.16 |  |
| 9 | 0x8e4b6d8a141d10801eafed07b658aefa34765fae | 458,435.379758291493804081 | 0.3667% | \$12,182.49 |  |
| 10 | 0x7f7db5716239e9d87b373d580522fc728b26270c | 424,619.790365137155995289 | 0.3397% | \$11,283.88 |  |

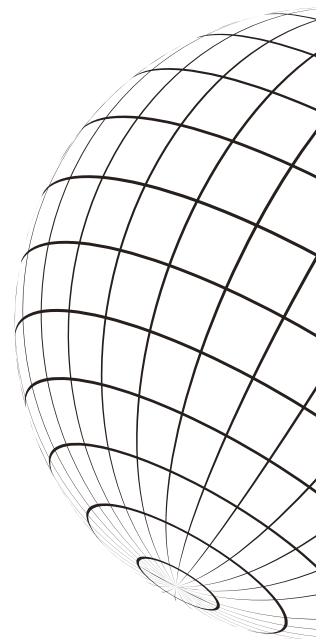
source:<https://bscscan.com/>



SECURITY ASSESSMENT FINDINGS



| | |
|---------------|------------|
| Critical | 0 (0.00%) |
| Major | 2 (66.67%) |
| Medium | 0 (0.00%) |
| Minor | 0 (0.00%) |
| Informational | 1 (33.33%) |
| Discussion | 0 (0.00%) |



| ID | Title | Category | Severity | Status |
|--------|--|----------------------------|---------------|----------|
| TCK-01 | Centralized Risk | Centralization / Privilege | Major | Resolved |
| TCK-02 | Centralized Risk | Centralization / Privilege | Major | Resolved |
| TCK-03 | Proper Usage of public and external type | Gas Optimization | Informational | Pending |



SECURITY ASSESSMENT

TCK-01 | CENTRALIZED RISK

| Category | Severity | Location | Status |
|----------------------------|----------|-----------------------------|------------|
| Centralization / Privilege | ● Major | lessToken.sol: 623consult() | ✓ Resolved |

Description

In function `extractLostToken`, the owner of the contract owner could `transferIERC20(token.balanceOf(address(this)))` amount of tokens from `_tokenAddress` to itself.

Recommendation

We advise the client to carefully manage the owner account's private key and avoid any potential risks of being hacked. In general, we strongly recommend centralized privileges or roles in the protocol to be improved via a decentralized mechanism or via smart-contract-based accounts with enhanced security practices, f.e. Multisignature wallets.

Indicatively, here are some feasible solutions that would also mitigate the potential risk:

- Time-lock with reasonable latency, i.e. 48 hours, for awareness on privileged operations;
- Assignment of privileged roles to multi-signature wallets to prevent a single point of failure due to the private key;
- Introduction of a DAO/governance/voting module to increase transparency and user involvement.

Alleviation

[LESS]: The team decided to use Gnosis-Safe multi-signature solution for remediating the private key management.

The less team provides the below information for the multi-signature wallet address, deployers address, and the transfer ownership on-chain record.

- Multi-Sig Wallet Created: 0x109169C8bF29Dee206cd8c2728367Af93443B45f
- Deployer:
0x9f751906f858fc881960bc0d71e66478FE6E16E5, 0xa0b5C5176A04017Be839e729A8B8160dD9E52789
- Transfer Ownership TX
hash: 0x82fa8d2e1e5f690a1aa4c58a2469fd390fe39eecfe74c7bb9efdc135cd7ffcc4



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TCK-02 | CENTRALIZED RISK

| Category | Severity | Location | Status |
|----------------------------|----------|--------------------|------------|
| Centralization / Privilege | ● Major | lessToken.sol: 619 | ✓ Resolved |

Description

In function `extractLostCrypto`, the owner of the contract owner could `transferowner()).transfer(address(this).balance` amount to the owner address

Recommendation

We advise the client to carefully manage the owner account's private key and avoid any potential risks of being hacked. In general, we strongly recommend centralized privileges or roles in the protocol to be improved via a decentralized mechanism or via smart-contract based accounts with enhanced security practices, f.e. Multisignature wallets

Indicatively, here are some feasible solutions that would also mitigate the potential risk:

- Time-lock with reasonable latency, i.e. 48 hours, for awareness on privileged operations;
- Assignment of privileged roles to multi-signature wallets to prevent single point of failure due to the private key;
- Introduction of a DAO / governance / voting module to increase transparency and user involvement.

Alleviation

[LESS]: The team decided to use Gnosis-Safe multi-signature solution for remediating the private key management.

The less team provides the below information for the multi-signature wallet address, deployers address, and the transfer ownership on-chain record.

- Multi-Sig Wallet Created: 0x109169C8bF29Dee206cd8c2728367Af93443B45f
- Deployer:
0x9f751906f858fc881960bc0d71e66478FE6E16E5, 0xa0b5C5176A04017Be839e729A8B8160dD9E52789
- Transfer Ownership TX
hash: 0x82fa8d2e1e5f690a1aa4c58a2469fd390fe39eecfe74c7bb9efdc135cd7ffcc4



SECURITY ASSESSMENT

TCK-03 | PROPER USAGE OF PUBLIC AND EXTERNAL TYPE

| Category | Severity | Location | Status |
|------------------|-----------------|--|-----------|
| Gas Optimization | ● Informational | lessToken.sol: 189, 197, 214, 221, 228, 240, 248, 259, 277, 299, 315 | ⓘ Pending |

Description

Public functions that are never called by the contract could be declared external. This is because when their inputs are arrays, external functions are more efficient than public functions. Therefore, public functions that are never called by the contract could be declared external.

Example functions :

- name()
- symbol()
- decimals()
- totalSupply()
- balanceOf()
- transfer()
- allowance()
- approve()
- transferFrom()
- increaseAllowance()
- decreaseAllowance()

Recommendation

Consider using the external attribute for functions never called from the contract.

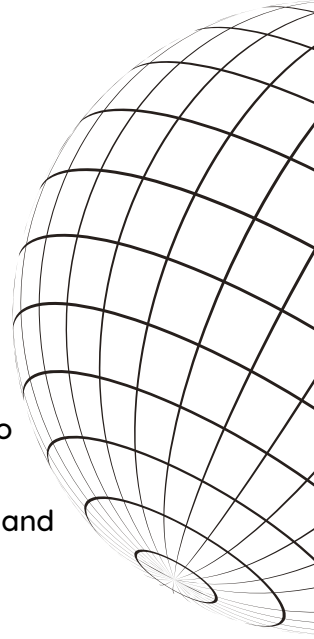


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SECURITY ASSESMENT CONCLUSION

Smart contracts contain owner privileges!

Motech Audit note: Please check the disclaimer above and note, the audit makes no statements or warranties on business model, investment attractiveness or code sustainability. The report is provided for the only contract mentioned in the report and does not include any other potential contracts deployed by Owner.



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