auditace.tech

AuditAce

FROM INCEPTION TO SUCCESS

Smart Contract Audit

FOR

President Optimus

DATED : 20 June 23'

ISSUES FOUND

Centralization – recursion at process function and internal swap

Severity: **High**

Status: Open

Overview:

Since dividend tracker is distributing native tokens (P-OPTIMUS), _transfer function will be called by dividend tracker on each reward distribution call hence calling process and _swapAndTransferFee functions again

```
    if (!swapping && from != address(dividendTracker)) {

        uint256 gas = gasForProcessing;

        try dividendTracker.process(gas) returns (uint256 iterations, uint256 claims, uint256
lastProcessedIndex) {

            emit ProcessedDividendTracker(iterations, claims, lastProcessedIndex, true, gas, tx.origin);

        } catch {}

    }
```

```
    if (canSwap && !isSwapPair(from) && !swapping && !isExcludedFromFee[from]
&& !isExcludedFromFee[to]) {
        swapping = true;
        _swapAndTransferFee(feeInContract);
        swapping = false;
    }
```

Suggestion

its suggested to ensure that dividend tracker is not calling “proecess” and “_swapAndTransferFee” functions

```
    if (msg.sender != address(dividendTracker) && from != address(dividendTracker)) {

        // rest of the code

        }

    }

    if (canSwap && !isSwapPair(from) && !swapping && !isExcludedFromFee[from]
&& !isExcludedFromFee[to] && from != address(dividendTracker) && to !=
address(dividendTracker)) {
        swapping = true;
        _swapAndTransferFee(feeInContract);
        swapping = false;
    }
```

AUDIT SUMMARY

Project name - President Optimus

Date: 20 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	1	0	0	3
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 done on BSC Test network, each test has its transaction has attached to it.

3- Slither : Static Analysis

Testnet Link: all tests were done using this contract, tests are done on BSC Testnet

https://testnet.bscscan.com/token/0xd46bbb5776176d4b047b7230c0b9c062cceec190

Token Information

Token Name : President Optimus

Token Symbol: P-OPTIMUS

Decimals: 18

Token Supply:1,000,000,000

Token Address:
0x3EBe82fCFAfd5d9E5f74297483195a1Fa9E45a62

Checksum:
ff298f4f3aa0cc991d3842bf26fad8ea36e22f7a

Owner:
0xc51Cd60D0822e42d3604E9254aD4dC75bf1ED555

TOKEN OVERVIEW

Fees:

Buy Fees: 3%

Sell Fees: 3%

Transfer Fees: 3%

Fees Privilige: Static Fees

Ownership : Owned

Minting: No mint function

Max Tx Amount/ Max Wallet Amount: none

Blacklist: No

Other Priviliges:

- Initial distribution of the tokens

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.

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

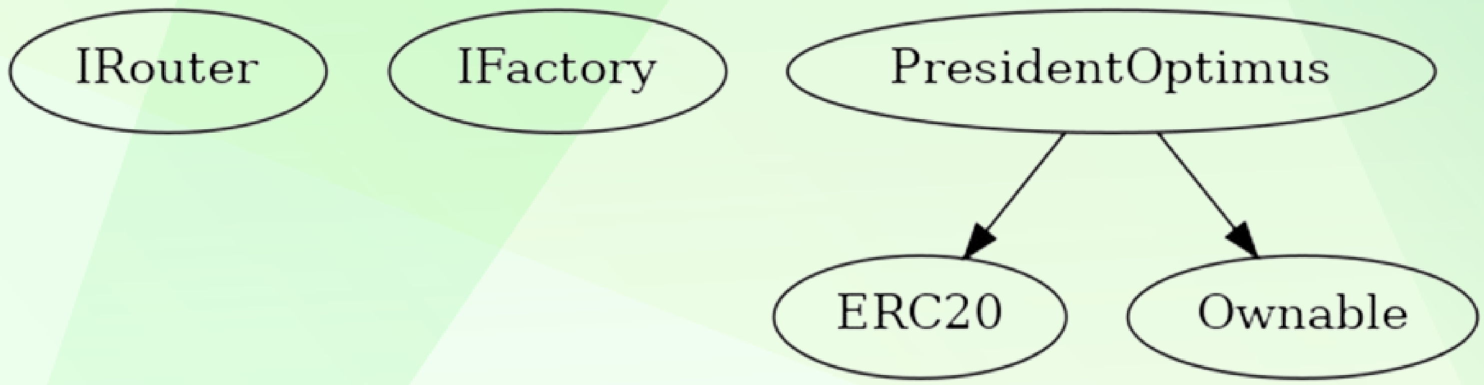
CLASSIFICATION OF RISK

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**	3

INHERITANCE TREE



POINTS TO NOTE

- owner is able to change buy/sell/transfer tax (3%)
- there is 5% tax for 1 minute after launch which will be reduced to 3% (forever)
- owner is not able to set max buy/sell/transfer/wallet limits
- owner is not able to blacklist an arbitrary wallet
- owner is not able to mint new tokens
- owner is not able to disable trades

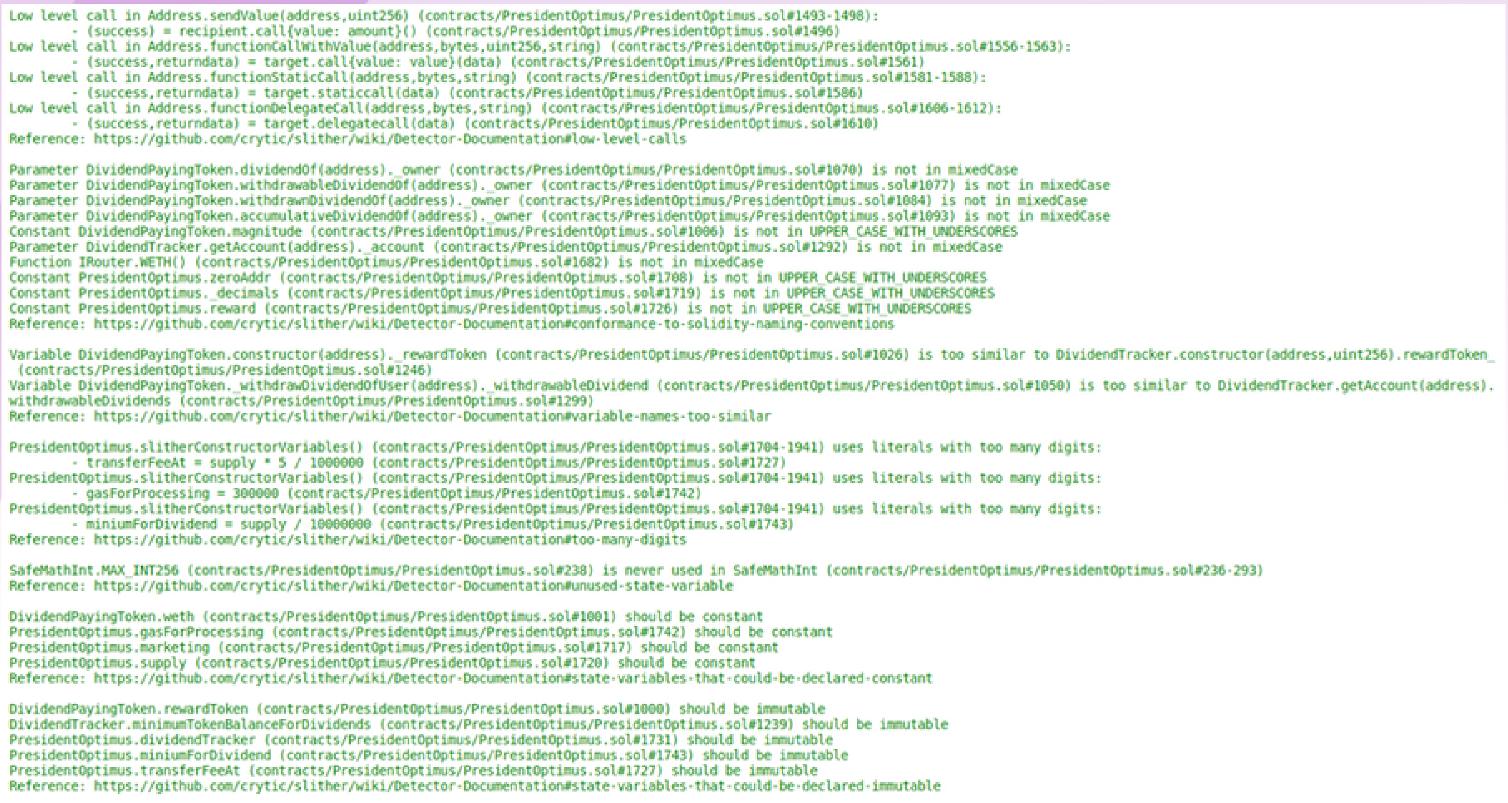
CONTRACT ASSESMENT

```
| Contract |        Type        |       Bases      |                  |                 |
|:----------:|:-------------------:|:----------------:|:----------------:|:---------------:|
|    └     | **Function Name** | **Visibility** | **Mutability** | **Modifiers** |
||||||
| **IRouter** | Interface |  |||
| └ | WETH | External ❗ |   |NO❗ |
| └ | factory | External ❗ |   |NO❗ |
| └ | swapExactTokensForETHSupportingFeeOnTransferTokens | External ❗ | 🛑  |NO❗ |
| └ | swapExactTokensForETH | External ❗ | 🛑  |NO❗ |
||||||
| **IFactory** | Interface |  |||
| └ | getPair | External ❗ |   |NO❗ |
||||||
| **PresidentOptimus** | Implementation | ERC20, Ownable |||
| └ | <Constructor> | Public ❗ | 🛑  | ERC20 |
| └ | <Receive Ether> | External ❗ | 💵 |NO❗ |
| └ | decimals | Public ❗ |   |NO❗ |
| └ | updateClaimWait | External ❗ | 🛑  | onlyOwner |
| └ | getClaimWait | External ❗ |   |NO❗ |
| └ | getTotalDividendsDistributed | External ❗ |   |NO❗ |
| └ | withdrawableDividendOf | Public ❗ |   |NO❗ |
| └ | dividendTokenBalanceOf | Public ❗ |   |NO❗ |
| └ | excludeFromDividends | External ❗ | 🛑  | onlyOwner |
| └ | getAccountDividendsInfo | External ❗ |   |NO❗ |
| └ | getAccountDividendsInfoAtIndex | External ❗ |   |NO❗ |
| └ | processDividendTracker | External ❗ | 🛑  |NO❗ |
| └ | claim | External ❗ | 🛑  |NO❗ |
| └ | getLastProcessedIndex | External ❗ |   |NO❗ |
| └ | getNumberOfDividendTokenHolders | External ❗ |   |NO❗ |
| └ | excludeFromFee | Public ❗ | 🛑  | onlyOwner |
| └ | isSwapPair | Private 🔐 | 🛑  | |
| └ | _transfer | Internal 🔒 | 🛑  | |
| └ | _swapAndTransferFee | Private 🔐 | 🛑  | |
| └ | _swapForETH | Private 🔐 | 🛑  | |
```

Legend

Symbol	Meaning
🛑	Function can modify state
💵	Function is payable

STATIC ANALYSIS



```
Low level call in Address.sendValue(address,uint256) (contracts/PresidentOptimus/PresidentOptimus.sol#1493-1498):
        - (success) = recipient.call{value: amount}() (contracts/PresidentOptimus/PresidentOptimus.sol#1496)
Low level call in Address.functionCallWithValue(address,bytes,uint256,string) (contracts/PresidentOptimus/PresidentOptimus.sol#1556-1563):
        - (success,returndata) = target.call{value: value}(data) (contracts/PresidentOptimus/PresidentOptimus.sol#1561)
Low level call in Address.functionStaticCall(address,bytes,string) (contracts/PresidentOptimus/PresidentOptimus.sol#1581-1588):
        - (success,returndata) = target.staticcall(data) (contracts/PresidentOptimus/PresidentOptimus.sol#1586)
Low level call in Address.functionDelegateCall(address,bytes,string) (contracts/PresidentOptimus/PresidentOptimus.sol#1606-1612):
        - (success,returndata) = target.delegatecall(data) (contracts/PresidentOptimus/PresidentOptimus.sol#1610)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#low-level-calls

Parameter DividendPayingToken.dividendOf(address)._owner (contracts/PresidentOptimus/PresidentOptimus.sol#1070) is not in mixedCase
Parameter DividendPayingToken.withdrawableDividendOf(address)._owner (contracts/PresidentOptimus/PresidentOptimus.sol#1077) is not in mixedCase
Parameter DividendPayingToken.withdrawnDividendOf(address)._owner (contracts/PresidentOptimus/PresidentOptimus.sol#1084) is not in mixedCase
Parameter DividendPayingToken.accumulativeDividendOf(address)._owner (contracts/PresidentOptimus/PresidentOptimus.sol#1093) is not in mixedCase
Constant DividendPayingToken.magnitude (contracts/PresidentOptimus/PresidentOptimus.sol#1006) is not in UPPER_CASE_WITH_UNDERSCORES
Parameter DividendTracker.getAccount(address)._account (contracts/PresidentOptimus/PresidentOptimus.sol#1292) is not in mixedCase
Function IRouter.WETH() (contracts/PresidentOptimus/PresidentOptimus.sol#1682) is not in mixedCase
Constant PresidentOptimus.zeroAddr (contracts/PresidentOptimus/PresidentOptimus.sol#1708) is not in UPPER_CASE_WITH_UNDERSCORES
Constant PresidentOptimus._decimals (contracts/PresidentOptimus/PresidentOptimus.sol#1719) is not in UPPER_CASE_WITH_UNDERSCORES
Constant PresidentOptimus.reward (contracts/PresidentOptimus/PresidentOptimus.sol#1726) is not in UPPER_CASE_WITH_UNDERSCORES
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#conformance-to-solidity-naming-conventions

Variable DividendPayingToken.constructor(address)._rewardToken (contracts/PresidentOptimus/PresidentOptimus.sol#1026) is too similar to DividendTracker.constructor(address,uint256).rewardToken_
 (contracts/PresidentOptimus/PresidentOptimus.sol#1246)
Variable DividendPayingToken._withdrawDividendOfUser(address)._withdrawableDividend (contracts/PresidentOptimus/PresidentOptimus.sol#1050) is too similar to DividendTracker.getAccount(address).
withdrawableDividends (contracts/PresidentOptimus/PresidentOptimus.sol#1299)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#variable-names-too-similar

PresidentOptimus.slitherConstructorVariables() (contracts/PresidentOptimus/PresidentOptimus.sol#1704-1941) uses literals with too many digits:
        - transferFeeAt = supply * 5 / 1000000 (contracts/PresidentOptimus/PresidentOptimus.sol#1727)
PresidentOptimus.slitherConstructorVariables() (contracts/PresidentOptimus/PresidentOptimus.sol#1704-1941) uses literals with too many digits:
        - gasForProcessing = 300000 (contracts/PresidentOptimus/PresidentOptimus.sol#1742)
PresidentOptimus.slitherConstructorVariables() (contracts/PresidentOptimus/PresidentOptimus.sol#1704-1941) uses literals with too many digits:
        - miniumForDividend = supply / 10000000 (contracts/PresidentOptimus/PresidentOptimus.sol#1743)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#too-many-digits

SafeMathInt.MAX_INT256 (contracts/PresidentOptimus/PresidentOptimus.sol#238) is never used in SafeMathInt (contracts/PresidentOptimus/PresidentOptimus.sol#236-293)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#unused-state-variable

DividendPayingToken.weth (contracts/PresidentOptimus/PresidentOptimus.sol#1001) should be constant
PresidentOptimus.gasForProcessing (contracts/PresidentOptimus/PresidentOptimus.sol#1742) should be constant
PresidentOptimus.marketing (contracts/PresidentOptimus/PresidentOptimus.sol#1717) should be constant
PresidentOptimus.supply (contracts/PresidentOptimus/PresidentOptimus.sol#1720) should be constant
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#state-variables-that-could-be-declared-constant

DividendPayingToken.rewardToken (contracts/PresidentOptimus/PresidentOptimus.sol#1000) should be immutable
DividendTracker.minimumTokenBalanceForDividends (contracts/PresidentOptimus/PresidentOptimus.sol#1239) should be immutable
PresidentOptimus.dividendTracker (contracts/PresidentOptimus/PresidentOptimus.sol#1731) should be immutable
PresidentOptimus.miniumForDividend (contracts/PresidentOptimus/PresidentOptimus.sol#1743) should be immutable
PresidentOptimus.transferFeeAt (contracts/PresidentOptimus/PresidentOptimus.sol#1727) 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

Router (PCS V2):
0xD99D1c33F9fC3444f8101754aBC46c52416550D1

All the functionalities have been tested, no issues were found

1- Adding liquidity **(passed):**
https://testnet.bscscan.com/tx/0x36b93116c69833a83fbb1a4236afb585c6a21be3201d73731a7d20abbc95a477

2- Buying when excluded (0% tax) **(passed):**
https://testnet.bscscan.com/tx/0x0e303bc394067c9e098ed0626c06c7dc05761fe4c44b4d6ca873e3238f9a1443

3- Selling when excluded (0% tax) **(passed):**
https://testnet.bscscan.com/tx/0xb96ace7e7d9fd314a8511986154992632f7a427e9421be5a1421838a50b6bbff

4- Transferring when excluded (0% tax) **(passed):**
https://testnet.bscscan.com/tx/0x3b3c253b59df1f6143ff7dea2776ea08dbd03e759e5776acbd55354f7f7590c3

5- Buying when not excluded from fees (3% tax) **(passed):**
https://testnet.bscscan.com/tx/0x3b338ff72c4ea3b1ebe5aa1a668168df052d80c5475368e634b4f85c73024ea0

6- Selling when not excluded from fees (3% tax) **(passed):**
https://testnet.bscscan.com/tx/0xd0e78682358dce6b30a93371feec275b464b7b9b0af4db898a83d9309286beb2

FUNCTIONAL TESTING

7- Transferring when not excluded from fees (3% tax) (passed):
https://testnet.bscscan.com/tx/0x39e1bc42149f9127c8eea1ed4d4416c973d1e298b3a970afce7f871b3f1c3905

8-Internal swap (passed):
- BNB fee sent to marketing wallet
- Rewards distributed

https://testnet.bscscan.com/tx/0x39e1bc42149f9127c8eea1ed4d4416c973d1e298b3a970afce7f871b3f1c3905

ISSUES FOUND

Centralization – recursion at process function and internal swap

Severity: High

Status: Open

Overview:

Since dividend tracker is distributing native tokens (P-OPTIMUS), _transfer function will be called by dividend tracker on each reward distribution call hence calling process and _swapAndTransferFee functions again

```
    if (!swapping && from != address(dividendTracker)) {

        uint256 gas = gasForProcessing;

        try dividendTracker.process(gas) returns (uint256 iterations, uint256 claims, uint256
lastProcessedIndex) {

            emit ProcessedDividendTracker(iterations, claims, lastProcessedIndex, true, gas, tx.origin);

        } catch {}

    }

------------------------------------------------------------------

    if (canSwap && !isSwapPair(from) && !swapping && !isExcludedFromFee[from]
&& !isExcludedFromFee[to]) {
        swapping = true;
        _swapAndTransferFee(feeInContract);
        swapping = false;
    }
```

Suggestion

its suggested to ensure that dividend tracker is not calling “proecess” and “_swapAndTransferFee” functions

```
    if (msg.sender != address(dividendTracker) && from != address(dividendTracker)) {

        // rest of the code

        }

    }

    if (canSwap && !isSwapPair(from) && !swapping && !isExcludedFromFee[from]
&& !isExcludedFromFee[to] && from != address(dividendTracker) && to !=
address(dividendTracker)) {
        swapping = true;
        _swapAndTransferFee(feeInContract);
        swapping = false;
    }
```

ISSUES FOUND

Missing Logic – Stuck ETH and Tokens

Severity: Informational

Status: Open

Overview:

Contract has no function to withdraw stuck ETH or ERC20 tokens. If ETH or ERC20 sent to contract by mistake, there wont be any ways to withdraw those funds.

Suggestion

Implement a function to be able to withdraw stuck ETH and ERC20 tokens from the contract (by owner)

Missing Logic – Immutable tax

Severity: Informational

Status: Open

Overview:

Fees are immutable and owner is not able to change fees later.

Suggestion

Its suggested to implement a function for updating fees depending on different market conditions in a safe range.

0 <= total buy fees <= 10

0 <= total sell fees <= 10

0 <= total transfer fees <= 10

https://docs.pinksale.finance/important/safu-contract

Missing Logic – Immutable internal swap threshold

Severity: Informational

Status: Open

Overview:

Internal swap threshold (**transferFeeAt**) is immutable meaning that owner is not able to adjust this value depending on liquidity pool size or different market conditions.

Suggestion

Its suggested to implement a function for updating **transferFeeAt** depending on liquidity pool size or different market conditions.

DISCLAIMER

ABOUT AUDITACE

We specializes in providing thorough and reliable audits for Web3 projects. With a team of experienced professionals, we use cutting-edge technology and rigorous methodologies to evaluate the security and integrity of blockchain systems. We are committed to helping our clients ensure the safety and transparency of their digital assets and transactions.

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