

Building the Futuristic Blockchain Ecosystem

SECURITY AUDIT REPORT

Zelda Token



TOKEN OVERVIEW

Risk Findings

Severity	Found	
High	0	
Medium	0	
Low	0	
Informational	1	

Centralization Risks

Owner Privileges	Description	
Can Owner Set Taxes >25%?	Not Detected	
Owner needs to enable trading?	Not Detected	
Can Owner Disable Trades ?	Not Detected	
Can Owner Mint?	Not Detected	
Can Owner Blacklist ?	Not Detected	
Can Owner set Max Wallet amount ?	Not Detected	
Can Owner Set Max TX amount?	Not Detected	



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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	-
Audit Date	06 October 2023



CONTRACT DETAILS

Token Address: 0xf13c0BD15698eC82cFa750C1ca8aec90a222f530

Name: Zelda Token

Symbol: ZELDA

Decimals: 18

Netowrk: BSC

Token Type: BEP20

Owner: 0xE6db28188e974BD18272a161A41e915D1fbd1cb9

Deployer: 0xE6db28188e974BD18272a161A41e915D1fbd1cb9

Token Supply: 10,000,000

Checksum:

a4dec6753bc5lacc3049b34a99ca09c97ad2bl36

Testnet version:

The tests conducted were performed on the contract deployed on the Binance Smart Chain (BSC) Testnet.

https://testnet.bscscan.com/token/0x7ADDB9a125f36cc29c547f4ae90eBDEB608bDe4f

Owner Privilege:

Contract owner is able to update buy/sell/transfer fees within (0-25%)



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 acces 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

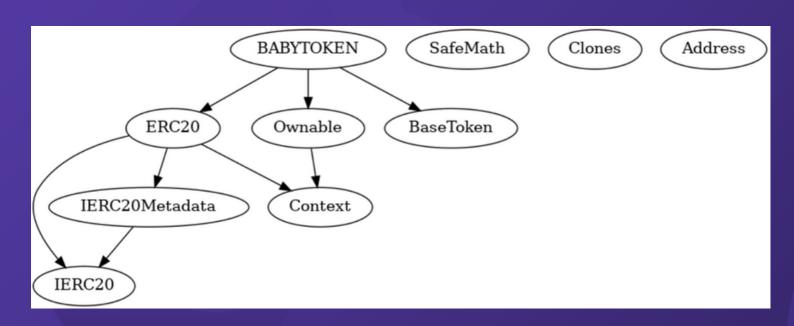
Issues on this level are minor details and warning that can remain unfixed.

Informational

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



INHERITANCE TREES





```
|Contract |
            Type
                   Bases
| **Function Name** | **Visibility** | **Mutability** | **Modifiers** |
ШШ
| **IERC20** | Interface | ||| | | |
| L| totalSupply | External | | NO | |
| - | transfer | External | | | | NO | |
| - | allowance | External | | | NO | |
| └ | approve | External | | ● |NO | |
| └ | transferFrom | External | | ● |NO | |
| **IERC20Metadata** | Interface | IERC20 |||
| - | symbol | External | | NO | |
| - | decimals | External | | NO | |
ШШ
| **Context** | Implementation | |||
ШШ
| **ERC20** | Implementation | Context, IERC20, IERC20Metadata ||| | |
| - | <Constructor> | Public | | • | NO | |
| - | name | Public | | | NO | |
| -|symbol|Public | | NO | |
| L | decimals | Public | | NO | |
 | allowance | Public | | NO | |
| - | approve | Public | | | NO | |
 └ | transferFrom | Public │ │ ● |NO │ |
 └ | increaseAllowance | Public ! | ● |NO! |
 | decreaseAllowance | Public | | | | NO | |
 🕒 | _transfer | Internal 🤒 | 🌑 | |
| - | _mint | Internal | - | | - | |
 └-|_burn | Internal 🔒 | ● | |
 └─|_approve|Internal 🔒 | 🌑 | |
 └ | _beforeTokenTransfer | Internal 🔒 | ● | |
 └ | _afterTokenTransfer | Internal 🔒 | 🧶 | |
```



```
| **Ownable** | Implementation | Context |||
 - | <Constructor> | Public | | • | NO | |
 | - | renounceOwnership | Public | | | | onlyOwner |
| - | transferOwnership | Public | | | | onlyOwner |
| **SafeMath** | Library | |||
└ | trySub | Internal 🔒 | ||
 └ | tryMul | Internal 🔒 | ||
 └ | tryDiv | Internal 🤒 | ||
 └ | tryMod | Internal 🔒 | ||
 └ | add | Internal 🔒 | | |
 └ | sub | Internal 🔒 | | |
└ | mul | Internal 🔒 | ||
 └ | div | Internal 🔒 | | |
 └ | mod | Internal 🔒 | | |
 | - | clone | Internal | - | | | | |
│ └ │ cloneDeterministic │ Internal 🔒 │ 🌑 │ │
 └ | predictDeterministicAddress | Internal 🔒 | | |
 └ | predictDeterministicAddress | Internal 🔒 | | |
| **Address** | Library | |||
└ | sendValue | Internal 🔒 | 🧶 | |
 └ | functionCall | Internal 🔒 | 🧶 | |
 └ | functionCall | Internal 🔒 | 🧶 | |
 └ | functionCallWithValue | Internal 🔒 | 🌑 | |
 └ | functionCallWithValue | Internal 🔒 | ● | |
 └ | functionStaticCall | Internal 🔒 | | |
 └ | functionStaticCall | Internal 🔒 | | |
 └ | functionDelegateCall | Internal 🔒 | 🧶 | |
 └─ | functionDelegateCall | Internal 🔒 | 🥌 | |
 └ | verifyCallResult | Internal 🔒 | | |
```



```
| **IUniswapV2Factory** | Interface | ||| | | |
| - | feeTo | External | | | NO | |
| L|feeToSetter|External | | NO | |
| - | getPair | External | | NO | |
 | allPairs | External | | NO | |
| - | allPairsLength | External | | | NO | |
| - | createPair | External | | | | NO | |
| | setFeeTo | External | | | NO | |
| | setFeeToSetter | External | | | NO | |
| **IUniswapV2Router01** | Interface | |||
| - | factory | External | | | NO | |
 | WETH | External | | NO | |
| - | addLiquidity | External | | | | NO | |
| - | addLiquidityETH | External | | [1] | NO | |
| - | removeLiquidity | External | | | | NO | |
| - | removeLiquidityETH | External | | | | NO | |
| - | removeLiquidityWithPermit | External | | | | NO | |
| - | removeLiquidityETHWithPermit | External | | | | NO | |
 | swapExactTokensForTokens | External | | | | NO | |
| | swapTokensForExactTokens | External | | | NO | |
| - | swapExactETHForTokens | External | | 1 NO | |
| - | swapTokensForExactETH | External | | | NO | |
| - | swapExactTokensForETH | External | | • | NO | |
| - | swapETHForExactTokens | External | | 1 NO | |
| - | quote | External | | | NO | |
 | getAmountOut | External | | NO | |
 | getAmountin | External | | NO | |
| L | getAmountsOut | External | | NO | |
| - | getAmountsIn | External | | NO | |
| **IUniswapV2Router02** | Interface | IUniswapV2Router01 |||
│ └ | removeLiquidityETHWithPermitSupportingFeeOnTransferTokens | External ᆝ │ ● |NO ! │
 | └| swapExactETHForTokensSupportingFeeOnTransferTokens | External ! | !!! | NO! | |
| **IERC20Upgradeable** | Interface | |||
| L|totalSupply|External | | NO | |
| L | balanceOf | External | | NO | |
 └ | transfer | External ! | ● |NO! |
 | allowance | External | | NO | | | |
| └ | transferFrom | External | | ● |NO | |
| **IERC20MetadataUpgradeable** | Interface | IERC20Upgradeable |||
| - | name | External | | | NO | |
| - | symbol | External | | NO | |
 | decimals | External | | NO | |
```



```
| **Initializable** | Implementation | ||| | | |
| **ContextUpgradeable** | Implementation | Initializable |||
| - | _Context_init_unchained | Internal | | | | | initializer |
| - | _msgSender | Internal | - | | |
 | LansgData | Internal April 1
 | **ERC20Upgradeable** | Implementation | Initializable, ContextUpgradeable, IERC20Upgradeable,
 IERC20MetadataUpgradeable |||
 | - | __ERC20_init | Internal | - | | | | initializer | |
 | - | _ERC20_init_unchained | Internal | | | | | | initializer |
| - | name | Public | | | NO | |
| - | symbol | Public | | | NO | |
| - | decimals | Public | | | NO | |
 | LotalSupply | Public | | NO | |
| Lacolumn 
| - | transfer | Public | | • | NO | | | |
| Lallowance | Public | | NO | |
     | approve | Public | | | | NO | |
| LansferFrom | Publica | | Image | NO | |
| | increaseAllowance | Public | | | | NO | |
| - | decreaseAllowance | Public | | | NO | |
| - | _transfer | Internal | - | | | | |
| - | _mint | Internal | - | | - | |
| - | _burn | Internal | | | | | |
 | └|_approve|Internal | ● | |
 | - | _beforeTokenTransfer | Internal | - | | | | | |
| - | _afterTokenTransfer | Internal - | | | | | |
ШШ
 | **OwnableUpgradeable** | Implementation | Initializable, ContextUpgradeable |||
| Lancon | L
| - | _Ownable_init_unchained | Internal - | • | initializer | | | |
 | - | owner | Public | | | NO | |
     | renounceOwnership | Public | | | | onlyOwner |
| - | transferOwnership | Public | | • | onlyOwner |
| - | _setOwner | Private | | | | | |
| **IUniswapV2Pair** | Interface | |||
 | | name | External | | NO | |
| L|symbol|External | | NO | |
     | decimals | External | | NO | |
 | L|totalSupply|External | | NO | |
     | balanceOf | External | | NO | |
| | allowance | External | | NO | |
     | approve | External | | | NO | |
| | transfer | External | | | NO | |
```



```
| - | transferFrom | External | | | | NO | |
| | DOMAIN_SEPARATOR | External | | NO | |
| PERMIT_TYPEHASH | External | | NO | |
| | nonces | External | | NO | |
 | - | MINIMUM_LIQUIDITY | External | | | NO | |
| - | factory | External | | | NO | |
| - | token0 | External | | | NO | |
| - | token1 | External | | | NO | |
| - | getReserves | External | | | NO | |
 | price0CumulativeLast | External | | NO | |
 | price1CumulativeLast | External | | NO | |
| L|kLast | External | | NO | |
| - | mint | External | | | | NO | |
| - | burn | External | | | NO | |
| - | skim | External | | • | NO | |
 └ | sync | External ! | ● |NO! |
| - | initialize | External | | | NO | | |
| - | div | Internal | | | | |
| - | add | Internal | | | | |
| - | abs | Internal | | | | |
| - | toUint256Safe | Internal - | | |
| **SafeMathUint** | Library | |||
| - | tolnt256Safe | Internal | | | |
| **IterableMapping** | Library | |||
 | - | getKeyAtIndex | Internal - | | |
| - | size | Internal | | | | |
| - | set | Internal 🔒 | 🥌 | |
| - | remove | Internal | - | | - | |
| **DividendPayingTokenInterface** | Interface | |||
| - | dividendOf | External | | | NO | |
| - | withdrawDividend | External | | | | NO | |
| **DividendPayingTokenOptionalInterface** | Interface | |||
| - | withdrawableDividendOf | External | | | NO | |
| - | withdrawnDividendOf | External | | | NO | |
| - | accumulativeDividendOf | External | | | NO | |
```



```
IIIIII
| **DividendPayingToken** | Implementation | ERC20Upgradeable, OwnableUpgradeable,
DividendPayingTokenInterface, DividendPayingTokenOptionalInterface ||
| - | _DividendPayingToken_init | Internal | | | | | initializer |
 | distributeCAKEDividends | Public | | | | onlyOwner |
| | withdrawDividend | Public | | | NO | |
☐ I withdrawDividendOfUser I Internal ☐ I ● I I
| | dividendOf | Public | | NO | |
| | withdrawableDividendOf | Public | | NO | |
| | withdrawnDividendOf | Public | | NO | |
 | accumulativeDividendOf | Public | | |NO | |
 - | _transfer | Internal 🔒 | 🧶 | |
| - | _mint | Internal | - | | - | |
| - | _burn | Internal | - | |
| LactBalance | Internal Alace | |
| **BABYTOKENDividendTracker** | Implementation | OwnableUpgradeable, DividendPayingToken | |
 | initialize | External | | | | initializer |
| Lactransfer | Internal April 1
| | withdrawDividend | Public | | NO | | | |
| | excludeFromDividends | External | | | onlyOwner |
| | isExcludedFromDividends | Public | | NO | |
| - | updateClaimWait | External | | | | onlyOwner |
| | updateMinimumTokenBalanceForDividends | External | | | | | onlyOwner |
getLastProcessedIndex | External | | NO | |
 | getNumberOfTokenHolders | External | | NO | |
 getAccount | Public | | NO | |
| L | getAccountAtIndex | Public | | NO | | |
| - | canAutoClaim | Private | | | |
| - | setBalance | External | | | | onlyOwner |
 process | Public | | | NO | |
| - | processAccount | Public | | | onlyOwner |
| **BaseToken** | Implementation | |||
ШШ
| **BABYTOKEN** | Implementation | ERC20, Ownable, BaseToken ||| | |
| - | Constructor> | Public | | III | ERC20 |
| - | <Receive Ether> | External | | 1 | NO | |
| | setSwapTokensAtAmount | External | | | | onlyOwner |
| - | excludeFromFees | External | | | | onlyOwner |
 | excludeMultipleAccountsFromFees | External | | | | onlyOwner |
 | setMarketingWallet | External | | | | onlyOwner |
| | setTokenRewardsFee | External | | | onlyOwner |
| | setLiquiditFee | External | | | onlyOwner |
| | setMarketingFee | External | | | onlyOwner |
```



```
| - | _setAutomatedMarketMakerPair | Private | | | | | |
| | updateGasForProcessing | Public | | | | onlyOwner |
| | updateClaimWait | External | | | | onlyOwner |
 | getClaimWait | External | | NO | |
 | updateMinimumTokenBalanceForDividends | External | | | | | | onlyOwner |
| | getMinimumTokenBalanceForDividends | External | | NO | |
 | | isExcludedFromFees | Public | | |NO | |
| | withdrawableDividendOf | Public | | NO | |
| | dividendTokenBalanceOf | Public | | NO | |
 | excludeFromDividends | External | | | | onlyOwner |
 | isExcludedFromDividends | Public | | NO | |
 | getAccountDividendsInfo | External | | NO | |
| | getAccountDividendsInfoAtIndex | External | | NO | |
| | processDividendTracker | External | | | NO | |
| - | claim | External | | | NO | |
| | getLastProcessedIndex | External | | NO | |
 | getNumberOfDividendTokenHolders | External | | NO | |
 | _ | _transfer | Internal | | | | | |
 └ | swapAndSendToFee | Private 🔐 | 🌘 | |
| | swapAndLiquify | Private | | | | |
 └ | swapTokensForEth | Private 🔐 | 🌑 | |
| - | swapTokensForCake | Private 🔐 | 🌑 | | | | |
| - | addLiquidity | Private 🔐 | 🧶 | |
| - | swapAndSendDividends | Private | | | | | |
### Legend
|Symbol | Meaning|
|:----|
| | Function can modify state |
| I Function is payable |
```



TESTNET VERSION

Adding Liquidity <a>V

Tx:

https://testnet.bscscan.com/tx/0x706ff91db10245f23c7b179b8ddf208b289345e991c52cdf9d54e63980c4b8b2

Buying when excluded from fees <a>

Tx (0% tax):

https://testnet.bscscan.com/tx/0x6575dc7e0d941fd557ecd38d3b77e89793666fb2d72c2afffd6588cd5e7c7128

Selling when excluded from fees <a>

Tx (0% tax):

https://testnet.bscscan.com/tx/0xc604b716df7c5181117fe1df616e193b2862169fcfcba93808abc64108af313d

Transferring when exclduded from fees <a>

Tx (0% tax):

https://testnet.bscscan.com/tx/0x78b04159bda8f0f85af0e3f26ff87c261a6030573a603 10fccf704b2f21b39cd

Buying <a>V

Tx (0-25% tax):

https://testnet.bscscan.com/tx/0xb3dc09b8e739fb5595b7f5c20ab225d207f22f6c42542cece49b514fe47ff74f



TESTNET VERSION

Selling <

Tx (0-25% tax):

https://testnet.bscscan.com/tx/0x6c87da220dbb3c041345ae966ef49edcf47e1eef6f7fbe7792a97992c3e22d27

Transferring <

Tx (0-25% tax):

https://testnet.bscscan.com/tx/0x30470978226ca423fdfbc6f4d09b389643a7b96f673f8707cf58a6efd8443132

Internal swap (auto-liquidity | reflections in BUSD | BNB to marketing wallet) <a>Tx:

https://testnet.bscscan.com/tx/0x6c87da220dbb3c041345ae966ef49edcf47e1eef6f7fbe7792a97992c3e22d27



MANUAL REVIEW

Severity Criteria

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

Vulnerabilities are dividend into three primary risk categroies:

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						



HIGH RISK FINDING

Category: Centralization

Subject: up to 25% fee

Status: Open

Impact: Informational

Overview:

Owner is able to update buy/sel/transfer fees within 0-25 percent. The upper bound might be considered a high amount of tax for investors.

```
function setTokenRewardsFee(uint256 value) external onlyOwner {
   tokenRewardsFee = value;
   totalFees = tokenRewardsFee.add(liquidityFee).add(marketingFee);
   require(totalFees <= 25, "Total fee is over 25%");
}

function setLiquiditFee(uint256 value) external onlyOwner {
   liquidityFee = value;
   totalFees = tokenRewardsFee.add(liquidityFee).add(marketingFee);
   require(totalFees <= 25, "Total fee is over 25%");
}

function setMarketingFee(uint256 value) external onlyOwner {
   marketingFee = value;
   totalFees = tokenRewardsFee.add(liquidityFee).add(marketingFee);
   require(totalFees <= 25, "Total fee is over 25%");
}</pre>
```

Suggestion:

Its suggested to declare a more reasonable upper bound for fees. This upper bound is suggested to be 10% according to pinksale safu cirteria



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.

www.expelee.com

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Building the Futuristic Blockchain Ecosystem



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