



Smart Contract Audit

FOR

Game Leader

DATED : 2 June 23'



AUDIT SUMMARY

Project name - Game Leader

Date: 2 June, 2023

Scope of Audit- Audit Ace was consulted to conduct the smart contract audit of the solidity source codes.

Audit Status: Passed

Issues Found

Status	Critical	High	Medium	Low	Suggestion
Open	0	0	1	0	2
Acknowledged	0	0	0	0	0
Resolved	0	0	0	0	0



USED TOOLS

Tools:

1- Manual Review:

A line by line code review has been performed by audit ace team.

2- BSC Test Network: All tests were conducted on the BSC Test network, and each test has a corresponding transaction attached to it. These tests can be found in the "Functional Tests" section of the report.

3- Slither :

The code has undergone static analysis using Slither.

Testnet version:

The tests were performed using the contract deployed on the BSC Testnet, which can be found at the following address:

<https://testnet.bscscan.com/address/0x429dFB4Ab7607e70d2Ceb6045121669A32C78cf6#code>



Token Information

Token Name : Game Leader

Token Symbol: GLR

Decimals: 9

Token Supply: 100,000,000,000

Token Address:

0x107A1A629CB9c1665bcaBAf2d5b50fB9a7326695

Checksum:

666e75b39d29acabb5178c89e9848d7b41227d93

Owner:

0xFeD9911Adb8F7a39779e47dCfF7064E2A0F4e7C4
(at time of writing the audit)

Deployer:

0xFeD9911Adb8F7a39779e47dCfF7064E2A0F4e7C4



TOKEN OVERVIEW

Fees:

Buy Fees: 0-25%

Sell Fees: 0-25%

Transfer Fees: 0-25%

Fees Privilege: Owner

Ownership: 0xFeD9911Adb8F7a39779e47dCfF7064E2A0F4e7C4

Minting: No mint function

Max Tx Amount/ Max Wallet Amount: No

Blacklist: No

Other Privileges: changing fees
excluding from fees
including in fees
changing swap threshold



AUDIT METHODOLOGY

The auditing process will follow a routine as special considerations by Auditace:

- Review of the specifications, sources, and instructions provided to Auditace to make sure the contract logic meets the intentions of the client without exposing the user's funds to risk.
- Manual review of the entire codebase by our experts, which is the process of reading source code line-by-line in an attempt to identify potential vulnerabilities.
- Specification comparison is the process of checking whether the code does what the specifications, sources, and instructions provided to Auditace describe.
- Test coverage analysis determines whether the test cases are covering the code and how much code is exercised when we run the test cases.
- Symbolic execution is analysing a program to determine what inputs cause each part of a program to execute.
- Reviewing the codebase to improve maintainability, security, and control based on the established industry and academic practices.

VULNERABILITY CHECKLIST



Return values of low-level calls



Gasless Send



Private modifier



Using block.timestamp



Multiple Sends



Re-entrancy



Using Suicide



Tautology or contradiction



Gas Limit and Loops



Timestamp Dependence



Address hardcoded



Revert/require functions



Exception Disorder



Use of tx.origin



Using inline assembly



Integer overflow/underflow



Divide before multiply



Dangerous strict equalities



Missing Zero Address Validation



Using SHA3



Compiler version not fixed



Using throw

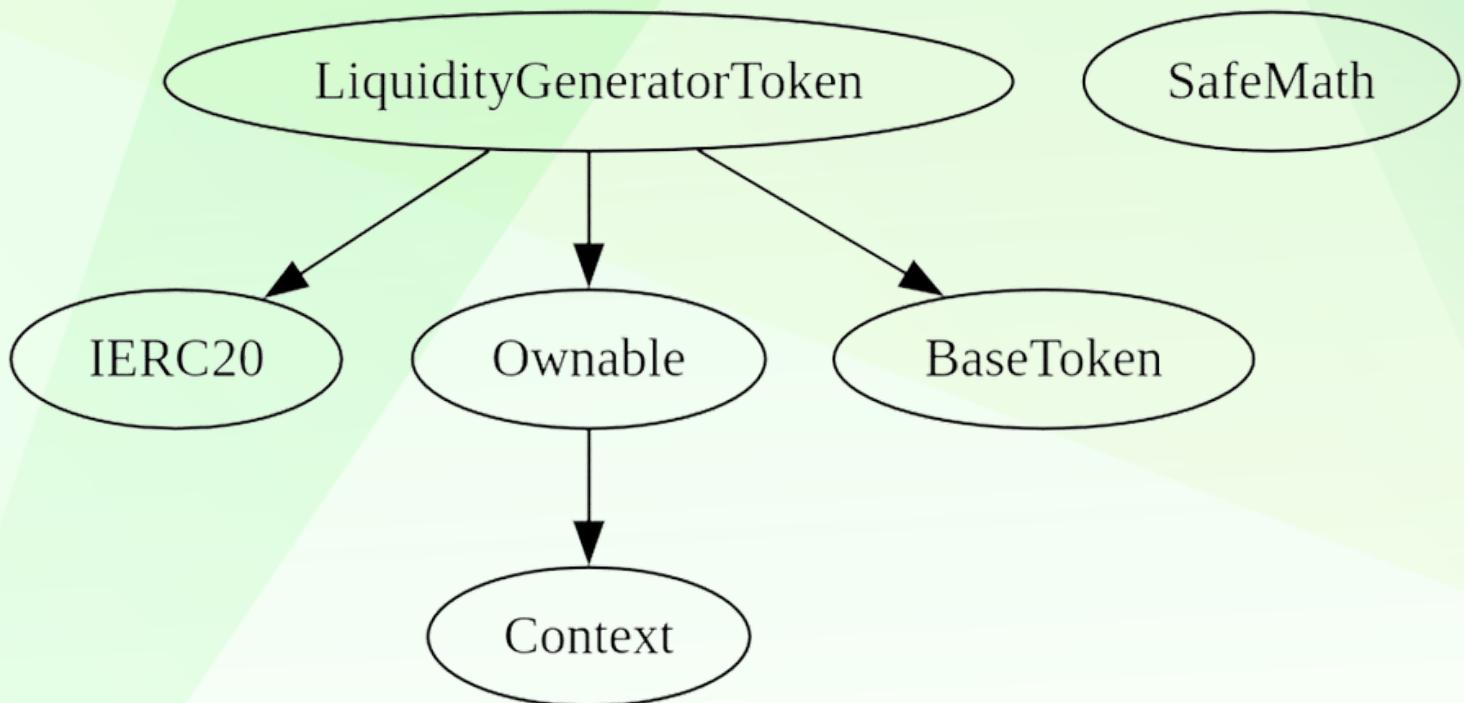
CLASSIFICATION OF RISK

Severity	Description
◆ Critical	These vulnerabilities could be exploited easily and can lead to asset loss, data loss, asset, or data manipulation. They should be fixed right away.
◆ High-Risk	A vulnerability that affects the desired outcome when using a contract, or provides the opportunity to use a contract in an unintended way.
◆ Medium-Risk	A vulnerability that could affect the desired outcome of executing the contract in a specific scenario.
◆ Low-Risk	A vulnerability that does not have a significant impact on possible scenarios for the use of the contract and is probably subjective.
◆ Gas Optimization / Suggestion	A vulnerability that has an informational character but is not affecting any of the code.

Findings

Severity	Found
◆ Critical	0
◆ High-Risk	0
◆ Medium-Risk	1
◆ Low-Risk	0
◆ Gas Optimization / Suggestions	2

INHERITANCE TREE





POINTS TO NOTE

- Owner is able to change buy/sell/transfer fees in range 0-25%
- Owner is not able to blacklist an arbitrary address.
- Owner is not able to disable trades
- Owner is not able to set max buy/sell/transfer/hold amount to 0
- Owner is not able to mint new tokens



CONTRACT ASSESSMENT

Contract	Type	Bases			
Function Name **Visibility** **Mutability** **Modifiers**					
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	🔒			
Address Library					
L	isContract Internal	🔒			
L	sendValue Internal	🔒	●		
L	functionCall Internal	🔒	●		
L	functionCall Internal	🔒	●		

CONTRACT ASSESSMENT

L functionCallWithValue Internal				
L functionCallWithValue Internal				
L functionStaticCall Internal				
L functionStaticCall Internal				
L functionDelegateCall Internal				
L functionDelegateCall Internal				
L verifyCallResult Internal				
IUniswapV2Router01 Interface				
L factory External	!	NO	!	
L WETH External	!	NO	!	
L addLiquidity External	!		NO	!
L addLiquidityETH External	!		NO	!
L removeLiquidity External	!		NO	!
L removeLiquidityETH External	!		NO	!
L removeLiquidityWithPermit External	!		NO	!
L removeLiquidityETHWithPermit External	!		NO	!
L swapExactTokensForTokens External	!		NO	!
L swapTokensForExactTokens External	!		NO	!
L swapExactETHForTokens External	!		NO	!
L swapTokensForExactETH External	!		NO	!
L swapExactTokensForETH External	!		NO	!
L swapETHForExactTokens External	!		NO	!
L quote External	!	NO	!	
L getAmountOut External	!	NO	!	
L getAmountIn External	!	NO	!	
L getAmountsOut External	!	NO	!	
L getAmountsIn External	!	NO	!	
IUniswapV2Router02 Interface IUniswapV2Router01				
L removeLiquidityETHSupportingFeeOnTransferTokens External	!		NO	!
L removeLiquidityETHWithPermitSupportingFeeOnTransferTokens External	!		NO	!
L swapExactTokensForTokensSupportingFeeOnTransferTokens External	!		NO	!
L swapExactETHForTokensSupportingFeeOnTransferTokens External	!		NO	!
L swapExactTokensForETHSupportingFeeOnTransferTokens External	!		NO	!
IUniswapV2Factory Interface				
L feeTo External	!	NO	!	
L feeToSetter External	!	NO	!	
L getPair External	!	NO	!	
L allPairs External	!	NO	!	
L allPairsLength External	!	NO	!	



CONTRACT ASSESSMENT

L createPair External !	● NO !
L setFeeTo External !	● NO !
L setFeeToSetter External !	● NO !
BaseToken Implementation	
LiquidityGeneratorToken Implementation IERC20, Ownable, BaseToken	
L <Constructor> Public !	\$D 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 isExcludedFromReward Public !	NO !
L totalFees Public !	NO !
L deliver Public !	● NO !
L reflectionFromToken Public !	NO !
L tokenFromReflection Public !	NO !
L excludeFromReward Public !	● onlyOwner
L includeInReward External !	● onlyOwner
L _transferBothExcluded Private 	●
L excludeFromFee Public !	● onlyOwner
L setTaxFeePercent External !	● onlyOwner
L setLiquidityFeePercent External !	● onlyOwner
L setCharityFeePercent External !	● onlyOwner
L setSwapBackSettings External !	● onlyOwner
L <Receive Ether> External !	\$D NO !
L _reflectFee Private 	●
L _getValues Private 	
L _getTValues Private 	
L _getRValues Private 	
L _getRate Private 	
L _getCurrentSupply Private 	
L _takeLiquidity Private 	●
L _takeCharityFee Private 	●
L calculateTaxFee Private 	



CONTRACT ASSESSMENT

L calculateLiquidityFee Private			
L calculateCharityFee Private			
L removeAllFee Private			
L restoreAllFee Private			
L isExcludedFromFee Public		NO	
L _approve Private			
L _transfer Private			
L swapAndLiquify Private			lockTheSwap
L swapTokensForEth Private			
L addLiquidity Private			
L _tokenTransfer Private			
L _transferStandard Private			
L _transferToExcluded Private			
L _transferFromExcluded Private			

Legend

Symbol Meaning
:----- :-----
Function can modify state
Function is payable



STATIC ANALYSIS

```
Variable LiquidityGeneratorToken._getValues(uint256).rTransferAmount (contracts/Token.sol#1331) is too similar to LiquidityGeneratorToken._getValues(uint256).tTransferAmount (contracts/Token.sol#1326)
Variable LiquidityGeneratorToken.reflectionFromToken(uint256,bool).rTransferAmount (contracts/Token.sol#1208) is too similar to LiquidityGeneratorToken._transferToExcluded(address,address,uint256).tTransferAmount (contracts/Token.sol#1611)
Variable LiquidityGeneratorToken._getValues(uint256,uint256,uint256,uint256).rTransferAmount (contracts/Token.sol#1372-1374) is too similar to LiquidityGeneratorToken._transferToExcluded(address,address,uint256).tTransferAmount (contracts/Token.sol#1611)
Variable LiquidityGeneratorToken._transferToExcluded(address,address,uint256).rTransferAmount (contracts/Token.sol#1609) is too similar to LiquidityGeneratorToken._transferBothExcluded(address,address,uint256).tTransferAmount (contracts/Token.sol#1256)
Variable LiquidityGeneratorToken._transferStandard(address,address,uint256).rTransferAmount (contracts/Token.sol#1587) is too similar to LiquidityGeneratorToken._transferFromExcluded(address,address,uint256).tTransferAmount (contracts/Token.sol#1634)
Variable LiquidityGeneratorToken._transferToExcluded(address,address,uint256).rTransferAmount (contracts/Token.sol#1609) is too similar to LiquidityGeneratorToken._getValues(uint256).tTransferAmount (contracts/Token.sol#1355-1357)
Variable LiquidityGeneratorToken.reflectionFromToken(uint256,bool).rTransferAmount (contracts/Token.sol#1208) is too similar to LiquidityGeneratorToken._getValues(uint256).tTransferAmount (contracts/Token.sol#1326)
Variable LiquidityGeneratorToken._transferToExcluded(address,address,uint256).rTransferAmount (contracts/Token.sol#1609) is too similar to LiquidityGeneratorToken._transferStandard(address,address,uint256).tTransferAmount (contracts/Token.sol#1589)
Variable LiquidityGeneratorToken._transferBothExcluded(address,address,uint256).rTransferAmount (contracts/Token.sol#1254) is too similar to LiquidityGeneratorToken._transferToExcluded(address,address,uint256).tTransferAmount (contracts/Token.sol#1611)
Variable LiquidityGeneratorToken._transferStandard(address,address,uint256).rTransferAmount (contracts/Token.sol#1587) is too similar to LiquidityGeneratorToken._transferToExcluded(address,address,uint256).tTransferAmount (contracts/Token.sol#1326)
Variable LiquidityGeneratorToken._transferStandard(address,address,uint256).rTransferAmount (contracts/Token.sol#1587) is too similar to LiquidityGeneratorToken._getValues(uint256).tTransferAmount (contracts/Token.sol#1326)
Variable LiquidityGeneratorToken._getValues(uint256).rTransferAmount (contracts/Token.sol#1331) is too similar to LiquidityGeneratorToken._transferBothExcluded(address,address,uint256).tTransferAmount (contracts/Token.sol#1256)
Variable LiquidityGeneratorToken._getValues(uint256).rTransferAmount (contracts/Token.sol#1331) is too similar to LiquidityGeneratorToken._transferFromExcluded(address,address,uint256).tTransferAmount (contracts/Token.sol#1634)
Variable LiquidityGeneratorToken._transferToExcluded(address,address,uint256).rTransferAmount (contracts/Token.sol#1609) is too similar to LiquidityGeneratorToken._transferFromExcluded(address,address,uint256).tTransferAmount (contracts/Token.sol#1634)
Variable LiquidityGeneratorToken.reflectionFromToken(uint256,bool).rTransferAmount (contracts/Token.sol#1208) is too similar to LiquidityGeneratorToken._getValues(uint256).tTransferAmount (contracts/Token.sol#1355-1357)
Variable LiquidityGeneratorToken._transferToExcluded(address,address,uint256).rTransferAmount (contracts/Token.sol#1609) is too similar to LiquidityGeneratorToken._transferBothExcluded(address,address,uint256).tTransferAmount (contracts/Token.sol#1611)
Variable LiquidityGeneratorToken._transferFromExcluded(address,address,uint256).rTransferAmount (contracts/Token.sol#1632) is too similar to LiquidityGeneratorToken._transferToExcluded(address,address,uint256).tTransferAmount (contracts/Token.sol#1634)
Variable LiquidityGeneratorToken.reflectionFromToken(uint256,bool).rTransferAmount (contracts/Token.sol#1208) is too similar to LiquidityGeneratorToken._getValues(uint256).tTransferAmount (contracts/Token.sol#1326)
Variable LiquidityGeneratorToken.reflectionFromToken(uint256,bool).rTransferAmount (contracts/Token.sol#1208) is too similar to LiquidityGeneratorToken._transferBothExcluded(address,address,uint256).tTransferAmount (contracts/Token.sol#1256)
Variable LiquidityGeneratorToken._getValues(uint256,uint256,uint256,uint256).rTransferAmount (contracts/Token.sol#1372-1374) is too similar to LiquidityGeneratorToken._transferBothExcluded(address,address,uint256).tTransferAmount (contracts/Token.sol#1256)
Variable LiquidityGeneratorToken._transferToExcluded(address,address,uint256).rTransferAmount (contracts/Token.sol#1609) is too similar to LiquidityGeneratorToken._getValues(uint256).tTransferAmount (contracts/Token.sol#1326)
Variable LiquidityGeneratorToken._transferStandard(address,address,uint256).rTransferAmount (contracts/Token.sol#1587) is too similar to LiquidityGeneratorToken._getValues(uint256).tTransferAmount (contracts/Token.sol#1355-1357)
Variable LiquidityGeneratorToken._transferStandard(address,address,uint256).rTransferAmount (contracts/Token.sol#1587) is too similar to LiquidityGeneratorToken._transferBothExcluded(address,address,uint256).tTransferAmount (contracts/Token.sol#1256)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#variable-names-too-similar

LiquidityGeneratorToken.charityAddress (contracts/Token.sol#1003) should be immutable
LiquidityGeneratorToken.decimals (contracts/Token.sol#990) should be immutable
LiquidityGeneratorToken.name (contracts/Token.sol#988) should be immutable
LiquidityGeneratorToken.symbol (contracts/Token.sol#989) should be immutable
LiquidityGeneratorToken.tTotal (contracts/Token.sol#984) should be immutable
LiquidityGeneratorToken.swapAndLiquifyEnabled (contracts/Token.sol#1006) should be immutable
LiquidityGeneratorToken.uniswapV2Pair (contracts/Token.sol#1002) should be immutable
LiquidityGeneratorToken.uniswapV2Router (contracts/Token.sol#1001) should be immutable
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#state-variables-that-could-be-declared-immutable
For more information, run command "slither analyze --detectors state-variables-immutable" or "slither analyze --detectors state-variables-immutable --output ./results/". 108 results(s) found.
```

**Result => A static analysis of contract's source code has been performed using slither,
No major issues were found in the output**



FUNCTIONAL TESTING

Router (PCS V2):

0xD99D1c33F9fC3444f8101754aBC46c52416550D1

1- Adding liquidity (passed):

<https://testnet.bscscan.com/tx/0xb11a1eff1e3b6656fe6921809ef54bf50feb29a7158abcae34be3b89c89d175>

2- Buying when excluded (0% tax) (passed):

<https://testnet.bscscan.com/tx/0x212730f571a0f4e7f76d64e3d36b0d02b2d10b48a8072e9227be63910bf6c77f>

3- Selling when excluded (0% tax) (passed):

<https://testnet.bscscan.com/tx/0x0c618bb9a48acaf4814fa3b6f1d7f0132fbf34bb5125be632230e507f3172a95>

4- Transferring when excluded from fees (0% tax) (passed):

<https://testnet.bscscan.com/tx/0x638ed04cad90e9c3c9cc16f7bbe9231b2299b4a963e637810312ba9e88adc0dd>

5- Buying from a regular wallet (0-25% tax) (passed):

<https://testnet.bscscan.com/tx/0xe3bf940ba54a971cb92b4d4912c06c6a5858a640de0a2eac8400d274042d5154>

6- Selling from a regular wallet (0-25% tax) (passed):

<https://testnet.bscscan.com/tx/0xf427163dd2a4e063307de41e5b9591773cebf9fc69f07a712e23aaf582f1e90>



FUNCTIONAL TESTING

7- Transferring from a regular wallet (0-25% tax) (passed):

<https://testnet.bscscan.com/tx/0xe8b4bab66fbaa33fad9455c08bcd71f81f6ff16da04f61d988bb05e443e7731b>

8- Internal swap (marketing bnb + auto-liquidity) (passed):

<https://testnet.bscscan.com/tx/0xf427163dd2a4e063307de41e5b9591773cebf9fcd69f07a712e23aaf582f1e90>



MANUAL TESTING

Category: Centralization

Subject: Fee setting and updating

Severity: Medium

Status: not applicable

Overview:

The contract allows the owner to set and update various fees, including tax, liquidity, and charity fees. This centralizes control over the fee structure.

Each type of tax (buy, sell, transfer) can have 0-25% fee.

Code:

```
function setTaxFeePercent(uint256 taxFeeBps) external onlyOwner { ... }  
function setLiquidityFeePercent(uint256 liquidityFeeBps) external onlyOwner { ... }  
function setCharityFeePercent(uint256 charityFeeBps) external onlyOwner { ... }
```

Suggestion:

Ensure that sum of max buy and sell fee is less than 25%

buy + sell fee <= 25%

transfer fee <= 5%



MANUAL TESTING

Category: Centralization

Subject: Exclusion from fees and rewards

Severity: **Informational**

Status: **not applicable**

Overview:

The contract allows the owner to exclude certain addresses from fees and rewards. This centralizes control over the fee and reward distribution.

Code:

```
function excludeFromReward(address account) public onlyOwner { ... }  
function includeInReward(address account) external onlyOwner { ... }  
function excludeFromFee(address account) public onlyOwner { ... }
```

Suggestion:

Consider implementing a decentralized governance mechanism to allow the community to decide on the exclusion or inclusion of addresses in fees and rewards.



MANUAL TESTING

Category: Centralization

Subject: Swap and liquify settings

Severity: **Informational**

Status: **not applicable**

Overview:

The contract allows the owner to set the swap back settings, which affects the swap and liquify process. This centralizes control over the contract's liquidity management.

Setting swap threshold to a large number can increase slippage % on sells

Code:

```
function setSwapBackSettings(uint256 _amount) external onlyOwner { ... }
```

Suggestion:

Consider implementing a decentralized governance mechanism to allow the community to decide on the swap back settings and other liquidity management parameters.



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