

SKELETON ECOSYSTEM

SMART CONTRACT AUDIT



Richie Rich
RICHIE
BEP20

0x03520509C8d36eFb6330EF46fAE174a5A636



Table of Contents

Table of Contents	1
Disclaimer	2
Overview	3
Creation/Audit Date	3
Verified Socials	3
Contract Functions Analysis	4
Contract Safety and Weakness	8
Detected Vulnerability Description	13
Contract Flow Graph	14
Contract Interaction Graph	15
Inheritance Graph	16
Contract Descriptions	17
Audit Scope	28

Global Disclaimer

This document serves as a disclaimer for the crypto smart contract audit conducted by Skeleton Ecosystem. The purpose of the audit was to review the codebase of the smart contracts for potential vulnerabilities and issues. It is important to note the following:

Limited Scope: The audit is based on the code and information available up to the audit completion date. It does not cover external factors, system interactions, or changes made after the audit. The audit itself can not guarantee 100% safety and can not detect common scam methods like farming and developer sell-out.

No Guarantee of Security: While we have taken reasonable steps to identify vulnerabilities, it is impossible to guarantee the complete absence of security risks or issues. The audit report provides an assessment of the contract's security as of the audit date.

Continued Development: Smart contracts and blockchain technology are evolving fields. Updates, forks, or changes to the contract post-audit may introduce new risks that were not present during the audit.

Third-party Code: If the smart contract relies on third-party libraries or code, those components were not thoroughly audited unless explicitly stated. Security of these dependencies is the responsibility of their respective developers.

Non-Exhaustive Testing: The audit involved automated analysis, manual review, and testing under controlled conditions. It is possible that certain vulnerabilities or issues may not have been identified.

Risk Evaluation: The audit report includes a risk assessment for identified vulnerabilities. It is recommended that the development team carefully reviews and addresses these risks to mitigate potential exploits.

Not Financial Advice: This audit report is not intended as financial or investment advice. Decisions regarding the use, deployment, or investment in the smart contract should be made based on a comprehensive assessment of the associated risks.

By accessing and using this audit report, you acknowledge and agree to the limitations outlined above. Skeleton Ecosystem and its auditors shall not be held liable for any direct or indirect damages resulting from the use of the audit report or the smart contract itself.

Please consult with legal, technical, and financial professionals before making any decisions related to the smart contract.

Overview

Contract Name	Richie_Rich
Ticker/Symbol	RICHIE
Blockchain	Binance Smart Chain BEP20
Contract Address	0x03520509C8d36eFb6330EF46fAEd174a5A6364d9
Creator Address	0xEB8750F71dB0585245EB4FAfFB78D81193ef483B
Current Owner Address	0xEB8750F71dB0585245EB4FAfFB78D81193ef483B
Contract Explorer	https://bscscan.com/address/0x03520509c8d36efb6330ef46faed174a5a6364d9#code
Compiler Version	v0.8.19+commit.7dd6d404
License	None
Optimisation	Yes with 200 Runs
Total Supply	1,991,883,251.167023 RICHIE
Decimals	18

Creation/Audit

Contract Deployed	16.01.2024
Audit Created	13.02.2024
Audit Update	V 1.0

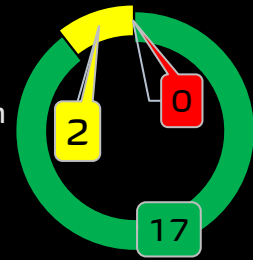
Verified Socials








Website	https://richierich.vip/
Telegram	https://t.me/RichieRichVIP
Twitter (X)	https://twitter.com/RichieRichVIP

Contract Function Analysis

 Pass
  Attention Item
  Risky Item

■ Pass
 ■ Attention
 ■ Risk



Contract Verified		The contract source code is uploaded to blockchain explorer and is open source, so everybody can read it.
Contract Ownership		0xEB8750F71dB0585245EB4FAfFB78D81193ef483B
Buy Tax	9 %	Shows the taxes for purchase transactions. Above 10% may be considered a high tax rate. More than 50% tax rate means may not be tradable. Fee can be set!
Sell Tax	9 %	Shows the taxes for sell transactions. Above 10% may be considered a high tax rate. More than 50% tax rate means may not be tradable. Fee can be set!
Honeypot Analyse		Holder is able to buy and sell. If honeypot: The contract blocks sell transfer from holder wallet. Multiple events may cause honeypot. Trading disabled, extremely high tax
Liquidity Status		Liquidity status on 13.02.2024 99% on Unicrypt locker for 36520 Days
Trading Disable Functions		No Trading suspendable function found. If a suspendable code is included, the token maybe neither be bought or sold (honeypot risk). If contract is renounced this function can't be used
Set Fees function	 max 25%	Fee Setting function found. (Up to Max 25%) The contract owner may contain the authority to modify the transaction tax. If the transaction tax is increased to more than 49%, the tokens may not be able to be traded (honeypot risk).
Proxy Contract		Not Proxy contract with authorised functions.
Mint Function		No Mint Function detected Mint function is transparent or non-existent. Hidden mint functions may increase the amount of tokens in circulation and effect the price of the token. Owner can mint new tokens and sell.

Balance Modifier Function		<p>No Balance Modifier function found.</p> <p>If there is a function for this, the contract owner can have the authority to modify the balance of tokens at other addresses. For example revoke the bought tokens from the holders wallet. Common form of scam: You buy the token, but it's disappearing from your wallet.</p>
Blacklist Function		<p>No Blacklist Setting function found.</p> <p>If there is a blacklist, some addresses may not be able to trade normally. Example: you buy the token and right after your Wallet getting blacklisted. Like so you will be unable to sell. Honeypot Risk.</p>
Whitelist Function		<p>Whitelist Setting function found.</p> <p>If there is a function for this Developer can set zero fee or no max wallet size for addresses (for example team wallets can trade without fee. Can cause farming)</p>
Hidden Owner Analysis		<p>No Hidden or multi owner with authorisation</p> <p>For contract with a hidden owner, developer can still manipulate the contract even if the ownership has been abandoned.</p>
Retrieve Ownership Function		<p>No Functions found which can retrieve ownership of the contract.</p> <p>If this function exists, it is possible for the project owner to regain ownership even after relinquishing it. Also known as fake renounce.</p>
Self Destruct Function		<p>No Self Destruct function found.</p> <p>If this function exists and is triggered, the contract will be destroyed, all functions will be unavailable, and all related assets will be erased.</p>
Specific Tax Changing Function		<p>No Specific Tax Changing Functions found.</p> <p>If it exists, the contract owner may set a very outrageous tax rate for assigned address to block it from trading. Can assign all wallets at once!</p>
Trading Cooldown Function		<p>No Trading Cooldown Function found. If there is a trading cooldown function, the user will not be able to sell the token within a certain time or block after buying. Like a temporary honeypot.</p>
Max Transaction and Holding Modify Function		<p>No Max Transaction and Holding Modify function found.</p> <p>If there is a function for this, the maximum trading amount or maximum position can be modified. Can cause honeypot</p>
Transaction Limiting Function		<p>No Transaction Limiter Function Found.</p> <p>The number of overall token transactions may be limited (honeypot risk)</p>

Details of Risk - Attention Items

⚠ Set Fee (Up to 25% Max)

The contract owner may contain the authority to modify the transaction tax. If the transaction tax is increased to more than 49%, the tokens may not be able to be traded (honeypot risk).

```

ftrace | funcSig
138 function marketingFeesSetup(uint16 _buyFee!, uint16 _sellFee!, uint16 _transferFee!) public onlyOwner {
139     totalFees[0] = totalFees[0] - marketingFees[0] + _buyFee!;
140     totalFees[1] = totalFees[1] - marketingFees[1] + _sellFee!;
141     totalFees[2] = totalFees[2] - marketingFees[2] + _transferFee!;
142     require(totalFees[0] <= 2500 && totalFees[1] <= 2500 && totalFees[2] <= 2500, "TaxesDefaultRouter: Cannot exceed max total fee of 25%");
143
144     marketingFees = [_buyFee!, _sellFee!, _transferFee!];
145
146     emit marketingFeesUpdated(_buyFee!, _sellFee!, _transferFee!);
147 }
148
ftrace | funcSig
149 function autoBurnFeesSetup(uint16 _buyFee!, uint16 _sellFee!, uint16 _transferFee!) public onlyOwner {
150     totalFees[0] = totalFees[0] - autoBurnFees[0] + _buyFee!;
151     totalFees[1] = totalFees[1] - autoBurnFees[1] + _sellFee!;
152     totalFees[2] = totalFees[2] - autoBurnFees[2] + _transferFee!;
153     require(totalFees[0] <= 2500 && totalFees[1] <= 2500 && totalFees[2] <= 2500, "TaxesDefaultRouter: Cannot exceed max total fee of 25%");
154
155     autoBurnFees = [_buyFee!, _sellFee!, _transferFee!];
156
157     emit autoBurnFeesUpdated(_buyFee!, _sellFee!, _transferFee!);
158 }
  
```

```

ftrace | funcSig
179 function rewardsFeesSetup(uint16 _buyFee!, uint16 _sellFee!, uint16 _transferFee!) public onlyOwner {
180     totalFees[0] = totalFees[0] - rewardsFees[0] + _buyFee!;
181     totalFees[1] = totalFees[1] - rewardsFees[1] + _sellFee!;
182     totalFees[2] = totalFees[2] - rewardsFees[2] + _transferFee!;
183     require(totalFees[0] <= 2500 && totalFees[1] <= 2500 && totalFees[2] <= 2500, "TaxesDefaultRouter: Cannot exceed max total fee of 25%");
184 }
  
```

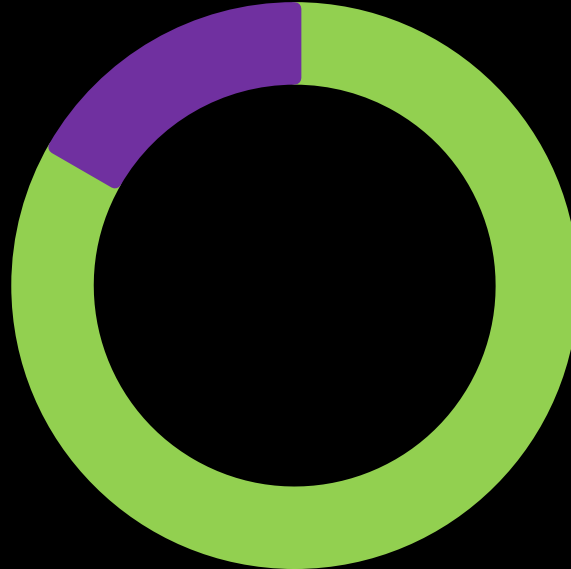
⚠ Whitelist

If there is a function for this Developer can set zero fee or no max wallet size for adresses (for example team wallets can trade without fee. Can cause farming)

```
fttrace | funcSig
202   function excludeFromFees(address account!, bool isExcluded!) public onlyOwner {
203       isExcludedFromFees[account!] = isExcluded!;
204
205       emit ExcludeFromFees(account!, isExcluded!);
206   }
207
```


Contract Security

Total Findings: 6



■ **High Severity Issues:** High possibility to cause problems, need to be resolved.

■ **Medium Severity Issue:** Will likely cause problems, recommended to resolve.

■ **Low Severity Issues:** Won't cause problems, but for improvement purposes could be adjusted.

■ **Informational Severity Issues:** Not harmful in any way, information for the developer team.

Contract Security

List of Found Issues

 **High severity Issues: (0)**

 **Medium severity issues: (0)**

 **Low severity issues: (5)**

- Missing Events
- Long number literals
- Low level calls
- Approve of front running attack (Sandwich bots)
- Multiple Pragma Versions

 **Informational severity issues: (1)**

- Public Functions Should be Declared External

Contract Weakness Classisication

THE SMART CONTRACT WEAKNESS CLASSIFICATION REGISTRY (SWC REGISTRY) IS AN IMPLEMENTATION OF THE WEAKNESS CLASSIFICATION SCHEME PROPOSED IN EIP-1470. IT IS LOOSELY ALIGNED TO THE TERMINOLOGIES AND STRUCTURE USED IN THE COMMON WEAKNESS ENUMERATION (CWE) WHILE OVERLAYING A WIDE RANGE OF WEAKNESS VARIANTS THAT ARE


ID	Description	AI	Manual	Result
SWC-100	Function Default Visibility	Passed	Passed	Passed
SWC-101	Integer Overflow and Underflow	Passed	Passed	Passed
SWC-102	Outdated Compiler Version	low	Passed	Passed
SWC-103	Floating Pragma	low	Passed	Passed
SWC-104	Unchecked Call Return Value	Passed	Passed	Passed
SWC-105	Unprotected Ether Withdrawal	Passed	Passed	Passed
SWC-106	Unprotected SELFDESTRUCT Instruction	Passed	Passed	Passed
SWC-107	Reentrancy	Passed	Passed	Passed
SWC-108	State Variable Default Visibility	Passed	Passed	Passed
SWC-109	Uninitialized Storage Pointer	Passed	Passed	Passed
SWC-110	Assert Violation	Passed	Passed	Passed
SWC-111	Use of Deprecated Solidity Functions	Passed	Passed	Passed
SWC-112	Delegatecall to Untrusted Callee	Passed	Passed	Passed
SWC-113	DoS with Failed Call	Passed	Passed	Passed
SWC-114	Transaction Order Dependence	Passed	Passed	Passed
SWC-115	Authorization through tx.origin	Passed	Passed	Passed
SWC-116	Block values as a proxy for time	Passed	Passed	Passed
SWC-117	Signature Malleability	Passed	Passed	Passed
SWC-118	Incorrect Constructor Name	Passed	Passed	Passed

SWC-119	Shadowing State Variables	Passed	Passed	Passed
SWC-120	Weak Sources of Randomness from Chain Attributes	Passed	Passed	Passed
SWC-121	Missing Protection against Signature Replay Attacks	Passed	Passed	Passed
SWC-122	Lack of Proper Signature Verification	Passed	Passed	Passed
SWC-123	Requirement Violation	Passed	Passed	Passed
SWC-124	Write to Arbitrary Storage Location	Passed	Passed	Passed
SWC-125	Incorrect Inheritance Order	Passed	Passed	Passed
SWC-126	Insufficient Gas Griefing	Passed	Passed	Passed
SWC-127	Arbitrary Jump with Function Type Variable	Passed	Passed	Passed
SWC-128	DoS With Block Gas Limit	Passed	Passed	Passed
SWC-129	Typographical Error	low	Passed	Passed
SWC-130	Right-To-Left-Override control character (U+202E)	Passed	Passed	Passed
SWC-131	Presence of unused variables	Passed	Passed	Passed
SWC-132	Unexpected Ether balance	Passed	Passed	Passed
SWC-133	Hash Collisions With Multiple Variable Length Arguments	Passed	Passed	Passed
SWC-134	Message call with hardcoded gas amount	Passed	Passed	Passed
SWC-135	Code With No Effects	Passed	Passed	Passed
SWC-136	Unencrypted Private Data On-Chain	Passed	Passed	Passed

Detected High and Medium Severity Vulnerability Description.

 No High or Medium Severity Vulnerability Issues found.

Approve of front running attack (2 Items)

Item: 1	Location:	erc20.sol Line 136-140	Severity:	 Low
---------	-----------	------------------------	-----------	---

Function	<p>The approve() method overrides current allowance regardless of whether the spender already used it or not, so there is no way to increase or decrease allowance by a certain value atomically unless the token owner is a smart contract, not an account. This can be abused by a token receiver when they try to withdraw certain tokens from the sender's account.</p> <p>Meanwhile, if the sender decides to change the amount and sends another approve transaction, the receiver can notice this transaction before it's mined and can extract tokens from both the transactions, therefore, ending up with tokens from both the transactions. This is a front-running attack affecting the ERC20 Approve function.</p> <p>The function approve can be front-run by abusing the <code>_approve</code> function.</p>
Remediation	<ol style="list-style-type: none"> 1. Introduce mechanisms that limit the maximum acceptable gas price for transactions. This can help prevent front-runners from drastically increasing the gas fees to prioritize their transactions. 2. Use transaction taxes to prevent against front-run attack

```

136 |         function approve(address spender, uint256 amount) public virtual override returns (bool) {
137 |             address owner = _msgSender();
138 |             _approve(owner, spender, amount);
139 |             return true;
140 |         }
  
```

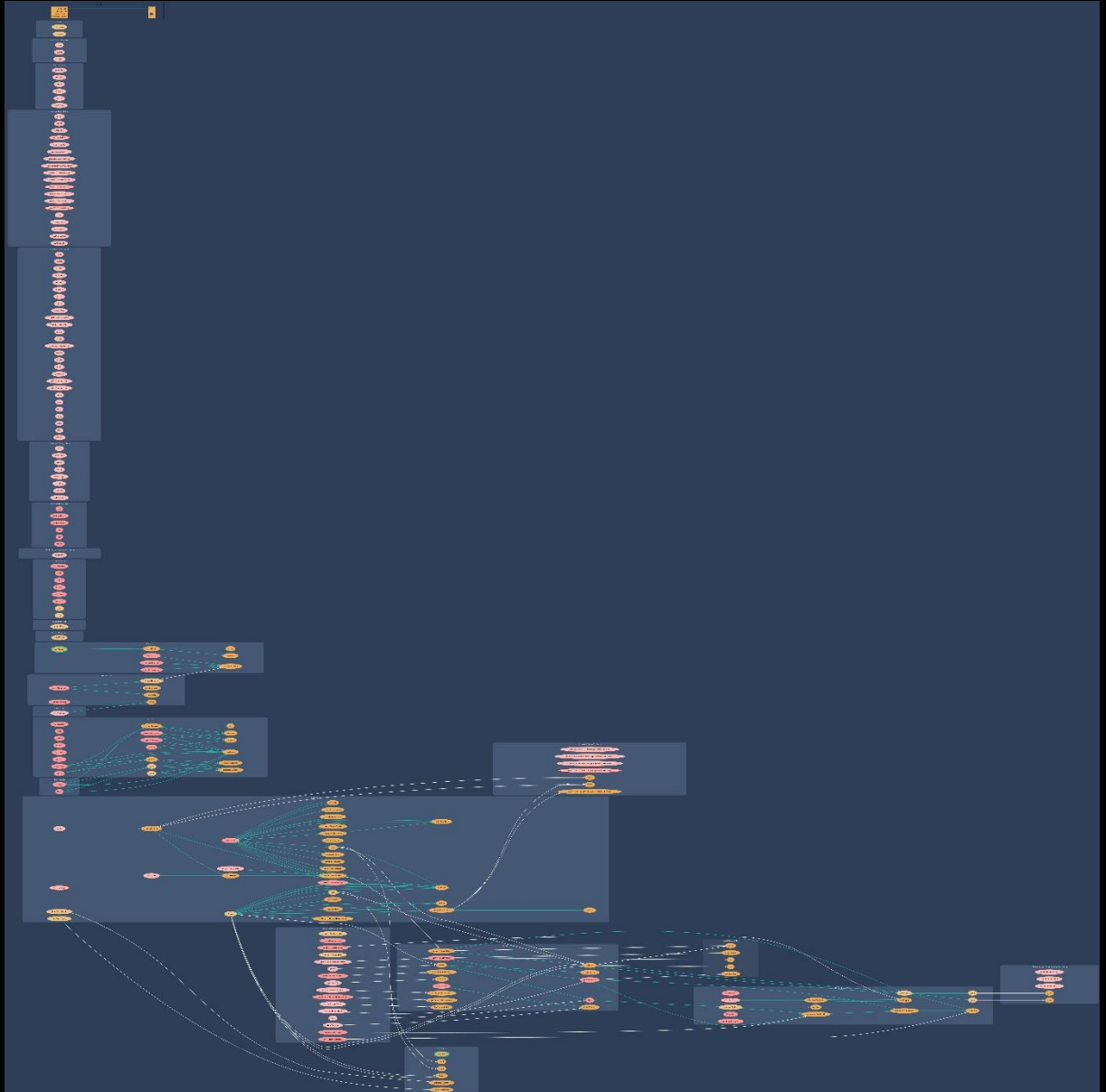
Item: 2	Location: erc20.sol Line 324-332	Severity: ■ Low
---------	----------------------------------	--

Function	<p>The <code>_spendAllowance()</code> method overrides current allowance regardless of whether the spender already used it or not, so there is no way to increase or decrease allowance by a certain value atomically unless the token owner is a smart contract, not an account.</p> <p>This can be abused by a token receiver when they try to withdraw certain tokens from the sender's account.</p> <p>Meanwhile, if the sender decides to change the amount and sends another approve transaction, the receiver can notice this transaction before it's mined and can extract tokens from both the transactions, therefore, ending up with tokens from both the transactions. This is a front-running attack affecting the ERC20 Approve function.</p> <p>The function approve can be front-run by abusing the <code>_approve</code> function.</p>
Remedation	<ol style="list-style-type: none"> 1. Introduce mechanisms that limit the maximum acceptable gas price for transactions. This can help prevent front-runners from drastically increasing the gas fees to prioritize their transactions. 2. Use transaction taxes to prevent against front-run attack

```

324 | function _spendAllowance(address owner!, address spender!, uint256 amount!) internal virtual {
325 |     uint256 currentAllowance = allowance(owner!, spender!);
326 |     if (currentAllowance != type(uint256).max) {
327 |         require(currentAllowance >= amount!, "ERC20: insufficient allowance");
328 |         unchecked {
329 |             _approve(owner!, spender!, currentAllowance - amount!);
330 |         }
331 |     }
332 | }
  
```

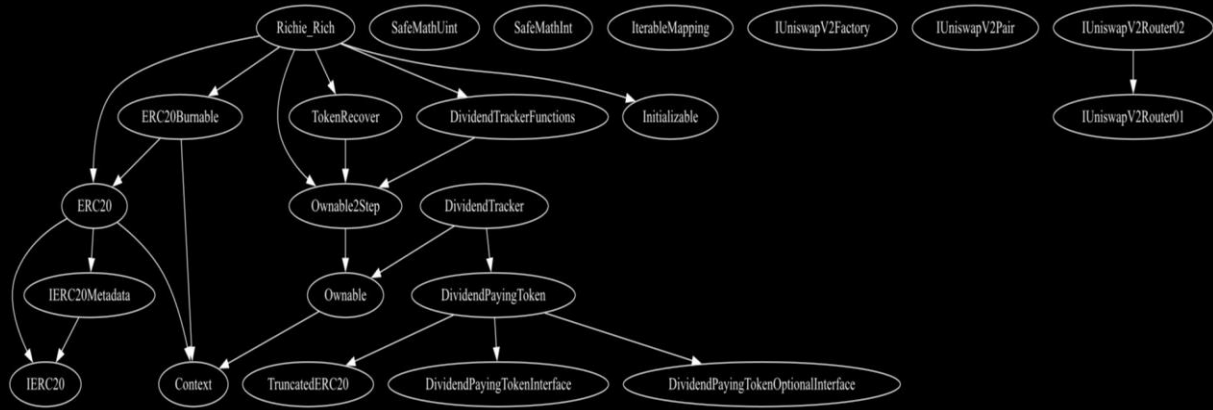
Contract Flow Graph


















Contract Interaction Graph















































Inheritance Graph









































Contract Functions

Contract	Type	Bases		
L	Function Name	Visibility	Mutability	Modifiers
Richie_Rich	Implementation	ERC20, ERC20Burnable, Ownable2Step, TokenRecover, DividendTracker Functions, Initializable		
L		Public 		ERC20
L	initialize	External 		initializer
L		External 		NO 
L	decimals	Public 		NO 
L	_swapTokensForCoin	Private 		
L	updateSwapThreshold	Public 		onlyOwner
L	getSwapThresholdAmount	Public 		NO 
L	getAllPending	Public 		NO 
L	marketingAddressSetup	Public 		onlyOwner
L	marketingFeesSetup	Public 		onlyOwner
L	autoBurnFeesSetup	Public 		onlyOwner
L	_sendDividends	Private 		
L	excludeFromDividends	External 		onlyOwner
L	_excludeFromDividends	Internal 		







































L	rewardsFeesSetup	Public 		onlyOwner
L	_burn	Internal 		
L	_mint	Internal 		
L	excludeFromFees	Public 		onlyOwner
L	_transfer	Internal 		
L	_updateRouterV2	Private 		
L	setAMMPair	External 		onlyOwner
L	_setAMMPair	Private 		
L	_beforeTokenTransfer	Internal 		
L	_afterTokenTransfer	Internal 		
ERC20	Implementation	Context, IERC20, IERC20Metadata		
L		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	_spendAllowance	Internal 🔒	🔒	
L	_beforeTokenTransfer	Internal 🔒	🔒	
L	_afterTokenTransfer	Internal 🔒	🔒	
ERC20Burnable	Implementation	Context, ERC20		
L	burn	Public 🔒	🔒	NO!
L	burnFrom	Public 🔒	🔒	NO!
Ownable2Step	Implementation	Ownable		
L	pendingOwner	Public 🔒		NO!
L	transferOwnership	Public 🔒	🔒	onlyOwner
L	_transferOwnership	Internal 🔒	🔒	
L	acceptOwnership	Public 🔒	🔒	NO!
TokenRecover	Implementation	Ownable2Step		
L	recoverERC20	External 🔒	🔒	onlyOwner
SafeMathUint	Library			




















































L	toInt256Safe	Internal 🔒		
SafeMathInt	Library			
L	toUint256Safe	Internal 🔒		
TruncatedERC20	Implementation			
L		Public 🔓	⚙️	NO 🔒
L	name	Public 🔓		NO 🔒
L	symbol	Public 🔓		NO 🔒
L	decimals	Public 🔓		NO 🔒
L	totalSupply	Public 🔓		NO 🔒
L	balanceOf	Public 🔓		NO 🔒
L	_mint	Internal 🔒	⚙️	
L	_burn	Internal 🔒	⚙️	
DividendPayingTokenInterface	Interface			
L	dividendOf	External 🔓		NO 🔒
DividendPayingTokenOptionalInterface	Interface			
L	withdrawableDividendOf	External 🔓		NO 🔒
L	withdrawnDividendOf	External 🔓		NO 🔒
L	accumulativeDividendOf	External 🔓		NO 🔒
DividendPayingToken	Implementation	TruncatedERC20 , DividendPayingTokenInterface, DividendPaying		































		TokenOptionalIn terface		
L		Public 		TruncatedERC20
L		External 		NO 
L	distributeDividends	Public 		NO 
L	_withdrawDividend	Internal 		
L	dividendOf	Public 		NO 
L	withdrawableDividendOf	Public 		NO 
L	withdrawnDividendOf	Public 		NO 
L	accumulativeDividendOf	Public 		NO 
L	_mint	Internal 		
L	_burn	Internal 		
L	_setBalance	Internal 		
IterableMapping	Library			
L	get	Public 		NO 
L	getIndexOfKey	Public 		NO 
L	getKeyAtIndex	Public 		NO 
L	size	Public 		NO 
L	set	Public 		NO 
L	remove	Public 		NO 
DividendTracker	Implementation	Ownable, DividendPaying Token		






















L		Public 🔒	🔒	DividendPayingToken
L	excludeFromDividends	External 🔒	🔒	onlyOwner
L	claimWaitSetup	Public 🔒	🔒	onlyOwner
L	getNumberOfTokenHolders	External 🔒		NO 🔒
L	getAccountData	Public 🔒		NO 🔒
L	getAccountDataAtIndex	Public 🔒		NO 🔒
L	claim	Public 🔒	🔒	onlyOwner
L	_canAutoClaim	Private 🔒		
L	setBalance	Public 🔒	🔒	onlyOwner
L	process	External 🔒	🔒	onlyOwner
DividendTracker Functions	Implementation	Ownable2Step		
L	_deployDividendTracker	Internal 🔒	🔒	
L	gasForProcessingSetup	Public 🔒	🔒	onlyOwner
L	claimWaitSetup	External 🔒	🔒	onlyOwner
L	_excludeFromDividends	Internal 🔒	🔒	
L	isExcludedFromDividends	Public 🔒		NO 🔒
L	claim	External 🔒	🔒	NO 🔒
L	getClaimWait	External 🔒		NO 🔒
L	getTotalDividendsDistributed	External 🔒		NO 🔒
L	withdrawableDividendOf	Public 🔒		NO 🔒

L	dividendTokenBalanceOf	Public 		NO 
L	dividendTokenTotalSupply	Public 		NO 
L	getAccountDividendsInfo	External 		NO 
L	getAccountDividendsInfoAtIndex	External 		NO 
L	getLastProcessedIndex	External 		NO 
L	getNumberOfDividendTokenHolders	Public 		NO 
L	process	External 		NO 
Initializable	Implementation			
IUniswapV2Factory	Interface			
L	feeTo	External 		NO 
L	feeToSetter	External 		NO 
L	getPair	External 		NO 
L	allPairs	External 		NO 
L	allPairsLength	External 		NO 
L	createPair	External 		NO 
L	setFeeTo	External 		NO 
L	setFeeToSetter	External 		NO 
IUniswapV2Pair	Interface			
L	name	External 		NO 
L	symbol	External 		NO 
L	decimals	External 		NO 

L	totalSupply	External ¶		NO ¶
L	balanceOf	External ¶		NO ¶
L	allowance	External ¶		NO ¶
L	approve	External ¶	⦿	NO ¶
L	transfer	External ¶	⦿	NO ¶
L	transferFrom	External ¶	⦿	NO ¶
L	DOMAIN_SEPARATOR	External ¶		NO ¶
L	PERMIT_TYPEHASH	External ¶		NO ¶
L	nonces	External ¶		NO ¶
L	permit	External ¶	⦿	NO ¶
L	MINIMUM_LIQUIDITY	External ¶		NO ¶
L	factory	External ¶		NO ¶
L	token0	External ¶		NO ¶
L	token1	External ¶		NO ¶
L	getReserves	External ¶		NO ¶
L	price0CumulativeLast	External ¶		NO ¶
L	price1CumulativeLast	External ¶		NO ¶
L	kLast	External ¶		NO ¶
L	mint	External ¶	⦿	NO ¶
L	burn	External ¶	⦿	NO ¶
L	swap	External ¶	⦿	NO ¶
L	skim	External ¶	⦿	NO ¶
L	sync	External ¶	⦿	NO ¶

L	initialize	External 		NO 
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 
Ownable	Implementation	Context		
L		Public 		NO 
L	owner	Public 		NO 
L	_checkOwner	Internal 		
L	renounceOwnership	Public 		onlyOwner
L	transferOwnership	Public 		onlyOwner
L	_transferOwnership	Internal 		
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 
IERC20Metadata	Interface	IERC20		
L	name	External 		NO 
L	symbol	External 		NO 
L	decimals	External 		NO 
Context	Implementation			
L	_msgSender	Internal 		
L	_msgData	Internal 		



Function
can modify
state



Function
is payable

Audit Scope

Audit Method.

Our smart contract audit is an extensive methodical examination and analysis of the smart contract's code that is used to interact with the blockchain. Goal: discover errors, issues and security vulnerabilities in the code. Findings getting reported and improvements getting suggested.

Automatic and Manual Review

We are using automated tools to scan functions and weaknesses of the contract. Transfers, integer over-undeflow checks such as all CWE events.

Tools we use:

Visual Studio Code

CWE

SWC

Solidity Scan

SVD

In manual code review our auditor looking at source code and performing line by line examination. This method helps to clarify developer's coding decisions and business logic.

Skeleton Ecosystem

<https://skeletonecosystem.com>

<https://github.com/SkeletonEcosystem/Audits>

