RUGDOG

SMART CONTRACT SECURITY AUDIT

Final report   Plan: Simple

Ludus Game

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CONTENTS

✦ INTRODUCTION

A fungible token of ERC20 standard with antibot functionality.

Name   Ludus Game

Audit date   2022-07-07 - 2022-07-07
Language   Solidity
Network   Binance Smart Chain

✦ CONTRACTS CHECKED

Name   Address

AntiBotStandardToken   0xcb710d32683f4ed6ed1572c518f8e3f0a988ec70

✦ AUDIT PROCESS

The code was audited by the team according to the following order:

Automated analysis

◊ Scanning the project's smart contracts with several publicly available automated Solidity analysis tools

◊ Manual confirmation of all the issues found by the tools

Manual audit

◊ Thorough manual analysis of smart contracts for security vulnerabilities

◊ Smart contracts' logic check

✦ ATTACKS CHECKED

Title	Check result
Unencrypted Private Data On-Chain	✓ passed
Code With No Effects	✓ passed
Message call with hardcoded gas amount	✓ passed
Typographical Error	✓ passed
DoS With Block Gas Limit	✓ passed
Presence of unused variables	✓ passed
Incorrect Inheritance Order	✓ passed
Requirement Violation	✓ passed
Weak Sources of Randomness from Chain Attributes	✓ passed
Shadowing State Variables	✓ passed
Incorrect Constructor Name	✓ passed
Block values as a proxy for time	✓ passed
Authorization through tx.origin	✓ passed
DoS with Failed Call	✓ passed
Delegatecall to Untrusted Callee	✓ passed

Use of Deprecated Solidity Functions	✓	passed
Assert Violation	✓	passed
State Variable Default Visibility	✓	passed
Reentrancy	✓	passed
Unprotected SELFDESTRUCT Instruction	✓	passed
Unprotected Ether Withdrawal	✓	passed
Unchecked Call Return Value	✓	passed
Floating Pragma	✓	passed
Outdated Compiler Version	✓	passed
Integer Overflow and Underflow	✓	passed
Function Default Visibility	✓	passed

⟡ CLASSIFICATION OF ISSUES

High severity   Issues leading to assets theft, locking or any other loss of assets or leading to contract malfunctioning.

Medium severity   Issues that can trigger a contract failure of malfunctioning.

Low severity   Issues that do now affect contract functionality. For example, unoptimised gas usage, outdated or unused code, code styleviolations, etc.

✦ ISSUES

High severity issues

No issues were found

Medium severity issues

No issues were found

Low severity issues

1. Antibot may block transfers (AntiBotStandardToken)

The contract calls an external contract for antibot protection. The antibot contract is deployed via proxy and it's coe can be changed. The antibot may potentially block transfers.

```
function _transfer(
    address sender,
    address recipient,
    uint256 amount
) internal virtual {
    ...

    if (enableAntiBot) {
        pinkAntiBot.onPreTransferCheck(sender, recipient, amount);
    }
    ...
}
```

✦ CONCLUSION

Ludus Game AntiBotStandardToken contract was audited. 1 low severity issue was found.

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This report should not be used in any way to make decisions around investment or involvement with any particular project. This report in no way provides investment advice, nor should be leveraged as investment advice of any sort. This report represents an extensive assessing process intending to help our customers increase the quality of their code while reducing the high level of risk presented by cryptographic tokens and blockchain technology.

✦ STATIC ANALYSIS

```
INFO:Detectors:
AntiBotStandardToken.allowance(address,address).owner (Ludus Game.sol#590) shadows:
   - Ownable.owner() (Ludus Game.sol#150-152) (function)
AntiBotStandardToken._approve(address,address,uint256).owner (Ludus Game.sol#795)
shadows:
   - Ownable.owner() (Ludus Game.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_ (Ludus Game.sol#491) lacks a zero-check on :
    - address(serviceFeeReceiver_).transfer(serviceFee_) (Ludus Game.sol#510)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#missing-
zero-address-validation
INFO:Detectors:
Reentrancy in AntiBotStandardToken._transfer(address,address,uint256) (Ludus
Game.sol#716-736):
   External calls:
   - pinkAntiBot.onPreTransferCheck(sender,recipient,amount) (Ludus Game.sol#725)
   State variables written after the call(s):
   - _balances[sender] = _balances[sender].sub(amount,ERC20: transfer amount exceeds
balance) (Ludus Game.sol#730-733)
   - _balances[recipient] = _balances[recipient].add(amount) (Ludus Game.sol#734)
Reentrancy in AntiBotStandardToken.constructor(string,string,uint8,uint256,address,ad
dress,uint256) (Ludus Game.sol#485-511):
   External calls:
   - pinkAntiBot.setTokenOwner(owner()) (Ludus Game.sol#500)
   State variables written after the call(s):
   - enableAntiBot = true (Ludus Game.sol#501)
Reentrancy in AntiBotStandardToken.transferFrom(address,address,uint256) (Ludus
Game.sol#630-645):
   External calls:
   - _transfer(sender,recipient,amount) (Ludus Game.sol#635)
```

```
      - pinkAntiBot.onPreTransferCheck(sender,recipient,amount) (Ludus Game.sol#725)
    State variables written after the call(s):
    - _approve(sender,_msgSender(),_allowances[sender][_msgSender()].sub(amount,ERC20:
transfer amount exceeds allowance)) (Ludus Game.sol#636-643)
      - _allowances[owner][spender] = amount (Ludus Game.sol#802)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#reentrancy-
vulnerabilities-2
INFO:Detectors:
Reentrancy in AntiBotStandardToken._transfer(address,address,uint256) (Ludus
Game.sol#716-736):
    External calls:
    - pinkAntiBot.onPreTransferCheck(sender,recipient,amount) (Ludus Game.sol#725)
    Event emitted after the call(s):
    - Transfer(sender,recipient,amount) (Ludus Game.sol#735)
Reentrancy in AntiBotStandardToken.constructor(string,string,uint8,uint256,address,ad
dress,uint256) (Ludus Game.sol#485-511):
    External calls:
    - pinkAntiBot.setTokenOwner(owner()) (Ludus Game.sol#500)
    Event emitted after the call(s):
    - TokenCreated(owner(),address(this),TokenType.antiBotStandard,VERSION) (Ludus
Game.sol#503-508)
Reentrancy in AntiBotStandardToken.transferFrom(address,address,uint256) (Ludus
Game.sol#630-645):
    External calls:
    - _transfer(sender,recipient,amount) (Ludus Game.sol#635)
      - pinkAntiBot.onPreTransferCheck(sender,recipient,amount) (Ludus Game.sol#725)
    Event emitted after the call(s):
    - Approval(owner,spender,amount) (Ludus Game.sol#803)
      - _approve(sender,_msgSender(),_allowances[sender]
[_msgSender()].sub(amount,ERC20: transfer amount exceeds allowance)) (Ludus
Game.sol#636-643)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#reentrancy-
vulnerabilities-3
INFO:Detectors:
AntiBotStandardToken._burn(address,uint256) (Ludus Game.sol#768-779) is never used
and should be removed
AntiBotStandardToken._setupDecimals(uint8) (Ludus Game.sol#813-815) is never used
```

and should be removed
Context._msgData() (Ludus Game.sol#110-112) is never used and should be removed
SafeMath.div(uint256,uint256) (Ludus Game.sol#324-326) is never used and should be removed
SafeMath.div(uint256,uint256,string) (Ludus Game.sol#380-389) is never used and should be removed
SafeMath.mod(uint256,uint256) (Ludus Game.sol#340-342) is never used and should be removed
SafeMath.mod(uint256,uint256,string) (Ludus Game.sol#406-415) is never used and should be removed
SafeMath.mul(uint256,uint256) (Ludus Game.sol#310-312) is never used and should be removed
SafeMath.sub(uint256,uint256) (Ludus Game.sol#296-298) is never used and should be removed
SafeMath.tryAdd(uint256,uint256) (Ludus Game.sol#211-217) is never used and should be removed
SafeMath.tryDiv(uint256,uint256) (Ludus Game.sol#253-258) is never used and should be removed
SafeMath.tryMod(uint256,uint256) (Ludus Game.sol#265-270) is never used and should be removed
SafeMath.tryMul(uint256,uint256) (Ludus Game.sol#236-246) is never used and should be removed
SafeMath.trySub(uint256,uint256) (Ludus Game.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=0.8.4 (Ludus Game.sol#461) necessitates a version too recent to be trusted. Consider deploying with 0.6.12/0.7.6
solc-0.8.4 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 (Ludus Game.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 (Ludus Game.sol#480) is too similar to Ant
iBotStandardToken.constructor(string,string,uint8,uint256,address,address,uint256).to
talSupply_ (Ludus Game.sol#489)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#variable-
names-are-too-similar
INFO:Detectors:
renounceOwnership() should be declared external:
  - Ownable.renounceOwnership() (Ludus Game.sol#169-171)
transferOwnership(address) should be declared external:
  - Ownable.transferOwnership(address) (Ludus Game.sol#177-180)
name() should be declared external:
  - AntiBotStandardToken.name() (Ludus Game.sol#520-522)
symbol() should be declared external:
  - AntiBotStandardToken.symbol() (Ludus Game.sol#528-530)
decimals() should be declared external:
  - AntiBotStandardToken.decimals() (Ludus Game.sol#545-547)
totalSupply() should be declared external:
  - AntiBotStandardToken.totalSupply() (Ludus Game.sol#552-554)
balanceOf(address) should be declared external:
  - AntiBotStandardToken.balanceOf(address) (Ludus Game.sol#559-567)
transfer(address,uint256) should be declared external:
  - AntiBotStandardToken.transfer(address,uint256) (Ludus Game.sol#577-585)
allowance(address,address) should be declared external:
  - AntiBotStandardToken.allowance(address,address) (Ludus Game.sol#590-598)
approve(address,uint256) should be declared external:
  - AntiBotStandardToken.approve(address,uint256) (Ludus Game.sol#607-615)
transferFrom(address,address,uint256) should be declared external:
  - AntiBotStandardToken.transferFrom(address,address,uint256) (Ludus
Game.sol#630-645)
increaseAllowance(address,uint256) should be declared external:
  - AntiBotStandardToken.increaseAllowance(address,uint256) (Ludus Game.sol#659-670)
decreaseAllowance(address,uint256) should be declared external:
  - AntiBotStandardToken.decreaseAllowance(address,uint256) (Ludus Game.sol#686-700)
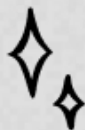Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#public-
function-that-could-be-declared-external
INFO:Slither:Ludus Game.sol analyzed (7 contracts with 75 detectors), 40 result(s)
found

```
INFO:Slither:Use https://crytic.io/ to get access to additional detectors and Github
integration
    Ludus Game
```

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WOOF!

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