



BLOCK AUDIT REPORT

Smart Contract Security Audit Report



Zagent Gem (ZEG)



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Block Audit Report Team received the Zagentgem.sol file for smart contract security audit of the Zagent Gem (ZEG) on February 10, 2022. The following are the details and results of this smart contract security audit:

Project Name: Zagent Gem (ZEG)

The Contract address: 0x44fC1739a34628C06aeE84906359a35f648b5e7f

Link Address:

<https://bscscan.com/address/0x44fC1739a34628C06aeE84906359a35f648b5e7f#code>

The audit items and results:

(Other undiscovered security vulnerabilities are not included in the audit responsibility scope)

Audit Result: Passed

Audit Number: BAR0018410022022

Audit Date: February 11, 2022

Audit Team: Block Audit Report Team



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Introduction

This Audit Report mainly focuses on the extensive security of Zagent Gem (ZEG) Smart Contract. With this report, we attempt to ensure the reliability and correctness of the smart contract by complete and rigorous assessment of the system's architecture and the smart contract codebase.

Auditing Approach and Methodologies applied

The Block Audit Report team has performed rigorous testing of the project including the analysis of the code design patterns where we reviewed the smart contract architecture to ensure it is structured along with the safe use of standard inherited contracts and libraries. Our team also conducted a formal line by line inspection of the Smart Contract i.e., a manual review, to find potential issues including but not limited to;

- Race conditions
- Zero race conditions approval attacks
- Re-entrancy
- Transaction-ordering dependence
- Timestamp dependence
- Check-effects-interaction pattern (optimistic accounting)
- Decentralized denial-of-service attacks
- Secure ether transfer pattern
- Guard check pattern
- Fail-safe mode
- Gas-limits and infinite loops
- Call Stack depth

In the Unit testing Phase, we coded/conducted custom unit tests written against each function in the contract to verify the claimed functionality from our client.

In Automated Testing, we tested the Smart Contract with our standard set of multifunctional tools to identify vulnerabilities and security flaws.

The code was tested in collaboration of our multiple team members and this included but not limited to;

- Testing the functionality of the Smart Contract to determine proper logic has been followed throughout the whole process.
- Analyzing the complexity of the code in depth and detailed, manual review of the code, line-by-line.
- Deploying the code on testnet using multiple clients to run live tests.
- Analyzing failure preparations to check how the Smart Contract performs in case of any bugs and vulnerabilities.
- Checking whether all the libraries used in the code are on the latest version.
- Analyzing the security of the on-chain data.



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Audit Details

Project Name: Zagent Gem (ZEG)

Website/ Bscscan Code (**Mainnet**):

0x44fc1739a34628c06aeE84906359a35f648b5e7f

Languages: Solidity (Smart contract)

Platforms and Tools: Remix IDE, Truffle, Ganache, Mythril, Contract Library, Slither, Dapp.Tools, Echidna, Etheno



Audit Goals

The focus of the audit was to verify that the Smart Contract System is secure, resilient and working according to the specifications. The audit activities can be grouped in the following three categories:

Security Sight

Identifying security related issues within each contract and the system of contract.

Sound Architecture

Evaluation of the architecture of this system through the lens of established smart contract best practices and general software best practices, standard software design principle, design patterns and practices.

Code Correctness and Quality

A full review of the contract source code. The primary areas of focus include:

- Accuracy
- Readability
- Usability vs Security
- Sections of code with high complexity
- Quantity and quality of test coverage

Issue Categories

Every issue in this report was assigned a severity level from the following:

Critical Severity Issues

Issues of this level are critical to the smart contract's performance/functionality and should be fixed before moving to a production environment.

High level severity issues

Issues on this level are strongly suggested by the team to be fixed before moving to the production environment.

Medium level severity issues

Issues on this level could potentially bring problems and should eventually be fixed.

Low level severity issues

Issues on this level are minor details and warning's that can remain unfixed but would be better fixed at some point in the future.



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Issues Checking Status

| No | Issue description | Checking status |
|----|---|-----------------|
| 1 | Compiler warnings. | Passed |
| 2 | Race conditions and Reentrancy. Cross-function race conditions. | Passed |
| 3 | Oracle calls. | Passed |
| 4 | Timestamp dependence. | Passed |
| 5 | DoS with Revert. | Passed |
| 6 | DoS with block gas limit. | Passed |
| 7 | Methods execution permissions. | Passed |
| 8 | Economy model. | Passed |
| 9 | The impact of the exchange rate on the logic. | Passed |
| 10 | Malicious Event log. | Passed |
| 11 | Scoping and Declarations. | Passed |
| 12 | Uninitialized storage pointers. | Passed |
| 13 | Arithmetic Operations accuracy. | Passed |
| 14 | Design Logic. | Passed |
| 15 | Cross-function race conditions. | Passed |
| 16 | Safe usage for Open Zeppelin module. | Passed |
| 17 | Fallback function security. | Passed |
| 18 | Send & receive ether. | Passed |
| 19 | Zero race condition approval attacks. | Passed |
| 20 | Short address attack. | Passed |
| 21 | Owner's authority to freeze. | Passed |
| 22 | Attempt to block ether flows. | Passed |
| 23 | Redundant inheritance check. | Passed |
| 24 | Silent overrides of mapping structs. | Passed |
| 25 | Function state mutability. | Passed |
| 26 | Unnecessary conversion of type. | Passed |



Used Code from other Framework/Smart Contracts (direct import)

[+] library SafeMath

- tryAdd(uint256 a, uint256 b)
- trySub(uint256 a, uint256 b)
- tryMul(uint256 a, uint256 b)
- tryDiv(uint256 a, uint256 b)
- tryMod(uint256 a, uint256 b)
- add(uint256 a, uint256 b)
- sub(uint256 a, uint256 b)
- mul(uint256 a, uint256 b)
- div(uint256 a, uint256 b)
- mod(uint256 a, uint256 b)
- sub(uint256 a, uint256 b, st ...)
- div(uint256 a, uint256 b, st ...)
- mod(uint256 a, uint256 b, st ...)

[+] interface IERC20

- totalSupply()
- balanceOf(address account)
- transfer(address recipient, ...)
- allowance(address owner, add ...)
- approve(address spender, uin ...)
- transferFrom(address sender, ...)
- msgSender()
- msgData()
- owner()
- renounceOwnership()
- transferOwnership(address ne ...)

[+] contract ERC20 is Context, IERC20

- name()
- symbol()
- decimals()
- totalSupply()
- balanceOf(address account)
- transfer(address recipient, ...)



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- allowance(address owner, address spender, uint256 amount)
- approve(address spender, uint256 amount)
- transferFrom(address sender, address recipient, uint256 amount)
- increaseAllowance(address spender, uint256 addedValue)
- decreaseAllowance(address spender, uint256 subtractedValue)
- transfer(address sender, address recipient, uint256 amount)
- mint(address account, uint256 amount)
- burn(address account, uint256 amount)
- approve(address owner, address spender, uint256 amount)
- setupDecimals(uint8 decimalPlaces)
- beforeTokenTransfer(address sender, address recipient, uint256 amount)

[+] interface IRouterAntiBot

- isTransferable(address spender, bool value)

[+] contract ZagentToken is Ownable, ERC20, IRouterAntiBot, IERC721, IERC721Enumerable, IERC721Metadata *

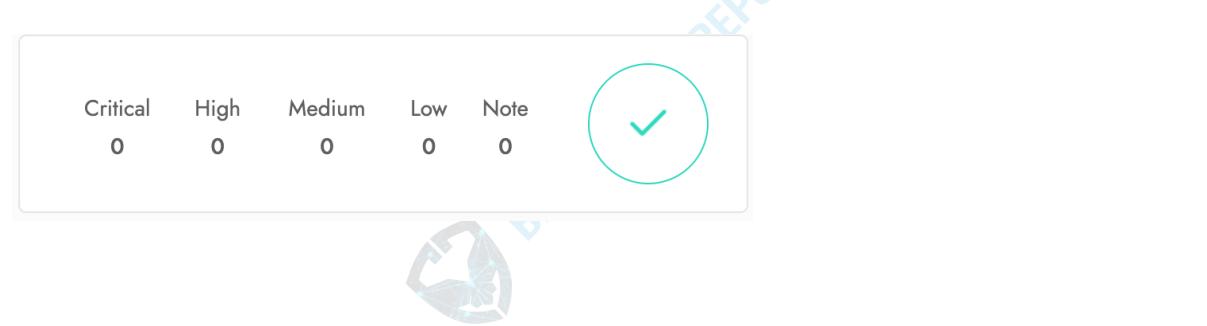
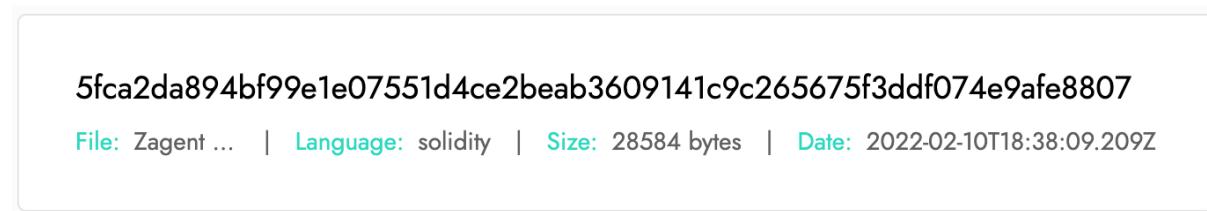
- setFeeAddress(address feeAddress)
- setDistributor(address distributorAddress)
- updateExchange(address exchangeAddress)
- setSellFeeRate(uint256 sellFeeRate)
- vesting(uint256 amount, address beneficiary)
- burn(uint256 amount)
- beforeTokenTransfer(address sender, address recipient, uint256 amount)
- transfer



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Manual Audit:

For this section the code was tested/read line by line by our auditors. We used Remix IDE's JavaScript VM and testnet Kovan to test the contract functionality in a simulated environment.



Critical Severity Issues

No critical severity issues found.

High Severity Issues

No high severity issues found.

Medium Severity Issues

No medium severity issues found.

Low Severity Issues

No low severity issues found.

Owner privileges

- None



Automated Audit

Remix Compiler Warnings

It throws warnings by Solidity's compiler. If it encounters any errors the contract cannot be compiled and deployed.

The screenshot shows the Remix Solidity Compiler interface. In the top left, there are icons for a timer, a file, a refresh, and a dropdown with a '4' notification. The main header says 'SOLIDITY COMPILER'. Below it, the 'COMPILER' dropdown is set to '0.7.6+commit.7338295f', with a checkbox for 'Include nightly builds'. The 'LANGUAGE' dropdown is set to 'Solidity'. Under 'EVM VERSION', 'compiler default' is selected. In 'COMPILER CONFIGURATION', 'Auto compile' is checked, and 'Enable optimization' is checked with a value of '200'. A 'Hide warnings' checkbox is unchecked. A large blue button at the bottom left says 'Compile Zagent Gem (ZEG).sol'. In the bottom right, there are links for 'ABI' and 'Bytecode'. The bottom section is titled 'CONTRACT' and shows 'ZagentToken (Zagent Gem (ZEG).sol)' in a dropdown. It includes a 'Publish on Ipfs' button with an IPFS icon and a 'Compilation Details' button.

Zagent Gem (ZEG).sol: Warning: SPDX license identifier not provided in source file. Before publishing, consider adding a comment containing "SPDX-License-Identifier: <SPDX-License>" to each source file. Use "SPDX-License-Identifier: UNLICENSED" for non-open-source code. Please see <https://spdx.org> for more information.

Zagent Gem (ZEG).sol:355:5: Warning: Visibility for constructor is ignored. If you want the contract to be non-deployable, making it "abstract" is sufficient.
constructor () internal {
^ (Relevant source part starts here and spans across multiple lines).

Zagent Gem (ZEG).sol:454:5: Warning: Visibility for constructor is ignored. If you want the contract to be non-deployable, making it "abstract" is sufficient.
constructor (string memory name_, string memory symbol_) public {
^ (Relevant source part starts here and spans across multiple lines).

Zagent Gem (ZEG).sol:791:9: Warning: Unused function parameter. Remove or comment out the variable name to silence this warning.
uint256 amount
^-----^



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 the client 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 the client 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 the client to conduct the client's 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 received smart contracts alone. No related/third-party smart contracts, applications or operations were reviewed for security. No product code has been reviewed.

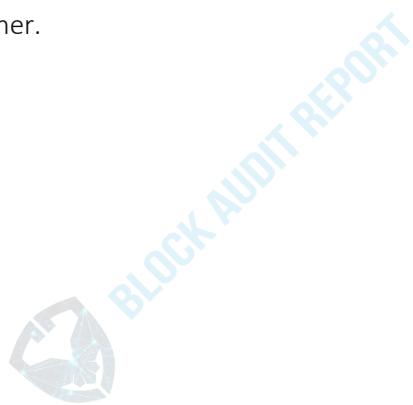


Summary

Smart contracts received in file named: "Zagent Gem (ZEG)" do not contain any high severity issues!

Note:

Please read the disclaimer above and note, the audit claims NO statements or warranties on business model, investment advice/ attractiveness or code sustainability. This report is provided for the only set of contracts mentioned in the report and does not claim responsibility to include security audits for any other contracts deployed by Owner.





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