

Building the Futuristic Blockchain Ecosystem

SECURITY AUDIT REPORT

DogeX



TOKEN OVERVIEW

Risk Findings

Severity	Found	
High	2	
Medium	2	
Low	0	
Informational	0	

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 With High Risk
KYC Verification	-
Audit Date	25 Aug 2023



CONTRACT DETAILS

Token Name: DogeX

Symbol: DogeX

Network: Binance Smart Chain

Language: Solidity

Contract Address:

0xA967fff8002219e0cb772634d59327207e6591d4

Total Supply: 1,000,000,000,000

Owner's Wallet:

0x9CeCecb9AaDD8f960956c5D19d584D19A51543F1

Deployer's Wallet:

0x9CeCecb9AaDD8f960956c5D19d584D19A51543F1

Testnet.

https://testnet.bscscan.com/address/0x2dde7E00389bD8FeB596cCF3ba8158a43e792CA0



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

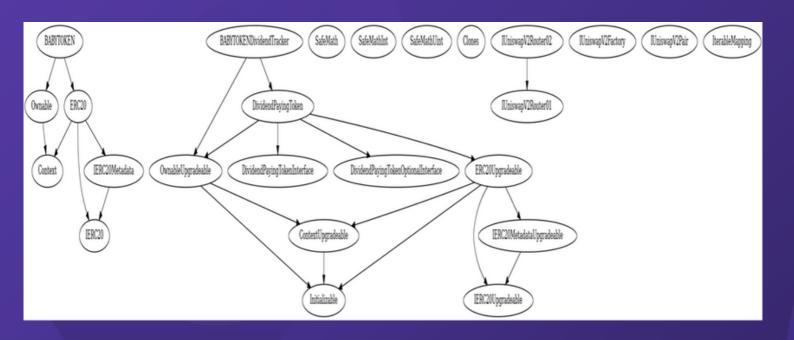
Issues on this level are minor details and warning that can remain unfixed.

Informational

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



INHERITANCE TREES





```
Contract
                              Bases
        | **Function Name** | **Visibility** | **Mutability** | **Modifiers** | |
| **Context** | Implementation | |||
| I | msgSender | Internal 🔒 | | |
 □ msgData | Internal 🔒 | |
| **Ownable** | Implementation | Context ||
 └ | <Constructor> | Public | | ● NO | |
 L owner | Public | | NO | |
 L | renounceOwnership | Public | | | | onlyOwner |
 L | transferOwnership | Public | | | | onlyOwner |
 L | getTime | Public | | NO | |
 └ | transferOwnership | Internal 🔒 | ● | |
| **Initializable** | Implementation | ||
 **ContextUpgradeable** | Implementation | Initializable ||
 Context init | Internal 🔒 | 🛑 | initializer |
    Context init unchained | Internal 🔒 | 🛑 | initializer |
 L | msgSender | Internal 🔒 | | |
 L | msgData | Internal 🔒 | | |
 **OwnableUpgradeable** | Implementation | Initializable, ContextUpgradeable ||
 U Ownable init | Internal 🔒 | 🛑 | initializer |
 Umable init unchained | Internal 🔒 | 🛑 | initializer |
 | owner | Public | NO | |
 └ | renounceOwnership | Public | | ● | onlyOwner |
 └ | transferOwnership | Public | | ● | onlyOwner |
 L | setOwner | Private 🔐 | 🛑 | |
 **IERC20** | Interface | ||
 totalSupply | External | | NO |
 L | balanceOf | External | | NO | |
 L | transfer | External | | | NO | |
 L | allowance | External | | NO | |
 | approve | External | | | NO | |
 └ | transferFrom | External | | ● |NO | |
**IERC20Metadata** | Interface | IERC20 |||
 L | name | External | | | NO |
 symbol | External | NO | |
 | decimals | External | | NO | |
 **SafeMath** | Library | ||
 L | add | Internal 🔒 | | |
 L | sub | Internal 🔒 | | |
```



```
L | sub | Internal 🔒 | | |
 L | mul | Internal 🔒 | | |
 L | div | Internal 🔒 | | |
 L | div | Internal 🔒 | | |
 L | mod | Internal 🔒 | | |
 L | mod | Internal 🔒 | | |
**SafeMathInt** | Library | ||
 L | mul | Internal 🔒 | | |
 L | div | Internal 🔒 | | |
 L | sub | Internal 🔒 | | |
 L | add | Internal 🔒 | | |
 L | abs | Internal 🔒 | | |
 L | toUint256Safe | Internal 🔒 | | |
**SafeMathUint** | Library | ||
| L | toInt256Safe | Internal 🔒 | | |
**Clones** | Library | ||
 L | clone | Internal 🔒 | 🛑 | |
 L | cloneDeterministic | Internal 🔒 | 🌑 | |
 └ | predictDeterministicAddress | Internal 🔒 | | |
 | predictDeterministicAddress | Internal 🔒 | | |
**ERC20** | Implementation | Context, IERC20, IERC20Metadata |||
 L | <Constructor> | Public | | | NO | |
 I name | Public | | NO | |
 | symbol | Public | NO |
 L | decimals | Public | | NO |
 L | totalSupply | Public | | NO |
 L | balanceOf | Public | | NO |
 L | transfer | Public | | | NO |
 | allowance | Public | | NO |
 | approve | Public | | | NO | |
 transferFrom | Public | | | NO | |
 L | increaseAllowance | Public | | | NO |
 L | decreaseAllowance | Public | | | NO | |
 L | transfer | Internal 🔒 | 🌑
 📙 mint | Internal 🔒 | 🛑 | |
 L | burn | Internal 🔒 | 🛑 | |
 L | approve | Internal 🔒 | 🛑 | |
 └ | beforeTokenTransfer | Internal 🔒 | 🛑 | |
**IUniswapV2Router01** | Interface | ||
 | factory | External | NO
| L| WETH | External | | NO |
```



```
L | addLiquidity | External | | | NO | |
└ | removeLiquidity | External | | ● | NO |
└ | removeLiquidityETH | External | | ● NO | |
└ | removeLiquidityWithPermit | External | | ● NO |
└ | removeLiquidityETHWithPermit | External | | ● | NO ! |
| swapExactTokensForTokens | External
| swapTokensForExactTokens | External
| swapTokensForExactETH | External
| swapETHForExactTokens | External | | NO |
| quote | External | NO | |
| getAmountOut | External | NO |
| getAmountIn | External | NO | |
L | getAmountsOut | External | | NO |
| getAmountsIn | External | NO | |
**IUniswapV2Router02** | Interface | IUniswapV2Router01 |||
└ | removeLiquidityETHWithPermitSupportingFeeOnTransferTokens | External ! | ● | NO !
└ | swapExactTokensForTokensSupportingFeeOnTransferTokens | External | | ● NO | |
└ | swapExactETHForTokensSupportingFeeOnTransferTokens | External | | 📭 | NO |
| swapExactTokensForETHSupportingFeeOnTransferTokens | External | | | | NO |
**IUniswapV2Factory** | Interface | |||
L | feeTo | External | | NO | |
| feeToSetter | External | | NO |
L | getPair | External | | NO | |
L | allPairs | External | | NO | |
| allPairsLength | External | NO | |
createPair | External | | | NO | |
└ | setFeeTo | External | | ● | NO | |
L | setFeeToSetter | External | | ● |NO | |
**IUniswapV2Pair** | Interface | ||
I name | External | NO |
| symbol | External | NO | |
L | decimals | External | | NO |
L | totalSupply | External | NO |
| balanceOf | External | NO | |
allowance | External | NO
| approve | External | | | NO |
L | transfer | External | | | NO |
transferFrom | External | | NO | |
```



```
L | DOMAIN SEPARATOR | External | | NO | |
 L | PERMIT TYPEHASH | External | | | NO | |
 I nonces | External | NO
 | permit | External | | | NO |
 | MINIMUM LIQUIDITY | External | | | | NO | |
 L | factory | External | | NO |
 L | token0 | External | | NO |
 L | token1 | External | | NO |
 getReserves | External | NO
 | price0CumulativeLast | External | NO | |
 | price1CumulativeLast | External | NO | |
 | kLast | External | NO
 | mint | External | | | NO |
 L|burn|External | | | NO |
 └ | skim | External | | ● | NO |
 L|sync|External | | | NO |
 └ | initialize | External | | ● | NO | |
**IterableMapping** | Library | |||
 L | get | Internal 🔒 | | |
 | getIndexOfKey | Internal 🔒 | | |
 L | getKeyAtIndex | Internal 🔒 | | |
 L | size | Internal 🔒 | | |
 L | set | Internal 🔒 | 🛑 ||
 └ | remove | Internal 🔒 | 🛑 | |
**DividendPayingTokenInterface** | Interface | ||
 | dividendOf | External | | NO | |
 └ | withdrawDividend | External | | ● |NO | |
**DividendPayingTokenOptionalInterface** | Interface | ||
 | withdrawableDividendOf | External | NO |
 | withdrawnDividendOf | External | NO |
 L | accumulativeDividendOf | External | | | NO |
**IERC20Upgradeable** | Interface | ||
 L | totalSupply | External | | NO | |
 | balanceOf | External | NO |
 └ | transfer | External | | ● |NO | |
 L | allowance | External | | NO | |
 L | approve | External | | | NO | |
 L | transferFrom | External | | | NO | |
**IERC20MetadataUpgradeable** | Interface | IERC20Upgradeable ||
| L | name | External | | NO |
```



```
L | symbol | External | | NO | |
| L | decimals | External | NO | |
**ERC20Upgradeable** | Implementation | Initializable, ContextUpgradeable,
IERC20Upgradeable, IERC20MetadataUpgradeable |||
      ERC20 init | Internal 🔒 | 🔴 | initializer |
     ERC20 init unchained | Internal 🔒 | 🛑 | initializer |
 I 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 |
 └ | transferFrom | Public | | ● | NO |
 └ | increaseAllowance | Public | | ● | NO |
 L | decreaseAllowance | Public | | | NO |
 L | transfer | Internal 🔒 | 🛑
 □ mint | Internal 🔒 | ● ||
 L | burn | Internal 🔒 | 🛑 | |
 L | approve | Internal 🔒 | 🌑 | |
 L | beforeTokenTransfer | Internal 🔒 | 🛑 | |
 afterTokenTransfer | Internal 🔒 | 🛑 | |
**DividendPayingToken** | Implementation | ERC20Upgradeable, OwnableUpgradeable,
DividendPayingTokenInterface, DividendPayingTokenOptionalInterface |||
 □ DividendPayingToken init | Internal   □ | ● | initializer |
 ☐ distributeCAKEDividends | Public ☐ ☐ ☐ onlyOwner ☐
 | withdrawDividend | Public | | | NO | |
 L | dividendOf | Public | | NO |
 | withdrawableDividendOf | Public | NO |
 | withdrawnDividendOf | Public | | NO |
 accumulativeDividendOf | Public | | NO | |
 L | transfer | Internal 🔒 | 🛑 | |
 └ mint | Internal 🔒 | ● ||
 L | burn | Internal 🔒 | 🛑 | |
 📙 setBalance | Internal 🔒 | 🛑 | |
 **BABYTOKENDividendTracker** | Implementation | OwnableUpgradeable,
DividendPayingToken |||
 └ | initialize | External | | ● | initializer |
 L | transfer | Internal 🔒 | | |
 | withdrawDividend | Public | NO | |
 | excludeFromDividends | External | | | onlyOwner |
```



```
| isExcludedFromDividends | Public | NO | |
└ | updateClaimWait | External | | ● | onlyOwner |
| getLastProcessedIndex | External | NO |
| getNumberOfTokenHolders | External | NO | |
L | getAccount | Public | | NO | |
| getAccountAtIndex | Public | NO
| canAutoClaim | Private | | | |
└ | setBalance | External | | ● | onlyOwner |
| process | Public | | | NO | |
| processAccount | Public | | | | onlyOwner |
**BABYTOKEN** | Implementation | ERC20, Ownable |||
L | <Constructor> | Public | | III | ERC20 |
└ | <Receive Ether> | External | | ■ NO |
| getMinimumTokenBalanceForDividends | External | NO | |
└ | excludeFromFees | Public | | ● | onlyOwner |
| setKing | Public | | | onlyOwner |
└ | setMarketingWallet | External | | ● | onlyOwner |
L | setAutomatedMarketMakerPair | Public | | • | onlyOwner |
   setAutomatedMarketMakerPair | Private 🔐 | 🛑 | |
| updateGasForProcessing | Public | | | onlyOwner |
└ | updateClaimWait | External | | ● | onlyOwner |
getClaimWait | External | NO
getTotalDividendsDistributed | External | NO |
L | isExcludedFromFees | Public | NO |
| withdrawableDividendOf | Public | NO
L | dividendTokenBalanceOf | Public | | NO
excludeFromDividends | External
| isExcludedFromDividends | Public | | NO |
L | getAccountDividendsInfo | External | NO | |
| getAccountDividendsInfoAtIndex | External | NO | |
□ processDividendTracker | External □ | ● NO □ |
claim | External | | NO | |
| getLastProcessedIndex | External | NO | |
L | getNumberOfDividendTokenHolders | External | NO | |
└ | swapManual | Public | | ● | onlyOwner |
L | setSwapTokensAtAmount | Public | | | onlyOwner |
L | setDeadWallet | Public | | | | onlyOwner
└ | setBuyTaxes | External | | ● | onlyOwner |
```





TESTNET VERSION

Adding Liquidity Tx: https://testnet.bscscan.com/tx/0xc2c3b0fc8647b76094a65760b4ca2e6dbbee2af76dd483dbbdb4ae3243f91f04
Buying when excluded from fees ✓ Tx (0% tax): https://testnet.bscscan.com/tx/0xe4f0246ca1361e0e4d86d26826bee64edd4582cc78d3c42976ad000f64f715cb
Selling when excluded from fees ✓ Tx (0% tax): https://testnet.bscscan.com/tx/0xab6347cd703385191bb95dea144261534d5061807119f2ee4f844ae0ae207381
Transferring when excluded from fees ✓ Tx (0% tax): https://testnet.bscscan.com/tx/0x81233d1924b627a0ab65e3b3fa0ef469cb32f2c93ae8f3ca552affb30d343edc
Buying Tx (0-25% tax): https://testnet.bscscan.com/tx/0x29eba251fc08c158e990bf9622c26f26ebedaab67121bf2c8b8ae1a515bf25d5

Selling ✓ Tx (0-25% tax):

https://testnet.bscscan.com/tx/0x9a6ec5de5cb5ce7cbb9a04a6a406ca621036ef726 0df009e6f8d4fb21700c95e



TESTNET VERSION

Transferring ✓ Tx (25% tax):

https://testnet.bscscan.com/tx/0xf12533e733ca171c5e63a73bf3f08f2295d8c99161573f254b943989795b512a

Internal swap (BUSD sent to marketing wallet | Auto-liquidity | Burning | rewards)
Tx:

https://testnet.bscscan.com/tx/0xf12533e733ca171c5e63a73bf3f08f2295d8c9916157 3f254b943989795b512a



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

Owner is able to update router

Category: Centralization

Status: Open

Severity: High

Overview:

The contract owner is able to update router contract which is used for performing internal swap. Updating router to a malicious contract could cause errors when performing internal swap / auto-liquidity /reward distribution

```
function updateUniswapV2Router(address newAddress)
public onlyOwner {
    require(
        newAddress != address(uniswapV2Router),
        "The router already has that address"
    );
    emit UpdateUniswapV2Router(newAddress,
address(uniswapV2Router));
    uniswapV2Router = IUniswapV2RouterO2(newAddress);
    address _uniswapV2Pair =
IUniswapV2Factory(uniswapV2Router.factory())
.createPair(address(this), uniswapV2Router.WETH());
    uniswapPair = _uniswapV2Pair;
}
```

Suggestion: Ensure that uniswapV2Router is immutable



HIGH RISK FINDING

Owner is able to update dead blocks

Category: Centralization

Status: Open

Severity: High

Overview:

The contract owner is able to set dead block to any number, if current block is a dead block, all purchased tokens will be sent to an EOA (100% tax)

```
function setKing(uint256 newValue) public onlyOwner {
   kill = newValue;
}
```

Suggestion:

set an upper bound for maximum amount of dead blocks.

```
function setKing(uint256 newValue) public onlyOwner {
   require(newValue <= 5, "Can not set dead block more
than 5");
   kill = newValue;
}</pre>
```



MEDIUM RISK FINDING

Excessive fees

Category: Centralization

Status: Open

Severity: Medium

Overview:

Owner is able to set up to 25% percent fee on buy / sell transactions

```
function setBuyTaxes(
uint256 liquidity,
uint256 rewardsFee,
uint256 marketingFee,
uint256 deadFee
) external onlyOwner {...}
```

```
function setSelTaxes(
uint256 liquidity,
uint256 rewardsFee,
uint256 marketingFee,
uint256 deadFee
) external onlyOwner {...}
```

Suggestion:

To mitigate this risk, ensure that fees can not exceed 10% on buy/sell/transfers



MEDIUM RISK FINDING

LP tokens sent to EOA

Category: Centralization

Status: Open

Severity: Medium

Overview: New LP tokens are sent to an EOA (Externally owned account). This LP tokens can be used to remove a portion of liquidity pool.

```
function addLiquidity(uint256 tokenAmount, uint256 ethAmount)
private {
    // approve token transfer to cover all possible scenarios
    _approve(address(this), address(uniswapV2Router), tokenAmount);
    // add the liquidity
    try
uniswapV2Router.addLiquidityETH{value: ethAmount}(
        address(this),
        tokenAmount,
        O, // slippage is unavoidable
        O, // slippage is unavoidable
        receiveAddress,
block.timestamp
    )
    {} catch {
        emit Failed_addLiquidityETH();
    }
}
```

Suggestion: It is suggested to lock or burn new LP tokens



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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