

Advanced Manual **Smart Contract Audit**

September 15, 2022

Audit requested by



Inu Game

0x08be9882381adc282a3161a693b5a85494178a30

Table of Contents

1. Audit Summary

- 1.1 Audit scope
- 1.2 Tokenomics
- 1.3 Source Code

2. Disclaimer

3. Global Overview

- 3.1 Informational issues
- 3.2 Low-risk issues
- 3.3 Medium-risk issues
- 3.4 High-risk issues

4. Vulnerabilities Findings

5. Contract Privileges

- 5.1 Maximum Fee Limit Check
- 5.2 Contract Pausability Check
- 5.3 Max Transaction Amount Check
- 5.4 Exclude From Fees Check
- 5.5 Ability to Mint Check
- 5.6 Ability to Blacklist Check
- 5.7 Owner Privileges Check

6. Notes

- 6.1 Notes by Coinsult
- 6.2 Notes by Inu Game

7. Contract Snapshot

8. Website Review

9. Certificate of Proof

Audit Summary

Audit Scope

Project Name	Inu Game
Website	https://inugame.finance
Blockchain	Binance Smart Chain
Smart Contract Language	Solidity
Contract Address	0x08be9882381adc282a3161a693b5a85494178a30
Audit Method	Static Analysis, Manual Review
Date of Audit	15 September 2022

This audit report has been prepared by Coinsult's experts at the request of the client. In this audit, the results of the static analysis and the manual code review will be presented. The purpose of the audit is to see if the functions work as intended, and to identify potential security issues within the smart contract.

The information in this report should be used to understand the risks associated with the smart contract. This report can be used as a guide for the development team on how the contract could possibly be improved by remediating the issues that were identified.

Tokenomics

Rank	Address	Quantity (Token)	Percentage
1	0xd6fdb6cb3131d075b456bb64a9cc255c3921c293	1,000,000,000,000,000	100.0000%

Source Code

Coinsult was commissioned by Inu Game to perform an audit based on the following code:

<https://bscscan.com/address/0x08be9882381adc282a3161a693b5a85494178a30#code>

Disclaimer

This audit report has been prepared by Coinsult's experts at the request of the client. In this audit, the results of the static analysis and the manual code review will be presented. The purpose of the audit is to see if the functions work as intended, and to identify potential security issues within the smart contract.

The information in this report should be used to understand the risks associated with the smart contract. This report can be used as a guide for the development team on how the contract could possibly be improved by remediating the issues that were identified.

Coinsult is not responsible if a project turns out to be a scam, rug-pull or honeypot. We only provide a detailed analysis for your own research.

Coinsult is not responsible for any financial losses. Nothing in this contract audit is financial advice, please do your own research.

The information provided in this audit is for informational purposes only and should not be considered investment advice. Coinsult does not endorse, recommend, support or suggest to invest in any project.

Coinsult can not be held responsible for when a project turns out to be a rug-pull, honeypot or scam.

Global Overview

Manual Code Review

In this audit report we will highlight the following issues:

Vulnerability Level	Total	Pending	Acknowledged	Resolved
● Informational	0	0	0	0
● Low-Risk	5	5	0	0
● Medium-Risk	2	0	0	2
● High-Risk	0	0	0	0

Privilege Overview

Coinsult checked the following privileges:

Contract Privilege	Description
Owner can mint?	● Owner cannot mint new tokens
Owner can blacklist?	● Owner cannot blacklist addresses
Owner can set fees > 25%?	● Owner can set the sell fee to 25% or higher
Owner can exclude from fees?	● Owner can exclude from fees
Owner can pause trading?	● Owner cannot pause the contract
Owner can set Max TX amount?	● Owner can set max transaction amount

More owner privileges are listed later in the report.

● **Low-Risk:** Could be fixed, will not bring problems.

If address is already included the require statement returns a wrong statement

```
function includeInReward(address account) external onlyOwner() {
    require(!_isExcluded[account], "Account is already excluded");
    for (uint256 i = 0; i < _excluded.length; i++) {
        if (_excluded[i] == account) {
            _excluded[i] = _excluded[_excluded.length - 1];
            _tOwned[account] = 0;
            _isExcluded[account] = false;
            _excluded.pop();
            break;
        }
    }
}
```

Recommendation

rephrase the require return statement to "Account is already included"

● **Low-Risk:** Could be fixed, will not bring problems.

Contract contains Reentrancy vulnerabilities

Additional information: This combination increases risk of malicious intent. While it may be justified by some complex mechanics (e.g. rebase, reflections, buyback).

More information: Slither

```
function _transfer(
    address from,
    address to,
    uint256 amount
) private {
    require(from != address(0), "ERC20: transfer from the zero address");
    require(to != address(0), "ERC20: transfer to the zero address");
    require(amount > 0, "Transfer amount must be greater than zero");
    if(from != owner() && to != owner())
        require(amount = _maxTxAmount)
    {
        contractTokenBalance = _maxTxAmount;
    }

    bool overMinTokenBalance = contractTokenBalance >= numTokensSellToAddToLiquidity;
    if (
        overMinTokenBalance &&
        !inSwapAndLiquify &&
        from != uniswapV2Pair &&
        swapAndLiquifyEnabled
    ) {
        contractTokenBalance = numTokensSellToAddToLiquidity;
```


Recommendation

Apply the check-effects-interactions pattern.

Exploit scenario

```
function withdrawBalance(){
    // send userBalance[msg.sender] Ether to msg.sender
    // if msg.sender is a contract, it will call its fallback function
    if( ! (msg.sender.call.value(userBalance[msg.sender])() ) ){
        throw;
    }
    userBalance[msg.sender] = 0;
}
```

Bob uses the re-entrancy bug to call withdrawBalance two times, and withdraw more than its initial deposit to the contract.

 **Low-Risk:** Could be fixed, will not bring problems.

Too many digits

Literals with many digits are difficult to read and review.

```
uint256 private _tTotal = 1000000000 * 10**6 * 10**9;
```

Recommendation

Use: Ether suffix, Time suffix, or The scientific notation

Exploit scenario

```
contract MyContract{
    uint 1_ether = 1000000000000000000;
}
```

While `1_ether` looks like 1 ether, it is 10 ether. As a result, it's likely to be used incorrectly.

● **Low-Risk:** Could be fixed, will not bring problems.

Missing events arithmetic

Detect missing events for critical arithmetic parameters.

```
function setTaxFeePercent(uint256 taxFee) external onlyOwner() {  
    _taxFee = taxFee;  
}
```

Recommendation

Emit an event for critical parameter changes.

Exploit scenario

```
contract C {  
  
    modifier onlyAdmin {  
        if (msg.sender != owner) throw;  
        _;  
    }  
  
    function updateOwner(address newOwner) onlyAdmin external {  
        owner = newOwner;  
    }  
}
```

updateOwner() has no event, so it is difficult to track off-chain changes in the buy price.

● **Low-Risk:** Could be fixed, will not bring problems.

Redundant Statements

Detect the usage of redundant statements that have no effect.

```
function _msgData() internal view virtual returns (bytes memory) {  
    this; // silence state mutability warning without generating bytecode - see https://github.com/ethers-io/ethers.js/issues/1316  
    return msg.data;  
}
```

Recommendation

Remove redundant statements if they congest code but offer no value.

Exploit scenario

```
contract RedundantStatementsContract {  
  
    constructor() public {  
        uint; // Elementary Type Name  
        bool; // Elementary Type Name  
        RedundantStatementsContract; // Identifier  
    }  
  
    function test() public returns (uint) {  
        uint; // Elementary Type Name  
        assert; // Identifier  
        test; // Identifier  
        return 777;  
    }  
}
```

Each commented line references types/identifiers, but performs no action with them, so no code will be generated for such statements and they can be removed.

● **Low-Risk:** Could be fixed, will not bring problems.

Costly operations inside a loop

Costly operations inside a loop might waste gas, so optimizations are justified.

```
function includeInReward(address account) external onlyOwner() {
    require(!_isExcluded[account], "Account is already excluded");
    for (uint256 i = 0; i < _excluded.length; i++) {
        if (_excluded[i] == account) {
            _excluded[i] = _excluded[_excluded.length - 1];
            _tOwned[account] = 0;
            _isExcluded[account] = false;
            _excluded.pop();
            break;
        }
    }
}
```

Recommendation

Use a local variable to hold the loop computation result.

Exploit scenario

```
contract CostlyOperationsInLoop{

    function bad() external{
        for (uint i=0; i < loop_count; i++){
            state_variable++;
        }
    }

    function good() external{
        uint local_variable = state_variable;
        for (uint i=0; i < loop_count; i++){
            local_variable++;
        }
        state_variable = local_variable;
    }
}
```

Incrementing `state_variable` in a loop incurs a lot of gas because of expensive `SSTOREs`, which might lead to an out-of-gas.

● **Medium-Risk:** Should be fixed, could bring problems.

No constraints on 'lockTime' (issue resolved ✅)

```
//Locks the contract for owner for the amount of time provided
function lock(uint256 time) public virtual onlyOwner {
    _previousOwner = _owner;
    _owner = address(0);
    _lockTime = now + time;
    emit OwnershipTransferred(_owner, address(0));
}
```

Recommendation

We recommend to use a require statement to prevent lockTime from exceeding certain limits.

Entering a wrong value here will result in losing ownership of the contract for an undesired amount of time. Prevent errors like these from happening by using require statements.

● **Medium-Risk:** Should be fixed, could bring problems.

Wrong require statement for unlock function (issue resolved ✅)

```
//Unlocks the contract for owner when _lockTime is exceeds
function unlock() public virtual {
    require(_previousOwner == msg.sender, "You don't have permission to unlock");
    require(now > _lockTime , "Contract is locked until 7 days");
    emit OwnershipTransferred(_owner, _previousOwner);
    _owner = _previousOwner;
}
```

Recommendation

‘_lockTime’ is a variable entered in the ‘lock’ function. The require statement compares the timestamp to locktime. However, the require statement always yields “Contract is locked until 7 days”. Which, will not always be the case, as ‘lockTime’ is a variable.

Contract Privileges

Maximum Fee Limit Check


Coinsult tests if the owner of the smart contract can set the transfer, buy or sell fee to 25% or more. It is bad practice to set the fees to 25% or more, because owners can prevent healthy trading or even stop trading when the fees are set too high.

Type of fee	Description
Transfer fee	● Owner can set the transfer fee to 25% or higher
Buy fee	● Owner can set the buy fee to 25% or higher
Sell fee	● Owner can set the sell fee to 25% or higher

Type of fee	Description
Max transfer fee	100%
Max buy fee	100%
Max sell fee	100%

Contract Pausability Check

Coinsult tests if the owner of the smart contract has the ability to pause the contract. If this is the case, users can no longer interact with the smart contract; users can no longer trade the token.

Privilege Check	Description
Can owner pause the contract?	 Owner cannot pause the contract


Max Transaction Amount Check

Coinsult tests if the owner of the smart contract can set the maximum amount of a transaction. If the transaction exceeds this limit, the transaction will revert. Owners could prevent normal transactions to take place if they abuse this function.

Privilege Check	Description
Can owner set max tx amount?	● Owner can set max transaction amount

Exclude From Fees Check

Coinsult tests if the owner of the smart contract can exclude addresses from paying tax fees. If the owner of the smart contract can exclude from fees, they could set high tax fees and exclude themselves from fees and benefit from 0% trading fees. However, some smart contracts require this function to exclude routers, dex, cex or other contracts / wallets from fees.


Privilege Check	Description
Can owner exclude from fees?	 Owner can exclude from fees

Ability To Mint Check

Coinsult tests if the owner of the smart contract can mint new tokens. If the contract contains a mint function, we refer to the token's total supply as non-fixed, allowing the token owner to "mint" more tokens whenever they want.

A mint function in the smart contract allows minting tokens at a later stage. A method to disable minting can also be added to stop the minting process irreversibly.


Minting tokens is done by sending a transaction that creates new tokens inside of the token smart contract. With the help of the smart contract function, an unlimited number of tokens can be created without spending additional energy or money.

Privilege Check	Description
Can owner mint?	 Owner cannot mint new tokens

Ability To Blacklist Check

Coinsult tests if the owner of the smart contract can blacklist accounts from interacting with the smart contract. Blacklisting methods allow the contract owner to enter wallet addresses which are not allowed to interact with the smart contract.

This method can be abused by token owners to prevent certain / all holders from trading the token. However, blacklists might be good for tokens that want to rule out certain addresses from interacting with a smart contract.

Privilege Check	Description
Can owner blacklist?	 Owner cannot blacklist addresses

Other Owner Privileges Check

Coinsult lists all important contract methods which the owner can interact with.

⚠️ Owner can exclude addresses from reward

Notes

Notes by Inu Game

No notes provided by the team.

Notes by Coinconsult

 No notes provided by Coinconsult

Contract Snapshot

This is how the constructor of the contract looked at the time of auditing the smart contract.

```
contract Ginu is Context, IERC20, Ownable {
    using SafeMath for uint256;
    using Address for address;

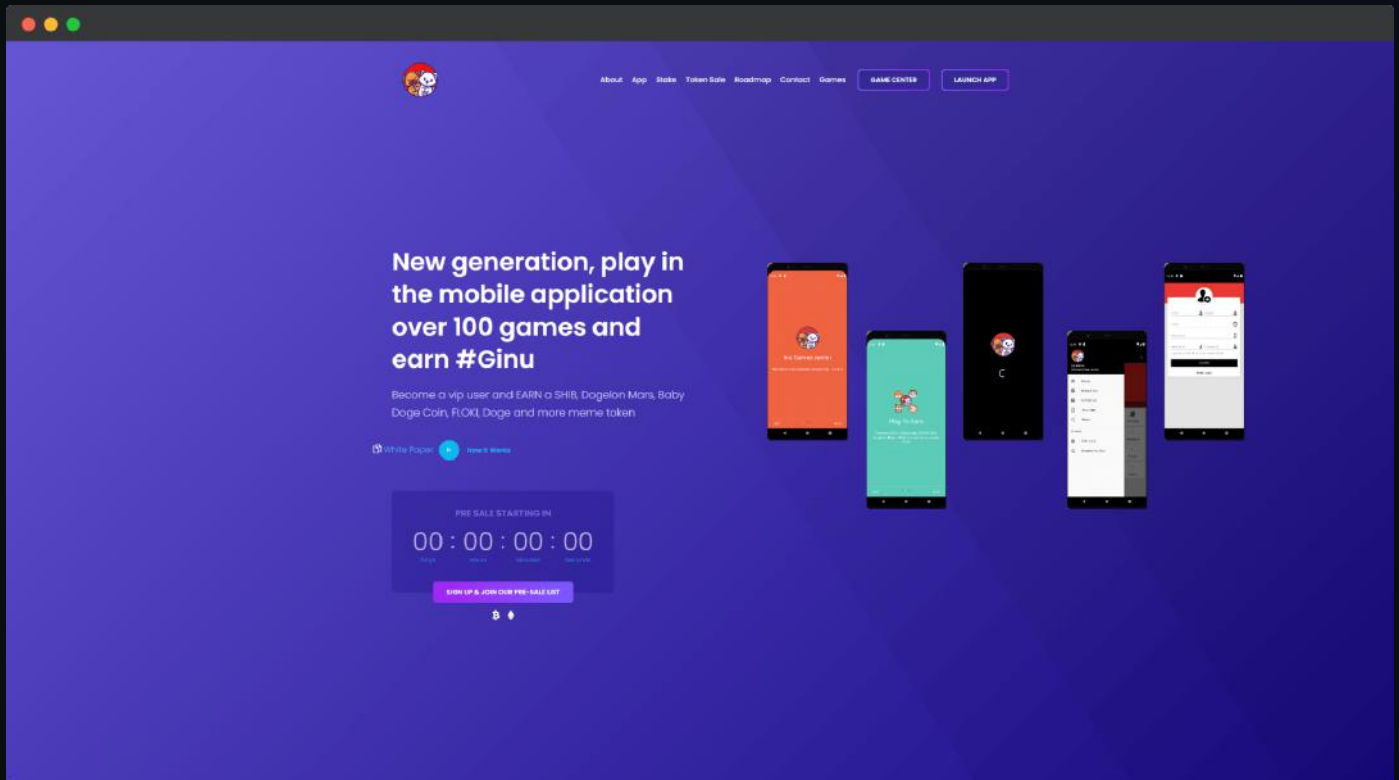
    mapping (address => uint256) private _rOwned;
    mapping (address => uint256) private _tOwned;
    mapping (address => mapping (address => uint256)) private _allowances;

    mapping (address => bool) private _isExcludedFromFee;

    mapping (address => bool) private _isExcluded;
```

Website Review

Coinsult checks the website completely manually and looks for visual, technical and textual errors. We also look at the security, speed and accessibility of the website. In short, a complete check to see if the website meets the current standard of the web development industry.



Type of check	Description
Mobile friendly?	● The website is mobile friendly
Contains jQuery errors?	● The website does not contain jQuery errors
Is SSL secured?	● The website is SSL secured
Contains spelling errors?	● The website does not contain spelling errors

Certificate of Proof

● Not KYC verified by Coinsult

Inu Game

Audited by Coinsult.net



Date: 15 September 2022

✓ Advanced Manual Smart Contract Audit

End of report **Smart Contract Audit**

Request your smart contract audit / KYC

t.me/coinsult_tg