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AuditAce

FROM INCEPTION TO SUCCESS

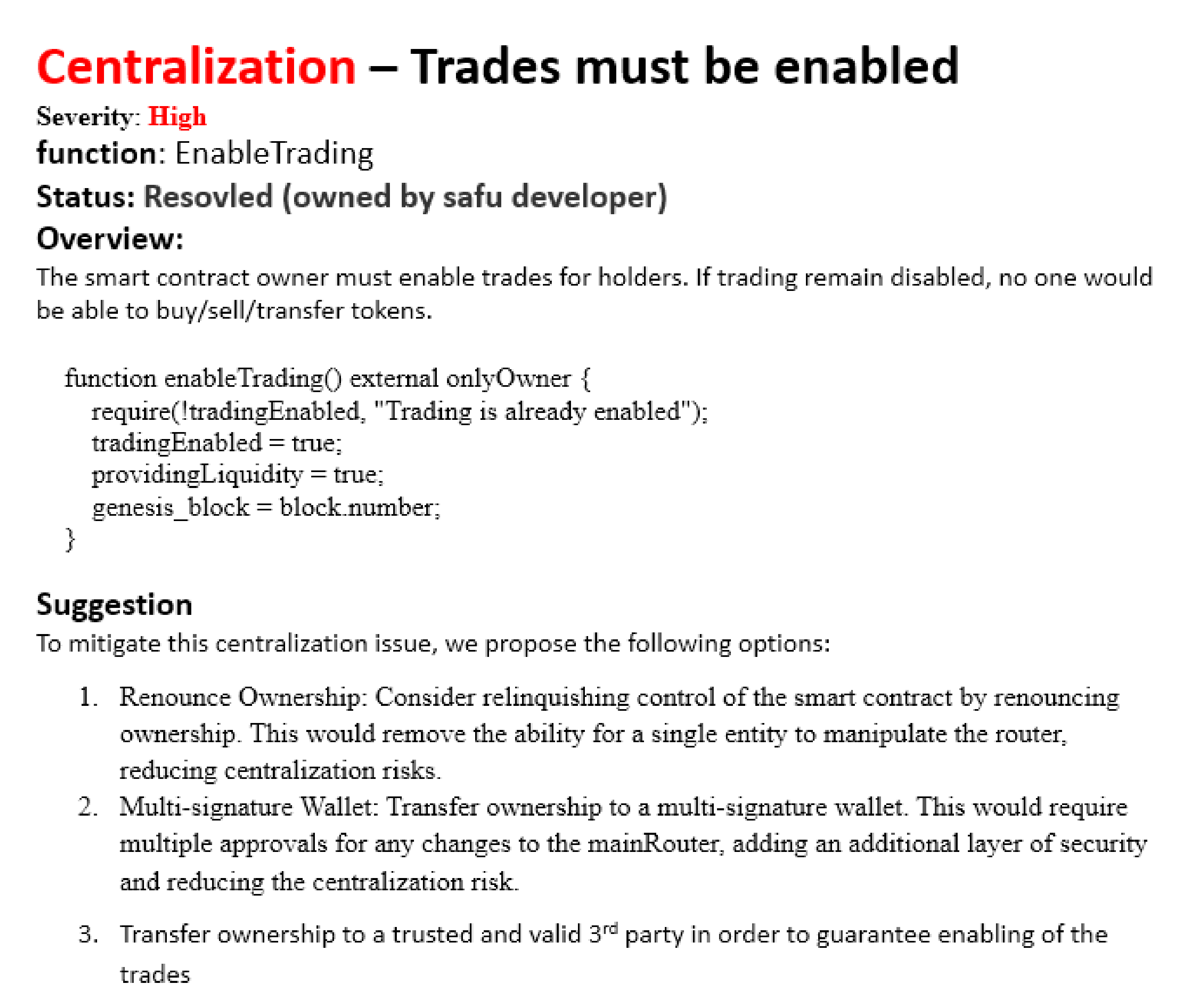
Smart Contract Audit

FOR

VPW

DATED : 9 June 23'

HIGH RISK FINDING



Centralization – Trades must be enabled

Severity: **High**

function: EnableTrading

Status: Resovled (owned by safu developer)

Overview:

The smart contract owner must enable trades for holders. If trading remain disabled, no one would be able to buy/sell/transfer tokens.

```
function enableTrading() external onlyOwner {
    require(!tradingEnabled, "Trading is already enabled");
    tradingEnabled = true;
    providingLiquidity = true;
    genesis_block = block.number;
}
```

Suggestion

To mitigate this centralization issue, we propose the following options:

1. Renounce Ownership: Consider relinquishing control of the smart contract by renouncing ownership. This would remove the ability for a single entity to manipulate the router, reducing centralization risks.
2. Multi-signature Wallet: Transfer ownership to a multi-signature wallet. This would require multiple approvals for any changes to the mainRouter, adding an additional layer of security and reducing the centralization risk.
3. Transfer ownership to a trusted and valid 3rd party in order to guarantee enabling of the trades

AUDIT SUMMARY

Project name – VPW

Date: 9 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	0	0	0
Acknowledged	0	0	0	0	0
Resolved	0	1	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:
Contract has been tested on binance smart chain testnet which can be found in below link:
https://testnet.bscscan.com/token/0x812d58fa4be6bcb3a3e08cb0c4f0bfb9c4b3b51f#code

Token Information

Token Name : Virtual Peradox World

Token Symbol: VPW

Decimals: 18

Token Supply: 599,000,000

Token Address:
0x7BB224B336ECa8f5FfBf45bD460eFc61f018F962

Checksum:
5970ffc8793efd442c45649650ac16c09e7ca8c4

Owner:
0x054f5759416785897Dbff570a2Dc3e18d4F38Fa6

Deployer:
0x054f5759416785897Dbff570a2Dc3e18d4F38Fa6

TOKEN OVERVIEW

Fees:

Buy Fees: 1%

Sell Fees: 1%

Transfer Fees: 1%

Fees Privilege: None

Ownership: Owned

Minting: None

Max Tx Amount/ Max Wallet Amount: Yes

Blacklist: No

Other Privileges: - initial distribution of tokens

- including or excluding from 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 isexercised 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.

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VULNERABILITY CHECKLIST

- ✓ Return values of low-level calls
- ✓ Private modifier
- ✓ Multiple Sends
- ✓ Using Suicide
- ✓ Gas Limitand Loops
- ✓ Address hardcoded
- ✓ Exception Disorder
- ✓ Using inline assembly
- ✓ Divide before multiply
- ✓ Missing Zero Address Validation
- ✓ Compiler version not fixed
- ✓ **Gasless Send**
- ✓ Using block.timestamp
- ✓ Re-entrancy
- ✓ Tautology or contradiction
- ✓ Timestamp Dependence
- ✓ Revert/require functions
- ✓ Use of tx.origin
- ✓ Integer overflow/underflow
- ✓ Dangerous strict equalities
- ✓ Using SHA3
- ✓ Using throw

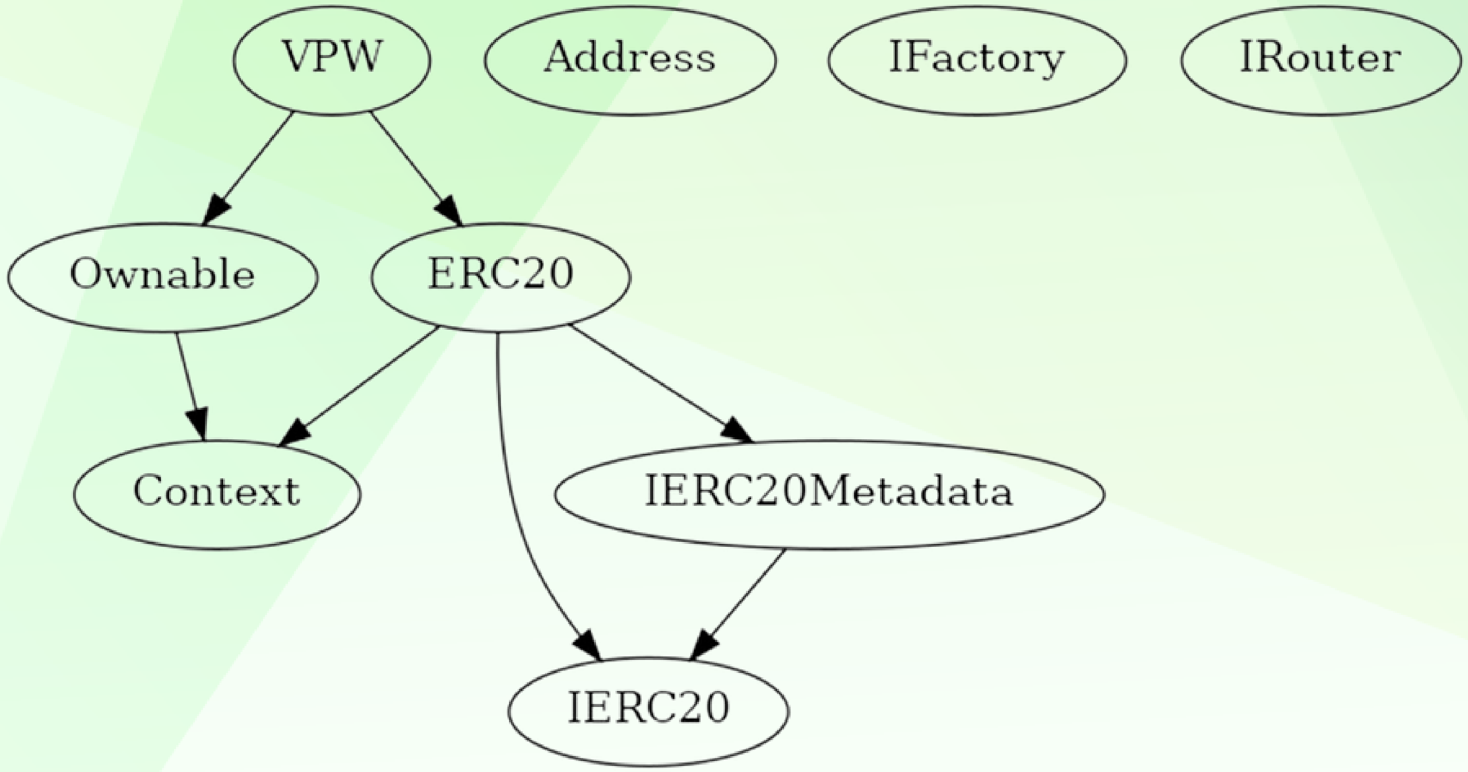
CLASSIFICATION OF RISK

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	1
◆ Medium-Risk	0
◆ Low-Risk	0
◆ Gas Optimization / Suggestions	0

INHERITANCE TREE



POINTS TO NOTE

- owner is not able to set change buy/sell/transfer fees (1% static)
- owner is not able to blacklist an arbitrary wallet
- owner is not able to set limit for buy/sell/transfer/holding amounts
- owner is not able to mint new tokens
- owner is not able to disable trades
- owner can exclude/include an address from fees
- owner can change internal swap thershold
- owner can enable/disable internal swap (I.e marketing and development BNB not trades)
- owner can claim stuck tokens
- owner can transfer ownership
- owner can renounce ownership

CONTRACT ASSESMENT

```
|  Contract  |        Type        |       Bases      |                  |                 |
|:----------:|:-------------------:|:----------------:|:----------------:|:---------------:|
|     └      |  **Function Name**  |  **Visibility**  |  **Mutability**  |  **Modifiers**  |
||||||
| **Context** | Implementation |  |||
| └ | _msgSender | Internal 🔒 |   | |
| └ | _msgData | Internal 🔒 |   | |
||||||
| **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❗️ |
||||||
| **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 🔒 | 🛑  | |
| └ | _tokengeneration | Internal 🔒 | 🛑  | |
| └ | _burn | Internal 🔒 | 🛑  | |
| └ | _approve | Internal 🔒 | 🛑  | |
| └ | _beforeTokenTransfer | Internal 🔒 | 🛑  | |
||||||
| **Address** | Library |  |||
| └ | sendValue | Internal 🔒 | 🛑  | |
```

CONTRACT ASSESMENT

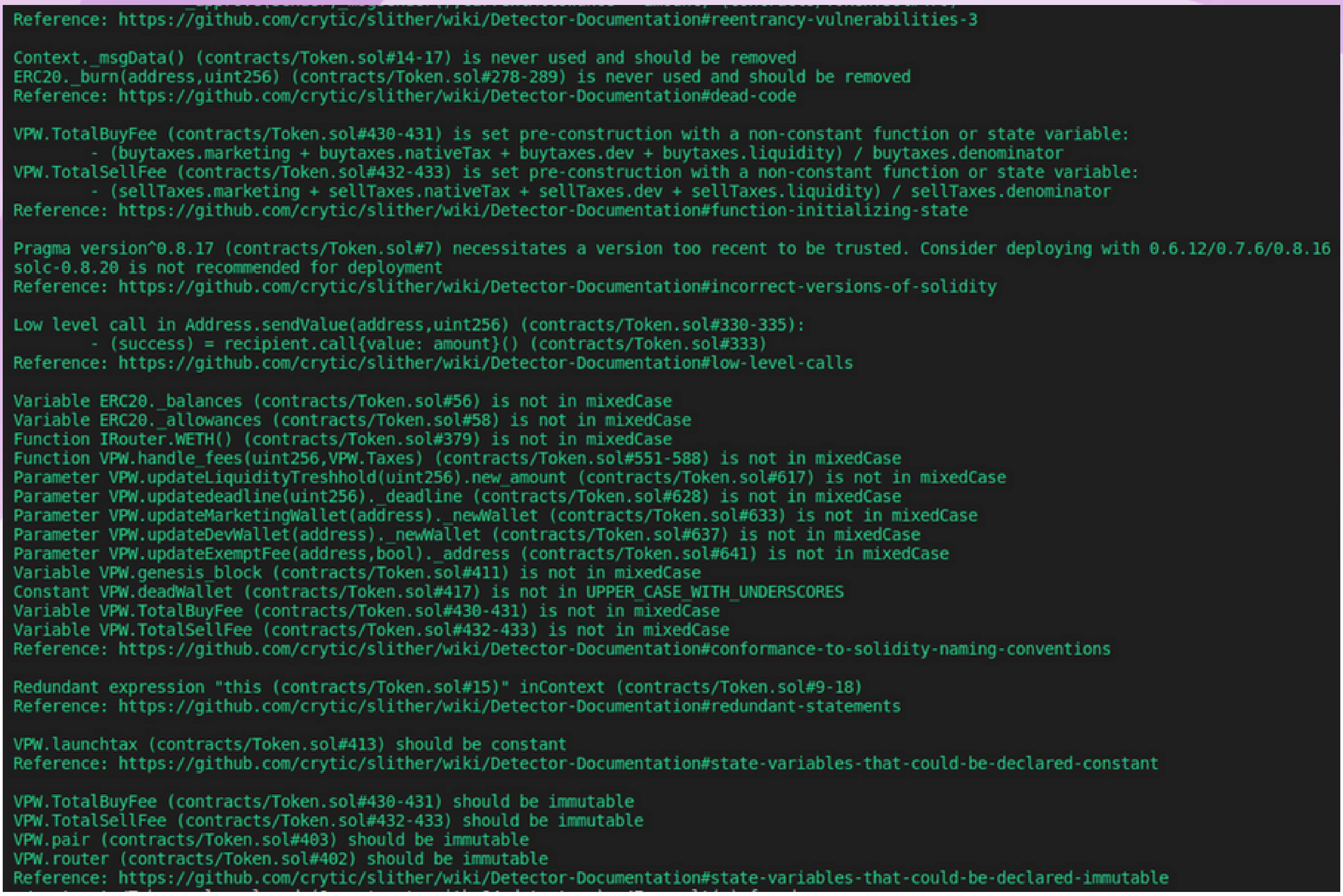
```
||||||
| **Ownable** | Implementation | Context |||
| └ | <Constructor> | Public ❗️ | 🛑 |NO ❗️ |
| └ | owner | Public ❗️ |   |NO ❗️ |
| └ | renounceOwnership | Public ❗️ | 🛑 | onlyOwner |
| └ | transferOwnership | Public ❗️ | 🛑 | onlyOwner |
| └ | _setOwner | Private 🔐 | 🛑 | |
||||||
| **IFactory** | Interface |  |||
| └ | createPair | External ❗️ | 🛑 |NO ❗️ |
||||||
| **IRouter** | Interface |  |||
| └ | factory | External ❗️ |   |NO ❗️ |
| └ | WETH | External ❗️ |   |NO ❗️ |
| └ | addLiquidityETH | External ❗️ | 💵 |NO ❗️ |
| └ | swapExactTokensForETHSupportingFeeOnTransferTokens | External ❗️ | 🛑 |NO ❗️ |
||||||
| **VPW** | Implementation | ERC20, Ownable |||
| └ | <Constructor> | Public ❗️ | 🛑 | ERC20 |
| └ | approve | Public ❗️ | 🛑 |NO ❗️ |
| └ | transferFrom | Public ❗️ | 🛑 |NO ❗️ |
| └ | increaseAllowance | Public ❗️ | 🛑 |NO ❗️ |
| └ | decreaseAllowance | Public ❗️ | 🛑 |NO ❗️ |
| └ | transfer | Public ❗️ | 🛑 |NO ❗️ |
| └ | _transfer | Internal 🔒 | 🛑 | |
| └ | handle_fees | Private 🔐 | 🛑 | mutexLock |
| └ | swapTokensForETH | Private 🔐 | 🛑 | |
| └ | addLiquidity | Private 🔐 | 🛑 | |
| └ | updateLiquidityProvide | External ❗️ | 🛑 | onlyOwner |
| └ | updateLiquidityTreshhold | External ❗️ | 🛑 | onlyOwner |
| └ | enableTrading | External ❗️ | 🛑 | onlyOwner |
| └ | updatedeadline | External ❗️ | 🛑 | onlyOwner |
| └ | updateMarketingWallet | External ❗️ | 🛑 | onlyOwner |
| └ | updateDevWallet | External ❗️ | 🛑 | onlyOwner |
| └ | updateExemptFee | External ❗️ | 🛑 | onlyOwner |
| └ | bulkExemptFee | External ❗️ | 🛑 | onlyOwner |
| └ | rescueBNB | External ❗️ | 🛑 |NO ❗️ |
| └ | rescueBEP20 | External ❗️ | 🛑 |NO ❗️ |
| └ | <Receive Ether> | External ❗️ | 💵 |NO ❗️ |
```

CONTRACT ASSESMENT

Legend

Symbol	Meaning
🛑	Function can modify state
💵	Function is payable

STATIC ANALYSIS



```
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#reentrancy-vulnerabilities-3

Context._msgData() (contracts/Token.sol#14-17) is never used and should be removed
ERC20._burn(address,uint256) (contracts/Token.sol#278-289) is never used and should be removed
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#dead-code

VPW.TotalBuyFee (contracts/Token.sol#430-431) is set pre-construction with a non-constant function or state variable:
        - (buytaxes.marketing + buytaxes.nativeTax + buytaxes.dev + buytaxes.liquidity) / buytaxes.denominator
VPW.TotalSellFee (contracts/Token.sol#432-433) is set pre-construction with a non-constant function or state variable:
        - (sellTaxes.marketing + sellTaxes.nativeTax + sellTaxes.dev + sellTaxes.liquidity) / sellTaxes.denominator
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#function-initializing-state

Pragma version^0.8.17 (contracts/Token.sol#7) necessitates a version too recent to be trusted. Consider deploying with 0.6.12/0.7.6/0.8.16
solc-0.8.20 is not recommended for deployment
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#incorrect-versions-of-solidity

Low level call in Address.sendValue(address,uint256) (contracts/Token.sol#330-335):
        - (success) = recipient.call{value: amount}() (contracts/Token.sol#333)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#low-level-calls

Variable ERC20._balances (contracts/Token.sol#56) is not in mixedCase
Variable ERC20._allowances (contracts/Token.sol#58) is not in mixedCase
Function IRouter.WETH() (contracts/Token.sol#379) is not in mixedCase
Function VPW.handle_fees(uint256,VPW.Taxes) (contracts/Token.sol#551-588) is not in mixedCase
Parameter VPW.updateLiquidityTreshhold(uint256).new_amount (contracts/Token.sol#617) is not in mixedCase
Parameter VPW.updatedeadline(uint256)._deadline (contracts/Token.sol#628) is not in mixedCase
Parameter VPW.updateMarketingWallet(address)._newWallet (contracts/Token.sol#633) is not in mixedCase
Parameter VPW.updateDevWallet(address)._newWallet (contracts/Token.sol#637) is not in mixedCase
Parameter VPW.updateExemptFee(address,bool)._address (contracts/Token.sol#641) is not in mixedCase
Variable VPW.genesis_block (contracts/Token.sol#411) is not in mixedCase
Constant VPW.deadWallet (contracts/Token.sol#417) is not in UPPER_CASE_WITH_UNDERSCORES
Variable VPW.TotalBuyFee (contracts/Token.sol#430-431) is not in mixedCase
Variable VPW.TotalSellFee (contracts/Token.sol#432-433) is not in mixedCase
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#conformance-to-solidity-naming-conventions

Redundant expression "this (contracts/Token.sol#15)" inContext (contracts/Token.sol#9-18)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#redundant-statements

VPW.launchtax (contracts/Token.sol#413) should be constant
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#state-variables-that-could-be-declared-constant

VPW.TotalBuyFee (contracts/Token.sol#430-431) should be immutable
VPW.TotalSellFee (contracts/Token.sol#432-433) should be immutable
VPW.pair (contracts/Token.sol#403) should be immutable
VPW.router (contracts/Token.sol#402) should be immutable
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#state-variables-that-could-be-declared-immutable
```

Result => A static analysis of contract's source code has been performed using slither,

No major issues were found in the output

FUNCTIONAL TESTING

1- Adding liquidity (passed):

https://testnet.bscscan.com/tx/0x394541469f999a97fb96c473ba491f816505d9318bc7746d127b7f09fe719d58

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

https://testnet.bscscan.com/tx/0x20f30746694fa8400dd6363107595299380905b28283ac6935aaf24717414270

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

https://testnet.bscscan.com/tx/0xd1dd73342317657ef18704ea748ec673e316b0c13c38f90473cb83bfcbeaf5aa

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

https://testnet.bscscan.com/tx/0x85bd3ece6124eaf14a3744c53f8830dee8bf17c2c8f92f50fa1d41b9e64fe9ee

5- Buying when not excluded from fees (1% tax) (passed):

https://testnet.bscscan.com/tx/0x28d750cde7ed8c2f4925512c3173a15e73594a3c143ff6fd5ed763bbab2de499

6- Selling when not excluded from fees (1% tax) (passed):

https://testnet.bscscan.com/tx/0xa47e15f16212f5dedca2535f26ce533cd356fa80e745b17a60887e5f7a73f686

FUNCTIONAL TESTING

7- Transferring when not excluded from fees (1% tax) (passed):

https://testnet.bscscan.com/tx/0x805ab4627f41a31d024d1e275d218b3abe40cdabd0b80e2a97dcc85a912fc334

8- Development and marketing BNB (Internal swap) (passed):

https://testnet.bscscan.com/tx/0x7374161405ddee4de1a357efd392f982418e03161cee3f3a9edf9690ab236ea9

FUNCTIONAL TESTING

Centralization – Trades must be enabled

Severity: **High**

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Status: Resovled (owned by safu developer)

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3. Transfer ownership to a trusted and valid 3rd party in order to guarantee enabling of the trades

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