soken

SMART CONTRACT SECURITY AUDIT

NeoNomad Finance EVM Bridge

Scan and check this report
was posted at Soken Github

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Website: 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.

Audit Details

Project Name: **NeoNomad Finance**

Contract Name: **BridgeAssist.sol, Token.sol**

Language: **Solidity**

Compiler Version: **v0.8.0**

Social Profiles

Project Website: **https://www.neonomad.finance/**

Project Telegram: **https://t.me/neonomadfinance**

Project Twitter: **https://twitter.com/NeonomadFinance**

Project Medium: **https://medium.com/@NeoNomadFinance**

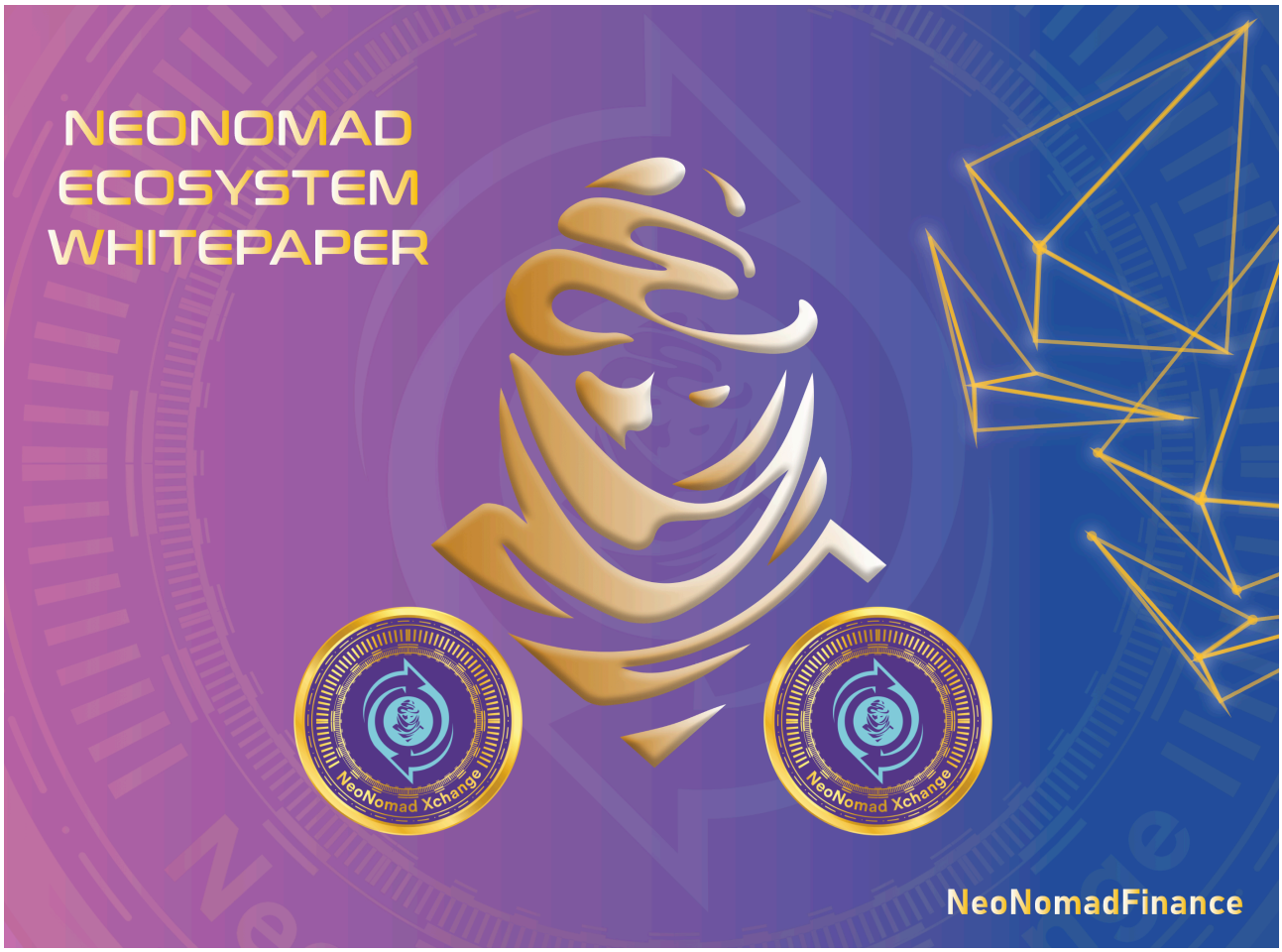
Project Discord: **https://discord.com/invite/Fj77EYcTNH**

About the project

NeoNomad is one of the first decentralized ecosystems to bridge the gap between traditional finance, real world-assets, and DeFi on Solana. It is an all-inclusive, integrated ecosystem, providing diverse DeFi services and tools under one roof. Some of these services include a DEX, integrated payments services, and asset-backed NFTs. On the DEX, NeoNomad provides lending, yield farming, and staking, among other services.

Whitepaper Review

NeoNomad Finance Whitepaper has been reviewed on behalf of Soken Team.



Whitepaper link: **https://docs.neonomad.finance/nni/tokenomics-fundamentals/whitepaper**

Docs: **https://docs.neonomad.finance/nni/**

Audit Scope

evm-bridge-gotbit-main/

contracts /

BridgeAssist.sol

Token.sol

Contract Function Details

+ BridgeAssist.sol

- [Ext] upload
- [Ext] dispense
- [Ext] clearLock
- [Ext] addBackend
- [Ext] removeBackend
- [Ext] changeFeeAddress
- [Ext] checkUserLock

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	Completed
Outdated Complier 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) Loop consuming excessive gas : BridgeAssist.sol

Line: 97-99 & 108-110

Low-severity

```
for (uint256 i = 0; i < _backend.length; i++) {
    isBackend[_backend[i]] = true;
}
```

```
for (uint256 i = 0; i < _backend.length; i++) {
    isBackend[_backend[i]] = false;
}
```

Ethereum is a very resource-constrained environment. Prices per computational step are orders of magnitude higher than with centralized providers. Moreover, Ethereum miners impose a limit on the total number of Gas consumed in a block. If array.length is large enough, the function exceeds the block gas limit, and transactions calling it will never be confirmed.

for (uint256 i = 0; i < array.length ; i++) {cosltyFunc();}

This becomes a security issue, if an external actor influences array.length. E.g., if an array enumerates all registered addresses, an adversary can register many addresses, causing the problem described above.

Recommendation:

Either explicitly or just due to normal operation, the number of iterations in a loop can grow beyond the block gas limit, which can cause the complete contract to be stalled at a certain point. Therefore, loops with a bigger or unknown number of steps should always be avoided.

2) Gas optimization in increments : BridgeAssist.sol

Line: 97 & 108

Low-severity

++i costs less gas compared to i++ or i += 1 for unsigned integers. In i++, the compiler has to create a temporary variable to store the initial value. This is not the case with ++i in which the value is directly incremented and returned, thus, making it a cheaper alternative.

Recommendation:

Consider changing the post-increments (i++) to pre-increments (++i) as long as the value is not used in any calculations or inside returns. Make sure that the logic of the code is not changed.

3) Use of floating pragma : BridgeAssist.sol, Token.sol

Low-severity

It is recommended to follow the latter example, as future compiler versions may handle certain language constructions in a way the developer did not foresee. The developers should always use the exact Solidity compiler version when designing their contracts as it may break the changes in the future.

Conclusion

Smart contracts are free from any critical, high or medium-severity issues.

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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