



Smart Contract Audit

FOR

4 Army

DATED : 14 April 23'



AUDIT SUMMARY

Project name – 4 Army

Date: 14 April, 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	0	0	0
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/token/0xF986c93d8cBB1136F95d86c741f984C346fCcA5a>



Token Information

Token Name : 4 Army

Token Symbol: FOUR

Decimals: 18

Token Supply: 1,000,000,000,000,000

Token Address:

0x2ECb7896676c86cBec5669B4727B1DfB623e7C63

Checksum:

d8f25894d1b2a6d13080fc5bc09d9672a22495e8

Owner:

0xce5f500de9D3d7877f36eA12367289c2d05Fb00c
(at time of writing the audit)

Deployer:

0xce5f500de9D3d7877f36eA12367289c2d05Fb00c



TOKEN OVERVIEW

Fees:

Buy Fees: up to 25%

Sell Fees: up to 25%

Transfer Fees: up to 25%

Fees Privilege: Owner

Ownership: Owned

Minting: No mint function

Max Tx Amount/ Max Wallet Amount: No

Blacklist: No

Other Privileges: including and excluding form fee -
changing swap threshold - enabling trades - modifying
fees



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 Limitand 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

0

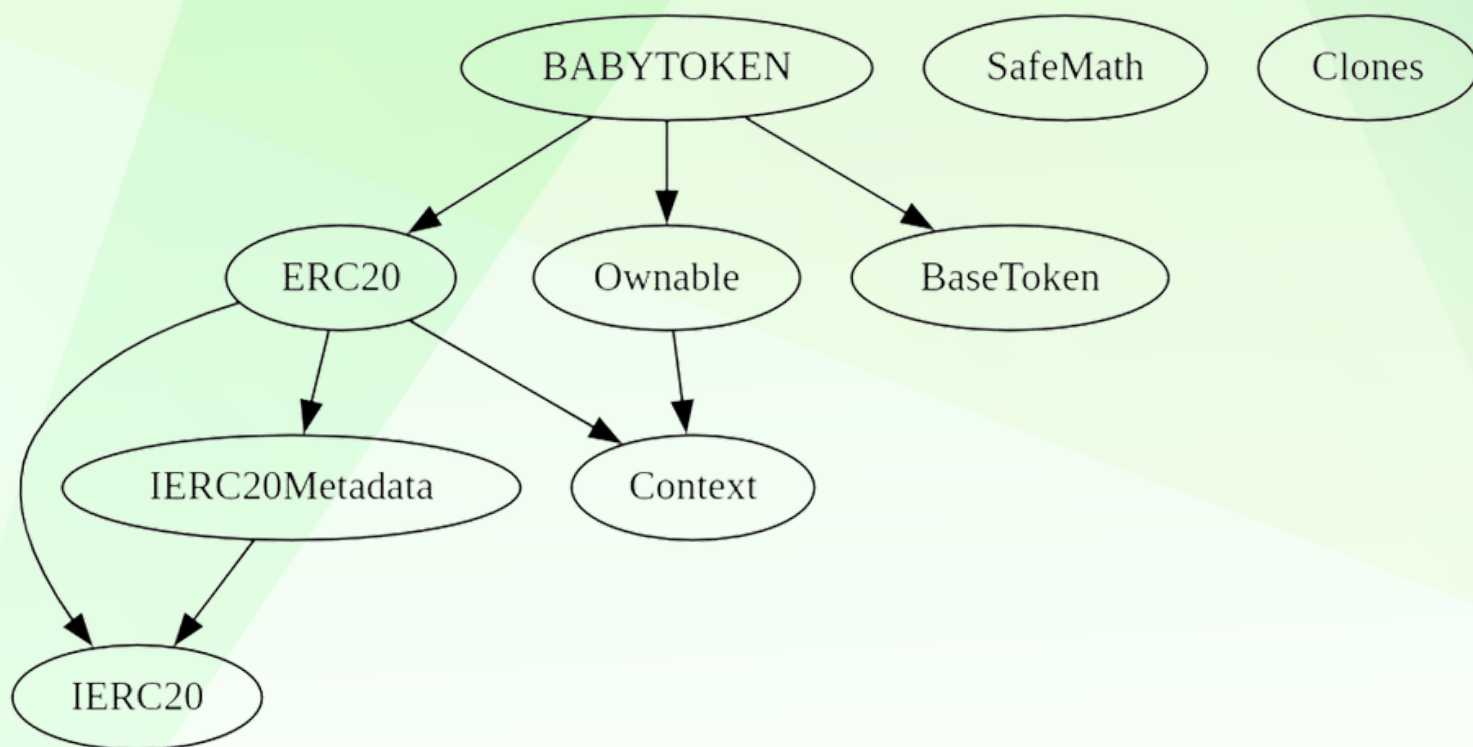
◆ Low-Risk

0

◆ Gas Optimization / Suggestions

0

INHERITANCE TREE



POINTS TO NOTE

- Owner is able to change buy/sell/transfer fees but sum of fees can not exceed 25%
 - Contract is recognized as proxy in bscscan, however this is because dividend distributor is minimal proxy contract which is not upgradeable currently
 - Owner is not able to set max buy/sell/transfer/hold amount
 - Owner is not able to blacklist an arbitrary wallet
 - Owner is not able to disable trades
 - Owner is not able to mint new tokens
 - Token has pinksale anti-bot
-



CONTRACT ASSESMENT

Contract	Type	Bases			
└	**Function Name**	**Visibility**	**Mutability**	**Modifiers**	
IERC20 Interface					
└	totalSupply	External	!		NO !
└	balanceOf	External	!		NO !
└	transfer	External	!		NO !
└	allowance	External	!		NO !
└	approve	External	!		NO !
└	transferFrom	External	!		NO !
IERC20Metadata Interface IERC20					
└	name	External	!		NO !
└	symbol	External	!		NO !
└	decimals	External	!		NO !
Context Implementation					
└	_msgSender	Internal	🔒		
└	_msgData	Internal	🔒		
ERC20 Implementation Context, IERC20, IERC20Metadata					
└	<Constructor>	Public	!		NO !
└	name	Public	!		NO !
└	symbol	Public	!		NO !
└	decimals	Public	!		NO !
└	totalSupply	Public	!		NO !
└	balanceOf	Public	!		NO !
└	transfer	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 !



CONTRACT ASSESMENT

```
| owner | Public ! | NO ! | | |
| renounceOwnership | Public ! | ● | onlyOwner |
| transferOwnership | Public ! | ● | onlyOwner |
| _setOwner | Private 🔒 | ● |
|||||
| **SafeMath** | Library | |||
| tryAdd | Internal 🔒 | ||
| trySub | Internal 🔒 | ||
| tryMul | Internal 🔒 | ||
| tryDiv | Internal 🔒 | ||
| tryMod | Internal 🔒 | ||
| add | Internal 🔒 | ||
| sub | Internal 🔒 | ||
| mul | Internal 🔒 | ||
| div | Internal 🔒 | ||
| mod | Internal 🔒 | ||
| sub | Internal 🔒 | ||
| div | Internal 🔒 | ||
| mod | Internal 🔒 | ||
|||||
| **Clones** | Library | |||
| clone | Internal 🔒 | ● |
| cloneDeterministic | Internal 🔒 | ● |
| predictDeterministicAddress | Internal 🔒 | ||
| predictDeterministicAddress | Internal 🔒 | ||
|||||
| **Address** | Library | |||
| isContract | Internal 🔒 | ||
| 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 ! |
| feeToSetter | External ! | NO ! |
```



CONTRACT ASSESMENT

```
| 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 ! | NO ! |
| removeLiquidity | External ! | NO ! |
| removeLiquidityETH | External ! | NO ! |
| removeLiquidityWithPermit | External ! | NO ! |
| removeLiquidityETHWithPermit | External ! | NO ! |
| swapExactTokensForTokens | External ! | NO ! |
| swapTokensForExactTokens | External ! | NO ! |
| swapExactETHForTokens | External ! | NO ! |
| swapTokensForExactETH | External ! | NO ! |
| swapExactTokensForETH | External ! | NO ! |
| swapETHForExactTokens | External ! | NO ! |
| quote | External ! | NO ! |
| getAmountOut | External ! | NO ! |
| getAmountIn | External ! | NO ! |
| getAmountsOut | External ! | NO ! |
| getAmountsIn | External ! | NO ! |
```

```
|||||
```

```
**IUniswapV2Router02** | Interface | IUniswapV2Router01 |||
| removeLiquidityETHSupportingFeeOnTransferTokens | External ! | NO ! |
| removeLiquidityETHWithPermitSupportingFeeOnTransferTokens | External ! | NO ! |
| swapExactTokensForTokensSupportingFeeOnTransferTokens | External ! | NO ! |
| swapExactETHForTokensSupportingFeeOnTransferTokens | External ! | NO ! |
| swapExactTokensForETHSupportingFeeOnTransferTokens | External ! | NO ! |
```

```
|||||
```

```
**IERC20Upgradeable** | Interface | |||
| totalSupply | External ! | NO ! |
| balanceOf | External ! | NO ! |
| transfer | External ! | NO ! |
| allowance | External ! | NO ! |
| approve | External ! | NO ! |
| transferFrom | External ! | NO ! |
```

```
|||||
```



CONTRACT ASSESMENT

```
**|ERC20MetadataUpgradeable**| Interface | IERC20Upgradeable |||
|  | name | External  !  | |NO  !  |
|  | symbol | External  !  | |NO  !  |
|  | decimals | External  !  | |NO  !  |
|||||
**|Initializable**| Implementation | |||
|||||
**|ContextUpgradeable**| Implementation | Initializable |||
|  | __Context_init | Internal  !  |  | initializer |
|  | __Context_init_unchained | Internal  !  |  | initializer |
|  | _msgSender | Internal  !  | |
|  | _msgData | Internal  !  | |
|||||
**|ERC20Upgradeable**| Implementation | Initializable, ContextUpgradeable, IERC20Upgradeable,
IERC20MetadataUpgradeable |||
|  | __ERC20_init | Internal  !  |  | initializer |
|  | __ERC20_init_unchained | Internal  !  |  | initializer |
|  | name | Public  !  | |NO  !  |
|  | symbol | Public  !  | |NO  !  |
|  | decimals | Public  !  | |NO  !  |
|  | totalSupply | Public  !  | |NO  !  |
|  | balanceOf | Public  !  | |NO  !  |
|  | transfer | 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  !  |  |
|||||
**|OwnableUpgradeable**| Implementation | Initializable, ContextUpgradeable |||
|  | __Ownable_init | Internal  !  |  | initializer |
|  | __Ownable_init_unchained | Internal  !  |  | initializer |
|  | owner | Public  !  | |NO  !  |
|  | renounceOwnership | Public  !  |  |onlyOwner |
|  | transferOwnership | Public  !  |  |onlyOwner |
|  | _setOwner | Private  !  |  |
```

CONTRACT ASSESMENT

```
||||| | |
| **IUniswapV2Pair** | Interface | |||
|  | name | External | ! | | NO ! |
|  | symbol | External | ! | | NO ! |
|  | decimals | External | ! | | NO ! |
|  | 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 ! |
|  | permit | External | ! | ● | NO ! |
|  | MINIMUM_LIQUIDITY | External | ! | | NO ! |
|  | factory | External | ! | | NO ! |
|  | token0 | External | ! | | NO ! |
|  | token1 | External | ! | | NO ! |
|  | getReserves | External | ! | | NO ! |
|  | price0CumulativeLast | External | ! | | NO ! |
|  | price1CumulativeLast | External | ! | | NO ! |
|  | kLast | External | ! | | NO ! |
|  | mint | External | ! | ● | NO ! |
|  | burn | External | ! | ● | NO ! |
|  | swap | External | ! | ● | NO ! |
|  | skim | External | ! | ● | NO ! |
|  | sync | External | ! | ● | NO ! |
|  | initialize | External | ! | ● | NO ! |
|||||
| **SafeMathInt** | Library | |||
|  | mul | Internal | 🔒 | | |
|  | div | Internal | 🔒 | | |
|  | sub | Internal | 🔒 | | |
|  | add | Internal | 🔒 | | |
|  | abs | Internal | 🔒 | | |
|  | toUint256Safe | Internal | 🔒 | | |
|||||
| **SafeMathUint** | Library | |||
|  | toInt256Safe | Internal | 🔒 | | |
|||||
| **IterableMapping** | Library | |||
```

CONTRACT ASSESMENT

```

└─ get | Internal 🔒 | ||
└─ getIndexOfKey | Internal 🔒 | ||
└─ 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 ! |
|||||
**DividendPayingToken** | Implementation | ERC20Upgradeable, OwnableUpgradeable,
DividendPayingTokenInterface, DividendPayingTokenOptionalInterface |||
└─ __DividendPayingToken__init | Internal 🔒 | ● | initializer |
└─ distributeCAKEDividends | Public ! | ● | onlyOwner |
└─ withdrawDividend | Public ! | ● |NO ! |
└─ _withdrawDividendOfUser | Internal 🔒 | ● |
└─ dividendOf | Public ! | |NO ! |
└─ withdrawableDividendOf | Public ! | |NO ! |
└─ withdrawnDividendOf | Public ! | |NO ! |
└─ accumulativeDividendOf | Public ! | |NO ! |
└─ _transfer | Internal 🔒 | ● |
└─ _mint | Internal 🔒 | ● |
└─ _burn | Internal 🔒 | ● |
└─ _setBalance | Internal 🔒 | ● |
|||||
**BABYTOKENDividendTracker** | Implementation | OwnableUpgradeable, DividendPayingToken |||
└─ initialize | External ! | ● | initializer |
└─ _transfer | Internal 🔒 | ||
└─ withdrawDividend | Public ! | |NO ! |
└─ excludeFromDividends | External ! | ● | onlyOwner |
└─ isExcludedFromDividends | Public ! | |NO ! |
└─ updateClaimWait | External ! | ● | onlyOwner |
└─ updateMinimumTokenBalanceForDividends | External ! | ● | onlyOwner |
└─ getLastProcessedIndex | External ! | |NO ! |
└─ getNumberOfTokenHolders | External ! | |NO ! |
└─ getAccount | Public ! | |NO ! |
└─ getAccountAtIndex | Public ! | |NO ! |

```






CONTRACT ASSESMENT

```
| L | canAutoClaim | Private 🔒 | | |
| L | setBalance | External ! | ● | onlyOwner |
| L | process | Public ! | ● | NO ! |
| L | processAccount | Public ! | ● | onlyOwner |
|||||
| **BaseToken** | Implementation | |||
|||||
| **BABYTOKEN** | Implementation | ERC20, Ownable, BaseToken |||
| L | <Constructor> | Public ! | 💰 | ERC20 |
| L | <Receive Ether> | External ! | 💰 | NO ! |
| L | setSwapTokensAtAmount | External ! | ● | onlyOwner |
| L | excludeFromFees | External ! | ● | onlyOwner |
| L | excludeMultipleAccountsFromFees | External ! | ● | onlyOwner |
| L | setMarketingWallet | External ! | ● | onlyOwner |
| L | setTokenRewardsFee | External ! | ● | onlyOwner |
| L | setLiquiditFee | External ! | ● | onlyOwner |
| L | setMarketingFee | External ! | ● | onlyOwner |
| L | _setAutomatedMarketMakerPair | Private 🔒 | ● | |
| L | updateGasForProcessing | Public ! | ● | onlyOwner |
| L | updateClaimWait | External ! | ● | onlyOwner |
| L | getClaimWait | External ! | | NO ! |
| L | updateMinimumTokenBalanceForDividends | External ! | ● | onlyOwner |
| L | getMinimumTokenBalanceForDividends | External ! | | NO ! |
| L | getTotalDividendsDistributed | External ! | | NO ! |
| L | isExcludedFromFees | Public ! | | NO ! |
| L | withdrawableDividendOf | Public ! | | NO ! |
| L | dividendTokenBalanceOf | Public ! | | NO ! |
| L | excludeFromDividends | External ! | ● | onlyOwner |
| L | isExcludedFromDividends | Public ! | | NO ! |
| L | getAccountDividendsInfo | External ! | | NO ! |
| L | getAccountDividendsInfoAtIndex | External ! | | NO ! |
| L | processDividendTracker | External ! | ● | NO ! |
| L | claim | External ! | ● | NO ! |
| L | getLastProcessedIndex | External ! | | NO ! |
| L | getNumberOfDividendTokenHolders | External ! | | NO ! |
| L | _transfer | Internal 🔒 | ● | |
| L | swapAndSendToFee | Private 🔒 | ● | |
| L | swapAndLiquify | Private 🔒 | ● | |
| L | swapTokensForEth | Private 🔒 | ● | |
| L | swapTokensForCake | Private 🔒 | ● | |
| L | addLiquidity | Private 🔒 | ● | |
| L | swapAndSendDividends | Private 🔒 | ● | |
```



CONTRACT ASSESMENT

Legend

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



OVERVIEW

This token has three different types of fees, which are used for marketing, maintaining liquidity, and providing rewards to holders. The fees collected are converted to a stablecoin called BUSD and sent to a marketing wallet. Another part of the fee is used to maintain liquidity and is sent to a dividend tracker to provide BUSD rewards to holders. Rewards are distributed to holders every time a buy, sell or transfer occurs, and can also be manually claimed from the BscScan website.



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



TOKEN DISTRIBUTION

It should be noted that the owner currently holds 100% of the total supply. However, information about the distribution of these tokens is not available, and it is recommended that investors exercise caution when considering this aspect.



FUNCTIONAL TESTING

Router (PCS V2):

0xD99D1c33F9fC3444f8101754aBC46c52416550D1

All the functionalities have been tested, no issues were found

1- Adding liquidity (passed):

<https://testnet.bscscan.com/tx/0xc308446bc077cfbb8a712512b1449b02d794b4941625efc9ea233d97892a2508>

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

<https://testnet.bscscan.com/tx/0xef126ce3d0a4dd23fc6591de9b7eb32bab2d8254d4c378e66cbce9cc4150fa80>

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

<https://testnet.bscscan.com/tx/0x6e1c40d6b64784fb43f35c84f649a1ac693f5a07bf0b2fad4c9f65f831c3c9ac>

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

<https://testnet.bscscan.com/tx/0x10227d9fa82375c510f77321e922760c8a5c5e3a71be3b0823d59f6da6354d98>

5- Buying when not excluded from fees (up to 25% tax) (passed):

<https://testnet.bscscan.com/tx/0x911fadb5a93240a8419ed52bc02e48ceab55857c4f0b00ba8973374e5919759f>

6- Selling when not excluded from fees (25% tax) (passed):

<https://testnet.bscscan.com/tx/0x8a267d9ca48493501156074ce56b41661c201e54d0742a82d54af9617acbbb4a>

FUNCTIONAL TESTING

7- Transferring when not excluded from fees (up to 25% tax) (passed):

https://testnet.bscscan.com/tx/0x6639ec7b25e9b044723d696ce48e5401282f2fcf8560ac7bad62aaca2e467ac0

8- Internal swap (passed):

marketing wallet received BUSD

[https://testnet.bscscan.com/address/0xa2da001d772453f7a1d520148663462ebcb
d79b4#tokentxns](https://testnet.bscscan.com/address/0xa2da001d772453f7a1d520148663462ebcbd79b4#tokentxns)

9- Reflections (passed):

as seen in this transaction:

<https://testnet.bscscan.com/tx/0x8a267d9ca48493501156074ce56b41661c201e54d0742a82d54af9617acb4a>

distributor is sending BUSD to holders (auto distribution)

8- Auto Liquidity (passed):

<https://testnet.bscscan.com/token/0x2725e6b0251a40c5d463b4fc88078cb2aedc7401?a=0x00000000000000000000000000000000000000dead>



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