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AuditAce
FROM INCEPTION TO SUCCESS

# Smart Contract Audit

FOR

# DILIGENT PEPE

DATED : 27 April 24'

# AUDIT SUMMARY

**Project name** – DILIGENT PEPE

**Date**: 27 April 2024

**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 | 1 | 2 |
| 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/address/0x0e39ae27aea3268f2616c54b390cdd0c9dc7547b#code

# Token Information

**Token Address:**
0x55A6f6CB50DB03259f6Ab17979a4891313Be2f45

**Name:** DILIGENT PEPE

**Symbol:** DILIGENT

**Decimals:** 18

**Network:** Base Scan

**Token Type:** ERC-20

**Owner:**
0x9969b7EcF98DDCf7479a5BedC5083989ac73e1B5

**Deployer:**
0x9969b7EcF98DDCf7479a5BedC5083989ac73e1B5

**Token Supply:** 100,000,000

**Checksum:** A2032c616934aeb47e6039f76b20d221

**Testnet:**
https://testnet.bscscan.com/address/0x0e39ae27aea3268f2616c54b390cdd0c9dc7547b#code

# TOKEN OVERVIEW

**Buy Fee: 0%**

**Sell Fee: 0%**

**Transfer Fee: 0%**

**Fee Privilege: Owner**

**Ownership: Owned**

**Minting: None**

**Max Tx: No**

**Blacklist: No**

# AUDIT METHODOLOGY

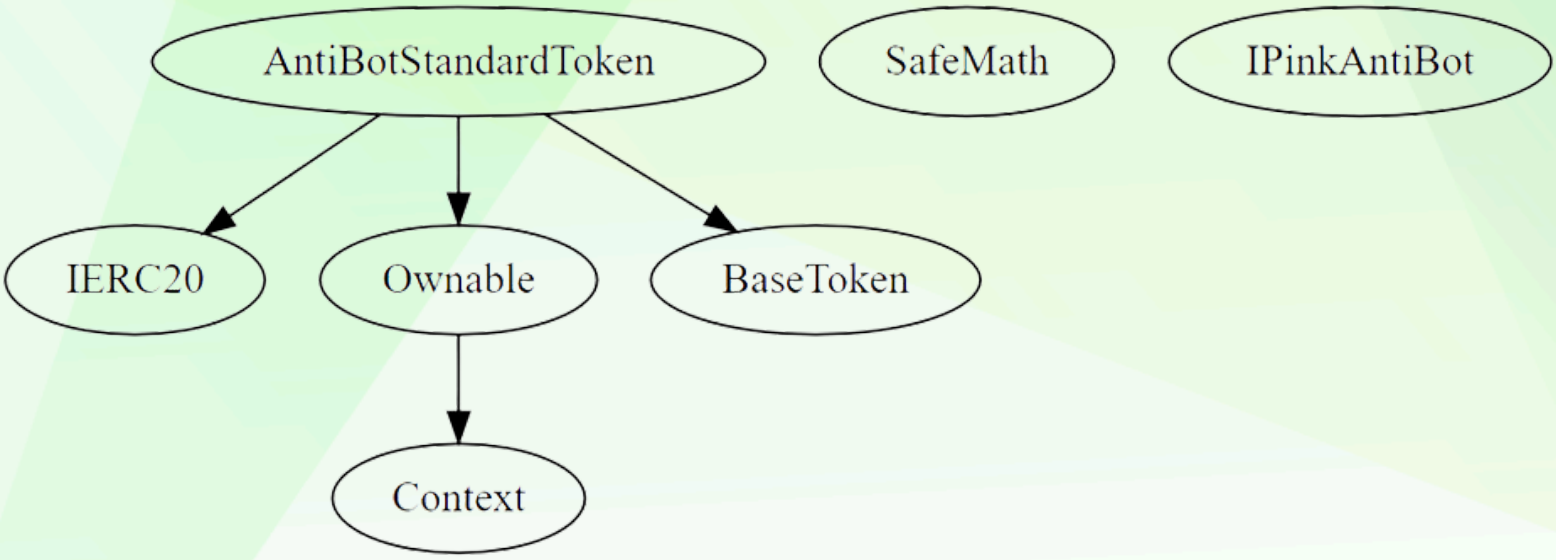
The auditing process will follow a routine as special considerations by Auditace:

- 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

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

# INHERITANCE TREE



# STATIC ANALYSIS

**A static analysis of the code was performed using Slither.**

**No issues were found.**

```
INFO:Detectors:
AntiBotStandardToken.allowance(address,address).owner (AntiBotStandardToken.sol#590) shadows:
        - Ownable.owner() (AntiBotStandardToken.sol#150-152) (function)
AntiBotStandardToken._approve(address,address,uint256).owner (AntiBotStandardToken.sol#795) shadows:
        - Ownable.owner() (AntiBotStandardToken.sol#150-152) (function)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#local-variable-shadowing
INFO:Detectors:
AntiBotStandardToken.constructor(string,string,uint8,uint256,address,address,uint256).serviceFeeReceiver_ (AntiBotStandardToken.sol#491) lacks a zero-check
on :
                - address(serviceFeeReceiver_).transfer(serviceFee_) (AntiBotStandardToken.sol#510)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#missing-zero-address-validation
INFO:Detectors:
Reentrancy in AntiBotStandardToken._transfer(address,address,uint256) (AntiBotStandardToken.sol#716-736):
        External calls:
        - pinkAntiBot.onPreTransferCheck(sender,recipient,amount) (AntiBotStandardToken.sol#725)
        State variables written after the call(s):
        - _balances[sender] = _balances[sender].sub(amount,ERC20: transfer amount exceeds balance) (AntiBotStandardToken.sol#730-733)
        - _balances[recipient] = _balances[recipient].add(amount) (AntiBotStandardToken.sol#734)
Reentrancy in AntiBotStandardToken.transferFrom(address,address,uint256) (AntiBotStandardToken.sol#630-645):
        External calls:
        - _transfer(sender,recipient,amount) (AntiBotStandardToken.sol#635)
                - pinkAntiBot.onPreTransferCheck(sender,recipient,amount) (AntiBotStandardToken.sol#725)
        State variables written after the call(s):
        - _approve(sender,_msgSender(),_allowances[sender][_msgSender()].sub(amount,ERC20: transfer amount exceeds allowance)) (AntiBotStandardToken.sol#636
-643)
                - _allowances[owner][spender] = amount (AntiBotStandardToken.sol#802)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#reentrancy-vulnerabilities-2
INFO:Detectors:
Reentrancy in AntiBotStandardToken._transfer(address,address,uint256) (AntiBotStandardToken.sol#716-736):
        External calls:
        - pinkAntiBot.onPreTransferCheck(sender,recipient,amount) (AntiBotStandardToken.sol#725)
        Event emitted after the call(s):
        - Transfer(sender,recipient,amount) (AntiBotStandardToken.sol#735)
Reentrancy in AntiBotStandardToken.transferFrom(address,address,uint256) (AntiBotStandardToken.sol#630-645):
        External calls:
        - _transfer(sender,recipient,amount) (AntiBotStandardToken.sol#635)
                - pinkAntiBot.onPreTransferCheck(sender,recipient,amount) (AntiBotStandardToken.sol#725)
        Event emitted after the call(s):
        - Approval(owner,spender,amount) (AntiBotStandardToken.sol#803)
                - _approve(sender,_msgSender(),_allowances[sender][_msgSender()].sub(amount,ERC20: transfer amount exceeds allowance)) (AntiBotStandardToken
.sol#636-643)
```

```
INFO:Detectors:
AntiBotStandardToken._burn(address,uint256) (AntiBotStandardToken.sol#768-779) is never used and should be removed
AntiBotStandardToken._setupDecimals(uint8) (AntiBotStandardToken.sol#813-815) is never used and should be removed
Context._msgData() (AntiBotStandardToken.sol#110-112) is never used and should be removed
SafeMath.div(uint256,uint256) (AntiBotStandardToken.sol#324-326) is never used and should be removed
SafeMath.div(uint256,uint256,string) (AntiBotStandardToken.sol#380-389) is never used and should be removed
SafeMath.mod(uint256,uint256) (AntiBotStandardToken.sol#340-342) is never used and should be removed
SafeMath.mod(uint256,uint256,string) (AntiBotStandardToken.sol#406-415) is never used and should be removed
SafeMath.mul(uint256,uint256) (AntiBotStandardToken.sol#310-312) is never used and should be removed
SafeMath.sub(uint256,uint256) (AntiBotStandardToken.sol#296-298) is never used and should be removed
SafeMath.tryAdd(uint256,uint256) (AntiBotStandardToken.sol#211-217) is never used and should be removed
SafeMath.tryDiv(uint256,uint256) (AntiBotStandardToken.sol#253-258) is never used and should be removed
SafeMath.tryMod(uint256,uint256) (AntiBotStandardToken.sol#265-270) is never used and should be removed
SafeMath.tryMul(uint256,uint256) (AntiBotStandardToken.sol#236-246) is never used and should be removed
SafeMath.trySub(uint256,uint256) (AntiBotStandardToken.sol#224-229) is never used and should be removed
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#dead-code
INFO:Detectors:
Pragma version=0.8.17 (AntiBotStandardToken.sol#461) allows old versions
solc-0.8.17 is not recommended for deployment
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#incorrect-versions-of-solidity
INFO:Detectors:
Parameter AntiBotStandardToken.setEnableAntiBot(bool)._enable (AntiBotStandardToken.sol#513) is not in mixedCase
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#conformance-to-solidity-naming-conventions
INFO:Detectors:
Variable AntiBotStandardToken._totalSupply (AntiBotStandardToken.sol#480) is too similar to AntiBotStandardToken.constructor(string,string,uint8,uint256,ad
ress,address,uint256).totalSupply_ (AntiBotStandardToken.sol#489)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#variable-names-too-similar
INFO:Detectors:
AntiBotStandardToken.pinkAntiBot (AntiBotStandardToken.sol#482) should be immutable
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#state-variables-that-could-be-declared-immutable
INFO:Slither:AntiBotStandardToken.sol analyzed (7 contracts with 93 detectors), 26 result(s) found
```

# FUNCTIONAL TESTING

**1- Approve (passed):**

https://testnet.bscscan.com/tx/0x0318939124b38c436f5c91e7f884a5ecce40f928169bc98d09ee9da58c3f1df0

**2- Increase Allowance (passed):**

https://testnet.bscscan.com/tx/0x620fa868180211a7e37c5900b2214853739de88a0caf8e87f726e58ff8badd46

**3- Decrease Allowance (passed):**

https://testnet.bscscan.com/tx/0x02152e335e87e6a1cb28d4b72957141095b1b11f2daf9184b35095095c1339f5

**4- Set Enable Anti Bot (passed):**

https://testnet.bscscan.com/tx/0x978746adc8daaddfd22928f7653a0c2b2f4d4a7dc4c4e192d2693109d5c8c74d

**5- Transfer (passed):**

https://testnet.bscscan.com/tx/0xde6cf69406b1cb9bbd847718fe5040661a176e70b2b232dda835ec91f900aad4

# POINTS TO NOTE

- The owner can transfer ownership.
- The owner can renounce ownership.
- The owner can set enable anti-bot.

# 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 | 1 |
| Gas Optimization / Suggestions | 2 |

# MANUAL TESTING

## Centralization – Local Variable Shadowing

## Severity: Low

## Status: Open

## Subject: Shadowing Local

**Overview:**

```
function allowance(address owner, address spender)
    public
    view
    virtual
    override
    returns (uint256)
  {
    return _allowances[owner][spender];
  }
function _approve(
    address owner,
    address spender,
    uint256 amount
  ) internal virtual {
    require(owner != address(0), "ERC20: approve from the zero address");
    require(spender != address(0), "ERC20: approve to the zero address");

    _allowances[owner][spender] = amount;
    emit Approval(owner, spender, amount);
  }
```

**Suggestion:**
Rename the local variable that shadows another component.

# MANUAL TESTING

## Optimization

**Severity: Informational**

**Subject: Remove Safe Math**

**Status: Open**

**Line: 205-416**

**Overview:**

compiler version above 0.8.0 can control arithmetic overflow/underflow, it is recommended to remove the unwanted code to avoid high gas fees.

# MANUAL TESTING

## Optimization

**Severity: Optimization**

**Subject: Remove unused code.**

**Status: Open**

**Overview:**
Unused variables are allowed in Solidity, and they do not pose a direct security issue. It is the best practice though to avoid them.

```
function _msgData() internal view virtual returns (bytes calldata) {
   return msg.data;
  }
}
function _burn(address account, uint256 amount) internal virtual {
   require(account != address(0), "ERC20: burn from the zero address");

   _beforeTokenTransfer(account, address(0), amount);

   _balances[account] = _balances[account].sub(
     amount,
     "ERC20: burn amount exceeds balance"
   );
   _totalSupply = _totalSupply.sub(amount);
   emit Transfer(account, address(0), amount);
  }
function _setupDecimals(uint8 decimals_) internal virtual {
   _decimals = decimals_;
  }
```

**Suggestion:**
To reduce high gas fees. It is suggested to remove unused code from the contract.

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