Smart contracts security assessment

Final report

Tariff: Top

Sonik

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## Contents

1. Introduction .................................................. 3  
2. Contracts checked .......................................... 3  
3. Procedure .................................................. 3  
4. Known vulnerabilities checked .......................... 4  
5. Classification of issue severity ......................... 5  
6. Issues ..................................................... 5  
7. Conclusion .................................................. 8  
8. Disclaimer .................................................. 9
Introduction

The report has been prepared for Sonik.

Audited token is an ERC-20 standard token. The Sonik token doesn't have active mint functionality after contract deployment.

The code in the @SONIKDev/SonikTokenContract Github repo was audited in the fc81239 commit.

<table>
<thead>
<tr>
<th>Name</th>
<th>Sonik</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audit date</td>
<td>2023-08-15 - 2023-08-16</td>
</tr>
<tr>
<td>Language</td>
<td>Solidity</td>
</tr>
<tr>
<td>Platform</td>
<td>Ethereum</td>
</tr>
</tbody>
</table>

Contracts checked

<table>
<thead>
<tr>
<th>Name</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>SonikCoinToken</td>
<td></td>
</tr>
</tbody>
</table>

Procedure

We perform our audit according to the following procedure:

Automated analysis

- Scanning the project's smart contracts with several publicly available automated Solidity analysis tools
- Manual verification (reject or confirm) all the issues found by the tools

Manual audit

- Manually analyze smart contracts for security vulnerabilities
- Smart contracts' logic check

### Known vulnerabilities checked

<table>
<thead>
<tr>
<th>Title</th>
<th>Check result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unencrypted Private Data On-Chain</td>
<td>passed</td>
</tr>
<tr>
<td>Code With No Effects</td>
<td>not passed</td>
</tr>
<tr>
<td>Message call with hardcoded gas amount</td>
<td>passed</td>
</tr>
<tr>
<td>Typographical Error</td>
<td>passed</td>
</tr>
<tr>
<td>DoS With Block Gas Limit</td>
<td>passed</td>
</tr>
<tr>
<td>Presence of unused variables</td>
<td>passed</td>
</tr>
<tr>
<td>Incorrect Inheritance Order</td>
<td>passed</td>
</tr>
<tr>
<td>Requirement Violation</td>
<td>passed</td>
</tr>
<tr>
<td>Weak Sources of Randomness from Chain Attributes</td>
<td>passed</td>
</tr>
<tr>
<td>Shadowing State Variables</td>
<td>passed</td>
</tr>
<tr>
<td>Incorrect Constructor Name</td>
<td>passed</td>
</tr>
<tr>
<td>Block values as a proxy for time</td>
<td>passed</td>
</tr>
<tr>
<td>Authorization through tx.origin</td>
<td>passed</td>
</tr>
<tr>
<td>DoS with Failed Call</td>
<td>passed</td>
</tr>
<tr>
<td>Delegatecall to Untrusted Callee</td>
<td>passed</td>
</tr>
<tr>
<td>Use of Deprecated Solidity Functions</td>
<td>passed</td>
</tr>
<tr>
<td>Assert Violation</td>
<td>passed</td>
</tr>
<tr>
<td>State Variable Default Visibility</td>
<td>passed</td>
</tr>
<tr>
<td>Reentrancy</td>
<td>passed</td>
</tr>
<tr>
<td>Unprotected SELFDESTRUCT Instruction</td>
<td>passed</td>
</tr>
</tbody>
</table>
Unprotected Ether Withdrawal passed
Unchecked Call Return Value passed
Floating Pragma passed
Outdated Compiler Version passed
Integer Overflow and Underflow passed
Function Default Visibility passed

Classification of issue severity

High severity
High severity issues can cause a significant or full loss of funds, change of contract ownership, major interference with contract logic. Such issues require immediate attention.

Medium severity
Medium severity issues do not pose an immediate risk, but can be detrimental to the client's reputation if exploited. Medium severity issues may lead to a contract failure and can be fixed by modifying the contract state or redeployment. Such issues require attention.

Low severity
Low severity issues do not cause significant destruction to the contract's functionality. Such issues are recommended to be taken into consideration.

Issues

High severity issues

No issues were found
Medium severity issues

No issues were found

Low severity issues

1. Unused import (SonikCoinToken)
   Status: Open

   SonicCoinToken contract is derived from the Ownable contract from OpenZeppelin library, but it’s functionality never used.

   **Sonik team comment:** The Ownable contract is used to transfer or renounce ownership of the token, but is never used in the token itself.

2. Standard violation (SonikCoinToken)
   Status: Open

   The ERC-20 token standard requires transfers with zero amount to be processed. The Sonik token reverts all such transfers explicitly.

   ```solidity
   function _transfer(
       address sender,
       address recipient,
       uint256 amount
   ) internal virtual {
     require(amount > 0, "ERC20: transfer amount zero");
     require(sender != address(0), "ERC20: transfer from the zero address");
     require(recipient != address(0), "ERC20: transfer to the zero address");

     uint256 senderBalance = _balances[sender];
     require(
         senderBalance >= amount,
         "ERC20: transfer amount exceeds balance"
     );
     unchecked {
         _balances[sender] = senderBalance - amount;
     }
   }
   ```
Recommendation: Comply to the standard.

Sonik team comment: The Sonik Token reverts all such transfers explicitly, this function has been added to protect token holders from Zero-Value Token Transfer Attacks. See more information here https://info.etherscan.com/zero-value-token-transfer-attack/.
Conclusion

Sonik SonikCoinToken contract was audited. 2 low severity issues were found.
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