



Building the Futuristic **Blockchain Ecosystem**

SECURITY AUDIT REPORT

OSCARS TAKING
NO LOCKING

TOKEN OVERVIEW

Risk Findings

Severity	Found
● Critical	1
● High	1
● Medium	3
● Low	0
● Informational	0

NOTE

In carrying out our audit engagement, our team focused exclusively on the evaluation and testing of the staking contract, with specific emphasis on the operational functions, security measures, and underlying code of the said contract. It should be explicitly noted that we did not extend our audit to include any external contracts which could be interacted with by the staking contract, such as Liquidity Provider (LP) tokens or other contract-addressable tokens that may be associated with the system. Furthermore, the audit did not encompass the staking token itself, any potential staking rewards tokens, or the algorithmic processes that govern their issuance and distribution. As such, our report does not provide assurance or representations concerning the integrity, security, or functionality of these outlying components.

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OVERVIEW

The Expelee team has performed a line-by-line manual analysis and automated review of the smart contract. The smart contract was analysed mainly for common smart contract vulnerabilities, exploits, and manipulation hacks. According to the smart contract audit:

Audit Result	Passed
KYC Verification	No
Audit Date	17 June 2023

CONTRACT DETAILS

Token Name: OscarStakingNoLocking

Symbol: OscarStakingNoLocking

Contract Type: Staking contract

Network: Ethereum

Language: Solidity

Contract Address: --

Checksum:

940027aab626d6ebcd2e991568e0f2131dc0b68d

Owner's Wallet: --

Deployer's Wallet: --

AUDIT METHODOLOGY

Audit Details

Our comprehensive audit report provides a full overview of the audited system's architecture, smart contract codebase, and details on any vulnerabilities found within the system.

Audit Goals

The audit goal is to ensure that the project is built to protect investors and users, preventing potentially catastrophic vulnerabilities after launch, that lead to scams and rugpulls.

Code Quality

Our analysis includes both automatic tests and manual code analysis for the following aspects:

- Exploits
- Back-doors
- Vulnerability
- Accuracy
- Readability

Tools

- DE
- Open Zeppelin
- Code Analyzer
- Solidity Code
- Compiler
- Hardhat

VULNERABILITY CHECKS

Design Logic	Passed
Compiler warnings	Passed
Private user data leaks	Passed
Timestamps dependence	Passed
Integer overflow and underflow	Passed
Race conditions & reentrancy. Cross-function race conditions	Passed
Possible delays in data delivery	Passed
Oracle calls	Passed
Front Running	Passed
DoS with Revert	Passed
DoS with block gas limit	Passed
Methods execution permissions	Passed
Economy model	Passed
Impact of the exchange rate on the logic	Passed
Malicious event log	Passed
Scoping and declarations	Passed
Uninitialized storage pointers	Passed
Arithmetic accuracy	Passed
Cross-function race conditions	Passed
Safe Zepplin module	Passed

RISK CLASSIFICATION

When performing smart contract audits, our specialists look for known vulnerabilities as well as logical and access control issues within the code. The exploitation of these issues by malicious actors may cause serious financial damage to projects that failed to get an audit in time. We categorize these vulnerabilities by the following levels:

High Risk

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

Medium Risk

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

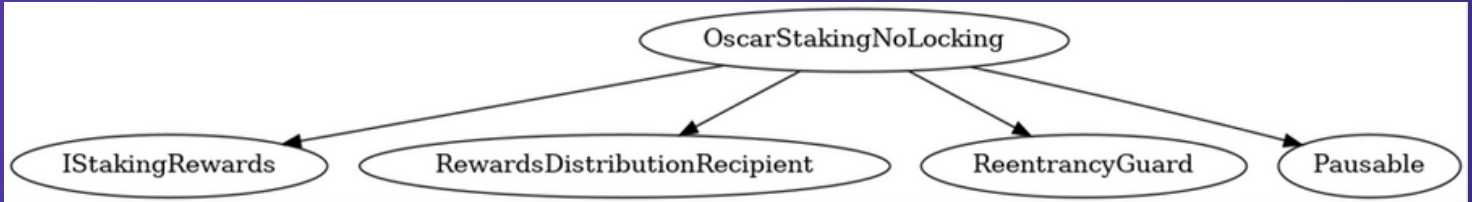
Low Risk

Issues on this level are minor details and warnings that can remain unfixed.

Informational

Issues on this level are minor details and warnings that can remain unfixed.

INHERITANCE TREES





















FUNCTION DETAILS

Contract	Type	Bases			
-----	-----	-----	-----	-----	-----
L	**Function Name**	**Visibility**	**Mutability**	**Modifiers**	
IERC20	Interface				
L	totalSupply	External !	NO !		
L	balanceOf	External !	NO !		
L	transfer	External !	● NO !		
L	allowance	External !	NO !		
L	approve	External !	● NO !		
L	transferFrom	External !	● NO !		
Context	Implementation				
L	_msgSender	Internal 🔒			
L	_msgData	Internal 🔒			
Ownable	Implementation	Context			
L	<Constructor>	Public !	● NO !		
L	owner	Public !	NO !		
L	renounceOwnership	Public !	● onlyOwner		
L	transferOwnership	Public !	● onlyOwner		
L	_setOwner	Private 🔒	●		
SafeMath	Library				
L	tryAdd	Internal 🔒			
L	trySub	Internal 🔒			
L	tryMul	Internal 🔒			
L	tryDiv	Internal 🔒			
L	tryMod	Internal 🔒			
L	add	Internal 🔒			
L	sub	Internal 🔒			
L	mul	Internal 🔒			
L	div	Internal 🔒			
L	mod	Internal 🔒			
L	sub	Internal 🔒			
L	div	Internal 🔒			
L	mod	Internal 🔒			



FUNCTION DETAILS

```

||||| |
| **BaseToken** | Implementation | |||
|||||
| **StandardToken** | Implementation | IERC20, Ownable, BaseToken |||
| L | <Constructor> | Public ! |  | NO ! |
| L | name | Public ! | NO ! |
| L | symbol | Public ! | NO ! |
| L | decimals | Public ! | NO ! |
| L | totalSupply | Public ! | NO ! |
| L | balanceOf | Public ! | NO ! |
| L | transfer | Public ! |  | NO ! |
| L | allowance | Public ! | NO ! |
| L | approve | Public ! |  | NO ! |
| L | transferFrom | Public ! |  | NO ! |
| L | increaseAllowance | Public ! |  | NO ! |
| L | decreaseAllowance | Public ! |  | NO ! |
| L | _transfer | Internal  |  ||
| L | _mint | Internal  |  ||
| L | _burn | Internal  |  ||
| L | _approve | Internal  |  ||
| L | _setupDecimals | Internal  |  ||
| L | _beforeTokenTransfer | Internal  |  ||

```

Legend

Symbol	Meaning
	Function can modify state
	Function is payable

UNIT TESTS

Unit Tests:

Staking Tokens: Pass (✓)

1. **Rewards Update:** The contract correctly updated the rewards allocation for the staker.
2. **Staker Profile Update:** The staker's profile was accurately updated post-staking action.
3. **Contract State Update:** The overall state of the contract, including total supply and balances, were correctly updated post-staking.
4. **Locked Tokens Update:** The contract correctly handled the process of locking staker's tokens post-staking.

Withdrawing Staked Tokens: Pass (✓)

1. **Rewards Update:** The contract correctly updated the rewards allocation for the staker post-withdrawal.
2. **Contract State Update:** The overall state of the contract, including total supply and balances, were correctly updated post-withdrawal.
3. **Staker Profile Update:** The staker's profile and token balance were accurately updated post-withdrawal. The contract correctly transferred tokens back to the staker.
4. **Lock Mechanism Validation:** The contract correctly enforced the lock mechanism, allowing only the withdrawal of unlocked tokens.

Claiming Rewards: Pass (✓)

1. **Owner Rewards Deposit:** The contract owner was able to successfully deposit rewards into the contract.
2. **Reward Claims:** The stakers were able to correctly claim their respective rewards, with the contract distributing the right amounts to each staker.

MANUAL REVIEW

Severity Criteria

Expelee assesses the severity of disclosed vulnerabilities according to methodology based on OWASP standards.

Vulnerabilities are divided into three primary risk categories:

High

Medium

Low

High-level considerations for vulnerabilities span the following key areas when conducting assessments:

- Malicious input handling
- Escalation of privileges
- Arithmetic
- Gas use

Overall Risk Severity				
Impact	HIGH	Medium	High	Critical
	MEDIUM	Low	Medium	High
	LOW	Note	Low	Medium
		LOW	MEDIUM	HIGH
	Likelihood			

CRITICAL RISK FINDING

Centralization – Ability to Withdraw Staked Tokens

Severity : Critical

Status: **Resolved** (Contract is owned by safu developer)

Overview

The owner has the ability to withdraw any ERC20 token from the contract using the `recoverERC20` function, potentially including staked tokens.

Code:

solidity

```
function recoverERC20(address _token, uint256 _amount) public  
onlyOwner {  
    IERC20(_token).transfer(owner(), _amount);  
}
```

Suggestion:

Limit the `recoverERC20` function to only allow the recovery of unintended tokens, not the tokens being staked.

HIGH RISK FINDING

Logical – Invalid Decimals

Severity : High

Status: Not Resolved

Overview :

Oscar token (stakign and reward token) uses 9 decimals, while contract is using 18 decimals for calculating rewards and reward per token rate.

Code:

```
function earned(address account) public view returns (uint256) {  
    return  
    _balances[account].mul(rewardPerToken().sub(userRewardPer  
TokenPaid[account])).div(1e18).add(rewards[account]);  
}
```

```
function rewardPerToken() public view returns (uint256) {  
    if (_totalSupply == 0) {  
        return rewardPerTokenStored;  
    }  
    return  
    rewardPerTokenStored.add(  
lastTimeRewardApplicable().sub(lastUpdateTime).mul(rewardR  
ate).mul(1e18).div(_totalSupply)  
    );  
}
```

Suggestion: Use 1e9 (9 decimals) instead of 18

HIGH RISK FINDING

Centralization – Ability to Arbitrarily Set Lock Period

Severity : High

Status: Resolved (Contract is owned by safu developer)

Overview

The contract owner possesses the ability to set the lock period to any arbitrary value. This level of control significantly centralizes the contract, potentially leading to misuse.

Code:

solidity

```
function setLockTime(uint256 _lockTime) public onlyOwner {  
    lockTime = _lockTime;  
}
```

Suggestion:

Implement a cap on the maximum lock period that can be set, or allow the community of stakers to vote on changes to the lock period.

MEDIUM RISK FINDING

Centralization -Ability to Charge Up to 10% Unstaking Fee

Severity : Medium

Status: Resolved (Contract is owned by safu developer)

Overview:

The contract owner can set an unstaking fee (withdraw rate) up to 10%. This creates potential for misuse and adds an extra layer of centralization.

Code:

solidity

```
function setWithdrawFee(uint256 _withdrawFee) public onlyOwner
{
    require(_withdrawFee <= 1000, "invalid fee"); // Max 10%
    withdrawFee = _withdrawFee;
}
```

Suggestion:

Consider reducing the maximum withdraw fee or implement a mechanism where fee changes are subject to community approval.

MEDIUM RISK FINDING

Centralization -Fee Collector Set to Address 0

Severity : Medium

Status: Resolved (Contract is owned by safu developer)

Overview:

: If the fee collector is set to address 0, any transfers to that address can potentially revert withdrawals, causing unexpected behaviors and disruptions to the contract's operation.

Code:

```
function setFeeCollector(address _feeCollector) external  
onlyOwner {  
    feeCollector = _feeCollector;  
}
```

Suggestion:

Implement a condition check to prevent setting the fee collector address to address 0.

MEDIUM RISK FINDING

Logical – Not Deleting Unlocked Tokens

Severity : Medium

Status: Not Resolved

Overview

The `dealWithLockdown` function is not deleting unlocked tokens from the array; instead, it sets all of them to zero. This may cause unnecessary usage of storage which may also lead to extensive gas usage and could lead to unexpected behaviors.

Code:

```
function dealWithLockdown(address _staker) internal {  
    ...  
}
```

Suggestion:

Consider deleting unlocked stakes from the array instead of setting them to zero.

ABOUT EXPELEE

Expelee is a product-based aspirational Web3 start-up. Coping up with numerous solutions for blockchain security and constructing a Web3 ecosystem from deal making platform to developer hosting open platform, while also developing our own commercial and sustainable blockchain.

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DISCLAIMER

All the content provided in this document is for general information only and should not be used as financial advice or a reason to buy any investment. Team provides no guarantess against the sale of team tokens or the removal of liquidity by the project audited in this document.

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This document should not be presented as a reason to buy or not buy any particular token. The Expelee team disclaims any liability for the resulting losses.

The logo for Expelee, featuring the word "expelee" in a stylized font. The "ex" is in white, and "pelee" is in orange. The letters are bold and modern.

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