Coinsult

Advanced Manual Smart Contract Audit

Project: Mobipad

Website: https://mobipad.io/

Low-Risk	Medium-Risk	High-Risk
8 low-risk code issues found	3 medium-risk code issues found	0 high-risk code issues found

Contract Address

0x297Cd71a29c987377C7B59Bdf404e926A3A7a3c6

Disclaimer

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.

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Tokenomics

Rank	Address	Quantity (Token)	Percentage
1	MobiPad: Deployer	2	100.0000%

Source Code

Coinsult was comissioned by Mobipad to perform an audit based on the following smart contract:

https://bscscan.com/address/0x297Cd71a29c987377C7B59Bdf404e926A3A7a3c6#code

Manual Code Review

In this audit report we will highlight all these issues:

🟢 Low-Risk

8 low-risk code
issues found

🟡 Medium-Risk

3 medium-risk code
issues found

🔴 High-Risk

0 high-risk code
issues found

The detailed report continues on the next page...

🟢 **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 sender,
    address recipient,
    uint256 amount
) internal {
    if (bpEnabled &amp;amp;&amp;amp; !BPDisabledForever) {
        BP.protect(sender, recipient, amount);
    }

    require(sender != address(0), "BEP20: transfer from the zero address");
    require(recipient != address(0), "BEP20: transfer to the zero address");

    if (_taxEnabled) {
        if (_isIncluded[sender] || _isIncluded[recipient]) {
            // if Sender or Recipient is included in tax collection then implement tax
            _transferWithTax(sender, recipient, amount);
        } else {
            _transferWithoutTax(sender, recipient, amount);
        }
    } else {
        _transferWithoutTax(sender, recipient, amount);
    }
```

Recommendation

Apply the check-effects-interactions pattern.

Exploit scenario

```
function withdrawBalance(){
    // send userBalance[msg.sender] Ether to msg.sender
    // if mgs.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.

```
_totalSupply = 2000000000000000000; // 2 MBP initial supply
_maxSupply = 100000000000000000000000000;// 100m max supply
```

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.

No zero address validation for some functions

Detect missing zero address validation.

```
function setTaxStoreAddr(address _addr) external onlyOwner {
    _taxStoreAddr = _addr;
}
```

Recommendation

Check that the new address is not zero.

Exploit scenario

```
contract C {

  modifier onlyAdmin {
    if (msg.sender != owner) throw;
    _;
  }

  function updateOwner(address newOwner) onlyAdmin external {
    owner = newOwner;
  }
}
```

Bob calls `updateOwner` without specifying the `newOwner`, soBob loses ownership of the contract.

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

Missing events arithmetic

Detect missing events for critical arithmetic parameters.

```
function updateBuyTax(uint256 _percentage) external onlyOwner {
    _BUY_TAX = _percentage;
}

function updateSellTax(uint256 _percentage) external onlyOwner {
    _SELL_TAX = _percentage;
}

function setTaxEnabled(bool _enabled) external onlyOwner {
    _taxEnabled = _enabled;
}

function setTaxStoreEnabled(bool _enabled) external onlyOwner {
    _taxStoreEnabled = _enabled;
}

function setTaxStoreAddr(address _addr) external onlyOwner {
    _taxStoreAddr = _addr;
}
```

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.

Boolean equality

Detects the comparison to boolean constants.

```
function setBotProtectionDisableForever() external onlyOwner {
    require(BPDisabledForever == false);
    BPDisabledForever = true;
}
```

Recommendation

Remove the equality to the boolean constant.

Exploit scenario

```
contract A {
    function f(bool x) public {
        // ...
        if (x == true) { // bad!
           // ...
        }
        // ...
    }
}
```

Boolean constants can be used directly and do not need to be compare to `true` or `false`.

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

Conformance to Solidity naming conventions

Allow _ at the beginning of the mixed_case match for private variables and unused parameters.

```
Parameter MobiPad.setBPAddrss(address)._bp (#225) is not in mixedCase
Parameter MobiPad.setBpEnabled(bool)._enabled (#230) is not in mixedCase
Parameter MobiPad.updateBuyTax(uint256)._percentage (#239) is not in mixedCase
Parameter MobiPad.updateSellTax(uint256)._percentage (#243) is not in mixedCase
Parameter MobiPad.setTaxEnabled(bool)._enabled (#247) is not in mixedCase
Parameter MobiPad.setTaxStoreEnabled(bool)._enabled (#251) is not in mixedCase
Parameter MobiPad.setTaxStoreAddr(address)._addr (#255) is not in mixedCase
Parameter MobiPad.setFairsaleContract(address)._fairsaleContract (#542) is not in mixedCase
Parameter MobiPad.mintSupply(address,uint256)._investorAddress (#552) is not in mixedCase
Parameter MobiPad.mintSupply(address,uint256)._amount (#552) is not in mixedCase
Variable MobiPad._BUY_TAX (#188) is not in mixedCase
Variable MobiPad._SELL_TAX (#189) is not in mixedCase
Variable MobiPad.BP (#209) is not in mixedCase
Variable MobiPad.BPDisabledForever (#211) is not in mixedCase
Variable MobiPad.FAIRSALE_CONTRACT (#536) is not in mixedCase
```

Recommendation

Follow the Solidity naming convention.

Rule exceptions

- Allow constant variable name/symbol/decimals to be lowercase (`ERC20`).
- Allow _ at the beginning of the `mixed_case` match for private variables and unused parameters.

🟢 **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 returns (bytes memory) {
    this;
    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 excludeAccount(address account) external onlyOwner {
    require(_isIncluded[account], "DPD: Account is already excluded");
    for (uint256 i = 0; i &lt; _included.length; i++) {
        if (_included[i] == account) {
            _included[i] = _included[_included.length - 1];
            _isIncluded[account] = false;
            _included.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 `SSTORE`s, which might lead to an `out-of-gas`.

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

Owner can mint new tokens

```
function mint(uint256 amount) public onlyOwner returns (bool) {
    _mint(_msgSender(), amount);
    return true;
}
```

Recommendation

Make sure the project owners explain why they need a mint function within their contract.

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

Burn can only be called from owner

```
function burn(uint256 amount) external onlyOwner returns (bool) {
    _burn(_msgSender(), amount);
    return true;
}
```

Recommendation

Since the contract uses _msgSender(), you could allow every user to use this function to burn their tokens.

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

Spelling error

```
function setBPAddrss(address _bp) external onlyOwner {
    require(address(BP) == address(0), "Can only be initialized once");
    BP = BPContract(_bp);
}
```

Recommendation

change function name to the correct spelling. (setBPAddrss -> setBPAddress)

Owner privileges

- 🟢 Owner cannot pause trading
- 🟢 Owner cannot change max transaction amount
- 🟡 Owner can set fees higher than 25%
- 🟡 Owner can exclude from fees
- 🔴 Owner can mint new tokens
- ⚠️ Owner can set up Bot Prevention

Extra notes by the team

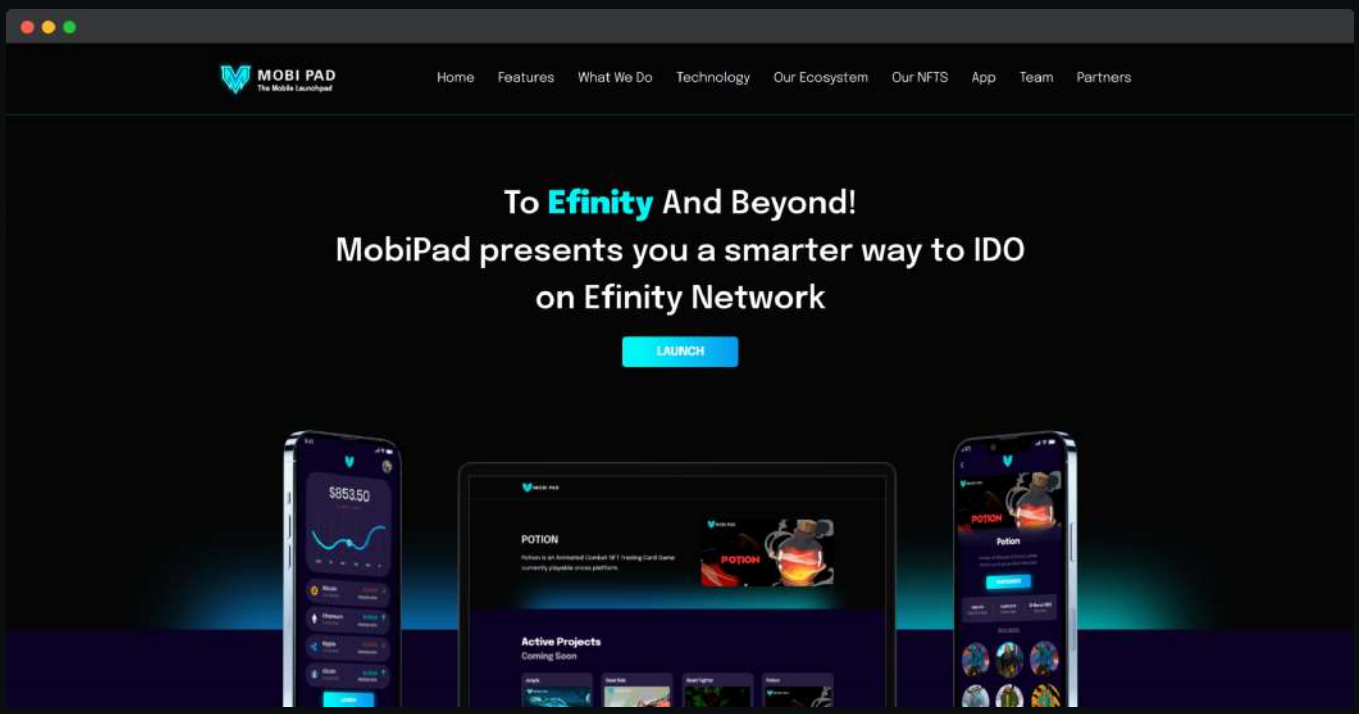
No notes

Contract Snapshot

```
contract MobiPad is Context, IBEP20, Ownable {
using SafeMath for uint256;

mapping(address =&gt; uint256) private _balances;

mapping(address =&gt; mapping(address =&gt; uint256)) private _allowances;

/**
 * @dev Enable or Disable tax system
 */
bool private _taxEnabled;
/**
 * @dev To either store or burn tax
 */
bool private _taxStoreEnabled;

/**
 * @dev tax percentage to be deducted from taxed transaction
 */
uint256 private _BUY_TAX = 1; // %
uint256 private _SELL_TAX = 1; // %

/**
 * @dev address to store tax collected
 */
address private _taxStoreAddr;

/**
 * @dev Store addresses included in tax collection
 * @dev Sending to addresses included in tax collection will remove tax using the percentage in _BUY_
 */
mapping(address =&gt; bool) private _isIncluded;
address[] private _included;

uint256 private _totalSupply;
uint256 private _maxSupply;
uint8 private _decimals;
```

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.



- Mobile Friendly
- Does not contain jQuery errors
- SSL Secured
- No major spelling errors

Project Overview

KYC verified by Coinsult