Security Assessment

HODLPAD

Verified On Feb 21th, 2024

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PREPARED FOR:

HODLPAD

TABLE OF CONTENTS

INTRODUCTION

Auditing Firm	**VITAL BLOCK SECURITY**
Client Firm	**HODLPAD**
Methodology	**Automated Analysis, Manual Code Review.**
Language	**Solidity**
Contract	**0x34bA6ED408D6AEA512a0dd7583D4871e8d81f967**
Source Code Light	**Verified**
License	**MIT**
Centralization	**Active ownership**
Compiler Version	**v0.8.17+commit.8df45f5f**
Blockchain	**BINANCE SMART CHAIN**
Website	**https://www.hodlpad.io/**
Telegram Group	**https://t.me/hodlpadcommunity**
Twitter	**https://twitter.com/HODLpad**
Doc	**https://hodlpad.gitbook.io/hodlpad/**
Prelim Report Date	**FEBRUARY 20th 2024**
Final Report Date	**FEBRUARY 21st 2024**

ℹ️ **Verify the authenticity of this report on our GitHub Repo: https://www.github.com/vital-block**

Document Properties

Client	HODLPAD
Title	Smart Contract Audit Report
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Auditors	Akhmetshin Marat, James BK, Benny Matin
Reviewed by	Dima Meru
Approved by	Prince Mitchell
Classification	Public

Version Info

Version	Date	Author(s)	Description
1.0	February 20th, 2024	James BK	Final Released
1.0-AP	February 21st , 2024	Benny Matin	Release Candidate

Contact

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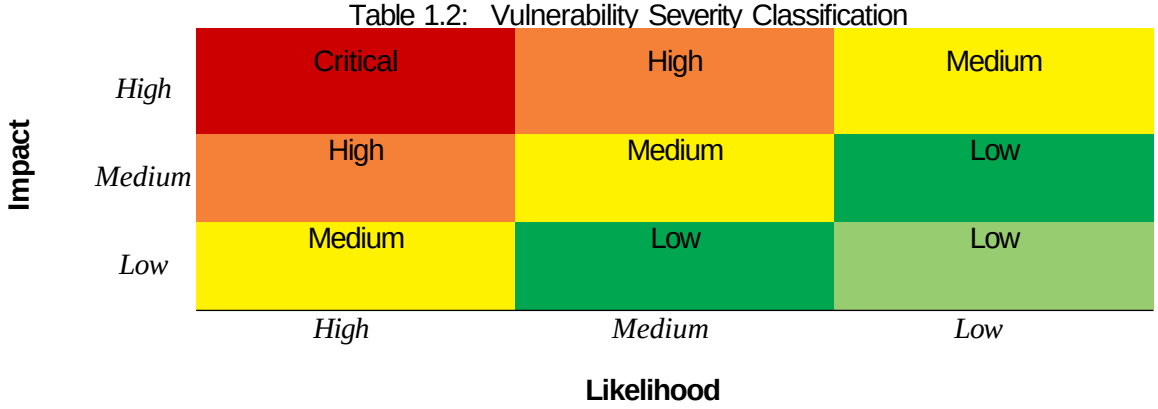
In the following, we show the specific pull request and the commit hash value used in this audit.

- https://bscscan.com/token/0x34bA6ED408D6AEA512a0dd7583D4871e8d81f967 (HOD8410)
- https://bscscan.com/token/0x34bA6ED408D6AEA512a0dd7583D4871e8d81f967#code (HODH511)

About Vital Block Security

Vital Block Security provides professional, thorough, fast, and easy-to-understand smart contract security audit. We do in-depth and penetrative static, manual, automated, and intelligent analysis of the smart contract. Some of our automated scans include tools like ConsenSys MythX, Mythril, Slither, Surya. We can audit custom smart contracts, DApps, Rust, NFTs, etc (including the service of smart contract auditing). We are reachable at Telegram (https://t.me/vital_block), Twitter (http://twitter.com/Vb_Audit), or Email (info@vitalblock.org).

Table 1.2: Vulnerability Severity Classification



Methodology (1)

To standardize the evaluation, we define the following terminology based on the OWASP Risk Rating Methodology [4]:

- Likelihood represents how likely a particular vulnerability is to be uncovered and exploited in the wild;
- Impact measures the technical loss and business damage of a successful attack;
- Severity demonstrates the overall criticality of the risk.

SCOPE OF WORK

Vital Block was consulted by HODLPAD to conduct the smart contract audit of its Rust source code. The audit scope of work is strictly limited to mentioned .SOL file only:

O.HODLPAD.Sol

ℹ️ **External contracts and/or interfaces dependencies are not checked due to being out of scope.**

Verify audited contract code Repo.

Public Contract Link
https://bscscan.com/token/0x34bA6ED408D6AEA512a0dd7583D4871e8d81f967#code

AUDIT METHODOLOGY

Smart contract audits are conducted using a set of standards and procedures. Mutual collaboration is essential to performing an effective smart contract audit. Here's a brief overview of Vital Block Security auditing process and methodology:

CONNECT

- The onboarding team gathers source codes, and specifications to make sure we understand the size, and scope of the smart contract audit.

AUDIT

- Automated analysis is performed to identify common contract vulnerabilities. We may use the following third-party frameworks and dependencies to perform the automated analysis:
  - Remix IDE Developer Tool
  - Open Zeppelin Code Analyzer
  - SWC Vulnerabilities Registry
  - DEX Dependencies, e.g., Pancakeswap, Uniswap
- Simulations are performed to identify centralized exploits causing contract and/or trade locks.
- A manual line-by-line analysis is performed to identify contract issues and centralized privileges. We may inspect below mentioned common contract vulnerabilities, and centralized exploits:

Centralized Exploits	○ Token Supply Manipulation ○ Access Control and Authorization ○ Assets Manipulation ○ Ownership Control ○ Liquidity Access ○ Stop and Pause Trading ○ Ownable Library Verification

Common Contract Vulnerabilities	○ Integer Overflow ○ Lack of Arbitrary limits ○ Incorrect Inheritance Order ○ Typographical Errors ○ Requirement Violation ○ Gas Optimization ○ Coding Style Violations ○ Re-entrancy ○ Third-Party Dependencies ○ Potential Sandwich Attacks ○ Irrelevant Codes ○ Divide before multiply ○ Conformance to Solidity Naming Guides ○ Compiler Specific Warnings ○ Language Specific Warnings

REPORT

- The auditing team provides a preliminary report specifying all the checks which have been performed and the findings thereof.
- The client's development team reviews the report and makes amendments to the codes.
- The auditing team provides the final comprehensive report with open and unresolved issues.

PUBLISH

- The client may use the audit report internally or disclose it publicly.

It is important to note that there is no pass or fail in the audit, it is recommended to view the audit as an unbiased assessment of the safety of solidity codes.

Table 1.0 The Full Audit Checklist

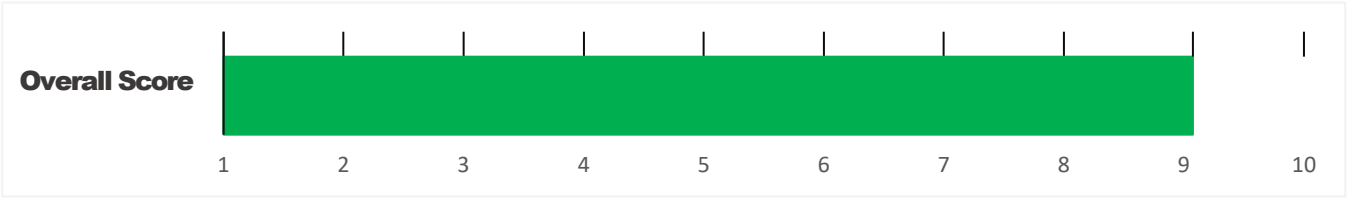
Category	Checklist Items
Basic Coding Bugs	Constructor Mismatch
	Ownership Takeover
	Redundant Fallback Function
	Overflows & Underflows
	Reentrancy
	Money-Giving Bug
	Blackhole
	Unauthorized Self-Destruct
	Revert DoS
	Unchecked External Call
	Gasless Send
	Send Instead Of Transfer
	Costly Loop
	(Unsafe) Use Of Untrusted Libraries
	(Unsafe) Use Of Predictable Variables
	Transaction Ordering Dependence
	Deprecated Uses
Semantic Consistency Checks	Semantic Consistency Checks
Advanced DeFi Scrutiny	Business Logics Review
	Functionality Checks
	Authentication Management
	Access Control & Authorization
	Oracle Security
	Digital Asset Escrow
	Kill-Switch Mechanism
	Operation Trails & Event Generation
	ERC20 Idiosyncrasies Handling
	Frontend-Contract Integration
	Deployment Consistency
	Holistic Risk Management
Additional Recommendations	Avoiding Use of Variadic Byte Array
	Using Fixed Compiler Version
	Making Visibility Level Explicit
	Making Type Inference Explicit
	Adhering To Function Declaration Strictly
	Following Other Best Practices

EXECUTIVE SUMMARY

Vital Block Security has performed the automated and manual analysis of the HODLPAD Sol code. The code was reviewed for common contract vulnerabilities and centralized exploits. Here's a quick audit summary:

Status	Critical !	Major "	Medium #	Minor $	Unknown %
Open	0	0	0	0	1
Acknowledged	0	0	0	2	0
Resolved	0	0	1	0	2
Noteworthy OnlyOwner Privileges	Set Taxes and Ratios, Airdrop, Set Protection Settings, Set Reward Properties, Set Reflector Settings, Set Swap Settings, Set Pair and Router				

HODLPAD Smart contract has achieved the following score: 90.0



Please note that smart contracts deployed on blockchains aren't resistant to exploits, vulnerabilities and/or hacks. Blockchain and cryptography assets utilize new and emerging technologies. These technologies present a high level of ongoing risks. For a detailed understanding of risk severity, source code vulnerability, and audit limitations, kindly review the audit report thoroughly.

Please note that centralization privileges regardless of their inherited risk status - constitute an elevated impact on smart contract safety and security.

CENTRALIZED PRIVILEGES

Centralization risk is the most common cause of cryptography asset loss. When a smart contract has a privileged role, the risk related to centralization is elevated.

There are some well-intended reasons have privileged roles, such as:

- **Privileged roles can be granted the power to** pause() **the contract in case of an external attack.**
- **Privileged roles can use functions like,** include(), **and** exclude() **to add or remove wallets from fees, swap checks, and transaction limits. This is useful to run a presale and to list on an exchange.**

Authorizing privileged roles to externally-owned-account (EOA) is dangerous. Lately, centralization-related losses are increasing in frequency and magnitude.

- **The client can lower centralization-related risks by implementing below mentioned practices:**
- **Privileged role's private key must be carefully secured to avoid any potential hack.**
- **Privileged role should be shared by multi-signature (multi-sig) wallets.**
- **Authorized privilege can be locked in a contract, user voting, or community DAO can be introduced to unlock the privilege.**
- **Renouncing the contract ownership, and privileged roles.**
- **Remove functions with elevated centralization risk.**

ℹ️ **Understand the project's initial asset distribution. Assets in the liquidity pair should be locked. Assets outside the liquidity pair should be locked with a release schedule.**

RISK CATEGORIES

Smart contracts are generally designed to hold, approve, and transfer tokens. This makes them very tempting attack targets. A successful external attack may allow the external attacker to directly exploit. A successful centralization-related exploit may allow the privileged role to directly exploit. All risks which are identified in the audit report are categorized here for the reader to review:

Risk Type	Definition
Critical ! 🔴	These risks could be exploited easily and can lead to asset loss, data loss, asset, or data manipulation. They should be fixed right away.
Major " 🟠	These risks are hard to exploit but very important to fix, they carry an elevated risk of smart contract manipulation, which can lead to high-risk severity.
Medium # 🟡	These risks should be fixed, as they carry an inherent risk of future exploits, and hacks which may or may not impact the smart contract execution. Low-risk re-entrancy-related vulnerabilities should be fixed to deter exploits.
Minor $ 🟢	These risks do not pose a considerable risk to the contract or those who interact with it. They are code-style violations and deviations from standard practices. They should be highlighted and fixed nonetheless.
Unknown % 🟤	These risks pose uncertain severity to the contract or those who interact with it. They should be fixed immediately to mitigate the risk uncertainty.

All statuses which are identified in the audit report are categorized here for the reader to review:

Status Type	Definition
Open	Risks are open.
Acknowledged	Risks are acknowledged, but not fixed.
Resolved	Risks are acknowledged and fixed.

Key Findings

Overall, these contracts are well-designed and engineered, though the implementation can be improved by resolving the identified issues (shown in Table 2.1), 1 medium-severity vulnerabilities, 2 low-severity vulnerabilities, and 1 informational recommen- dations.

Table 2.1: Key HODLPAD Audit Findings

ID	Severity	Title	Category	Status
BTD-001	Informational	In updateForOwner, Relevant Function Snippet	Coding Practice	Fixed
BTD-002	Low	In updateFormapping , the following equation is used inside an unchecked block	Business Logic	Fixed

Beside the identified issues, we emphasize that for any user-facing applications and services, it is always important to develop necessary risk-control mechanisms and make contingency plans, which may need to be exercised before the mainnet deployment. The risk-control mechanisms should kick in at the very moment when the contracts are being deployed on mainnet. Please refer to page 10 for details.

AUTOMATED ANALYSIS

Symbol	Definition
	Function modifies state
	Function is payable
	Function is internal
	Function is private
	Function is important

**HODLPAD **	Interface			
└	totalSupply	External !		! |NO!
└	decimals	External !		! |NO!
└	symbol	External !		! |NO!
└	name	External !		! |NO!
└	getOwner	External !		|NO!
└	balanceOf	External !		! |NO!
└	transfer	External !	"	!	|NO!
└	allowance	External !		! |NO!
└	approve	External !	"	!	|NO!
└	transferFrom	External !	"		|NO!

IFactoryV2	Interface				
└	getPair	External !		|NO!
└	createPair	External !	"	|NO!

IV2Pair	Interface				
└	factory	External !		|NO!
└	getReserves	External !		|NO!
└	sync	External !	"	|NO!

IRouter01	Interface		
└	factory	External ❗	|NO❗|
└	BSC	External ❗	|NO❗|
└	addLiquidityBNB	External ❗	# |NO❗|
└	addLiquidity	External ❗	" |NO❗|
└	swapExacBNBForTokens	External ❗	# |NO❗|
└	getAmountsOut	External ❗	|NO❗|
└	getAmountsIn	External ❗	|NO❗|
IRouter02	Interface	IRouter01	
└	swapExactTokensForBNBSupportingFeeOnTransferTokens	External ❗	" |NO❗|
└	swapExactBNBForTokensSupportingFeeOnTransferTokens	External ❗	# |NO❗|
└	swapExactTokensForTokensSupportingFeeOnTransferTokens	External ❗	" ! 🛑 |NO❗|
└	swapExactTokensForTokens	External ❗	" |NO❗|
Protections	Interface		
└	checkUser	External ❗	" ! 🛑 |NO❗|
└	setLaunch	External ❗	" ! 🛑 |NO❗|
└	setLpPair	External ❗	" ! 🛑 |NO❗|
└	**HODL**	External ❗	" |NO❗|
└	removeSniper	External ❗	" |NO❗|
Cashier	Interface		
└	setRewardsProperties	External ❗	" |NO❗|
└	tally	External ❗	" |NO❗|
└	load	External ❗	# |NO❗|
└	cashout	External ❗	" |NO❗|
└	giveMeWelfarePlease	External ❗	" |NO❗|
└	getTotalDistributed	External ❗	|NO❗|
└	getUserInfo	External ❗	|NO❗|
└	getUserRealizedRewards	External ❗	|NO❗|

| └ | getPendingRewards | External ❗ | | |NO❗ |

| └ | initialize | External ❗ | " | |NO❗ |

| └ | getCurrentReward | External ❗ | | |NO❗ |

||||||

| **SOL** | Implementation | SafeMath |||

| └ | <Constructor> | Public ❗ | | # |NO❗ |

| └ | transferOwner | External ❗ | " | | onlyOwner |

| └ | renounceOwnership | External ❗ | " | | NO❗|

| └ | setOperator | Public ❗ | " | |NO❗ |

| └ | renounceOriginalDeployer | External ❗ | " | |NO❗ |

| └ | <Receive Ether> | External ❗ | | # |NO❗ |

| └ | totalSupply | External ❗ | | |NO❗ |

| └ | decimals | External ❗ | | |NO❗ |

| └ | symbol | External ❗ | | |NO❗ |

| └ | name | External ❗ | | |NO❗ |

| └ | getOwner | External ❗ | | ! |NO❗ |

| └ | balanceOf | Public ❗ | | ! |NO❗ |

| └ | allowance | External ❗ | | ! |NO❗ |

| └ | approve | External ❗ | " | ! 🛑 |NO❗ |

| └ | _approve | Internal $ | " | | |

| └ | approveContractContingency | Public ❗ | " | ! 🛑 | onlyOwner |

| └ | transfer | External ❗ | " | |NO❗ |

| └ | transferFrom | External ❗ | " | |NO❗ |

| └ | setNewRouter | External ❗ | " | | onlyOwner |

| └ | setLpPair | External ❗ | " | | onlyOwner |

| └ | setInitializers | External ❗ | " | | onlyOwner |

| └ | isExcludedFromFees | External ❗ | | |NO❗ |

| └ | isExcludedFromDividends | External ❗ | | |NO❗ |

| └ | isExcludedFromProtection | External ❗ | | |NO❗ |

| └ | setDividendExcluded | Public ❗ | " | | onlyOwner |

| └ | setExcludedFromFees | Public ❗ | " | | onlyOwner |

OPTIMIZATIONS | HODLPAD

ID	Title	Category	Status
BTV	**Logarithm Refinement Optimization**	Gas Optimization	Acknowledged
BOP	**Checks Can Be Performed Earlier**	Gas Optimization	Acknowledged
BDP	**Unnecessary Use Of SafeMath**	Gas Optimization	Acknowledged
BWY	**Struct Optimization**	Gas Optimization	Acknowledged
BGT	**Unused State Variable**	Gas Optimization	Acknowledged

General Detectors

Transfer Limit

The max/min amount of token transferred can be limited (max could be set to 0).

Attention Required

Misuse of Boolean Constant

The usage of specific true/false values in this contract may lead to errors.

Attention Required

Division Before Multiplication

The order of operations used may result in a loss of precision.

Attention Required

- No compiler version inconsistencies found
- No unchecked call responses found
- No vulnerable self-destruct functions found
- No assertion vulnerabilities found
- No old solidity code found
- No external delegated calls found
- No external call dependency found
- No vulnerable authentication calls found
- No invalid character typos found
- No RTL characters found
- No dead code found
- No risky data allocation found
- No uninitialized state variables found
- No uninitialized storage variables found
- No vulnerable initialization functions found
- No risky data handling found
- No number accuracy bug found
- No out-of-range number vulnerability found
- No map data deletion vulnerabilities found
- No tautologies or contradictions found
- No faulty true/false values found
- No innacurate divisions found
- No redundant constructor calls found
- No vulnerable transfers found
- No vulnerable return values found
- No uninitialized local variables found
- No default function responses found
- No missing arithmetic events found
- No missing access control events found
- No redundant true/false comparisons found
- No state variables vulnerable through function calls found
- No buggy low-level calls found
- No expensive loops found
- No bad numeric notation practices found
- No missing constant declarations found
- No missing external function declarations found
- No vulnerable payable functions found
- No vulnerable message values found

Vulnerability Run check

HODLpad / HODL

20/02/2024 07:37 PM UTC+8

Contract information

total amount	100000000
transaction tax	Buy 0.00 %/ Sell 0.00 %

Risk detection

Contract source code has been verified

This token contract is open source, please view the contract code for details. Token contracts that do not provide source code are likely to have malicious functions and defraud users of their assets.

Additional issuance function

The contract may contain additional issuance features that may generate large amounts of tokens, causing significant fluctuations in token prices. It is recommended to confirm with the project team whether it complies with the token issuance instructions.

Owner cannot change balance

The contract owner does not have the right to modify the token balance of other addresses.

no agent

There is no agency in the contract. A proxy contract means that the owner of the contract can modify the functionality of the token and potentially affect the price.

Contract rights cannot be regained (false abandonment)

If this function exists, it is possible for the project owner to regain ownership even if he abandons it.

Pixiu Risks

This doesn't seem to be Pixiu

We found no code blocking the token sale.

no anti-whale

There is no limit on the number of token transactions. The number of fraudulent token transactions may be limited (Pixiu risk).

No whitelist function

Discover whitelist functions

No transaction cooldown

The token contract does not have a transaction cooling function. If there is a transaction cooling function, users will not be able to sell tokens within a certain period of time or generate blocks after purchasing.

No blacklist function

Does not include whitelist functionality.

HTY-01 Key Findings

Category	Severity	Location	Status
Status Mathematical Operations	Low	Hodlpad.sol 297-308	Informational

Description

In **updateForMinter ,** the following equation is used inside an unchecked block

```
Mint function: hodlpad.mint(address,uint256) (hodlpad.sol#297-308) - in internal call: super._mint(to,amount) -
In expression: _balances[account] += amoun
```

Minter can issue more HODLPAD Token indefinitely.
Note that as of the date of publishing, the above review reflects the current understanding of known security patterns as they relate to the **HODL** contract.

The contract may contain additional issuance functions, which could maybe generate a large number of tokens, resulting in significant fluctuations in token prices. It is recommended to confirm with the project team whether it complies with the token issuance instructions

Recommendation

Incorporate the following verification within process approve account to confirm that the token account's associated mint aligns with the mint for which the confidential transfer approval is sought.

HNY-02 Key Findings

Category	Severity	Target	Status
Business Logic	Medium	Contract/Hodlpad.sol	Low

Description

In **updateForOwner**, Relevant Function Snippet

```
    function owner() public view virtual returns (address) {
     return _owner;
}

function _checkOwner() internal view virtual {
    require(owner() == _msgSender(), "Ownable: caller is not the owner");
}
```

Description

For Ownership efficiency, the Hodlpad Team is engineered with the reserve cache mechanism, which necessi-tates the common steps to be followed when operating with the reserve Ownership data in different scenarios, including the tax generation, update, and eventual persistence.

Recommendation

Revise the above functions to following a consistent approach to use the reserve cache mechanism.

Vulnerability Scan

REENTRANCY

No reentrancy risk found

Severity	Major
Confidence Parameter	Certain

Vulnerability Description

Mintable: Minting in Solidity refers to the process of creating new tokens in a blockchain contract, typically achieved through function calls within the smart contract's code. **(This is Essentially normal for most contracts)**

Scanning Line:

```
abstract contract Ownable is Context {
    address private _owner;

    event OwnershipTransferred(address indexed previousOwner, address
indexed newOwner);
```

VitalBlock

VERIFIED CONTRACT:

https://bscscan.com/token/0x34bA6ED408D6AEA512a0dd7583D4871e8d81f967#code

Audited Files

Hodlpad.sol

Contract Creator Address

0x99C9906E8B41B122BB0A4ebc41246D661BA17Ed8

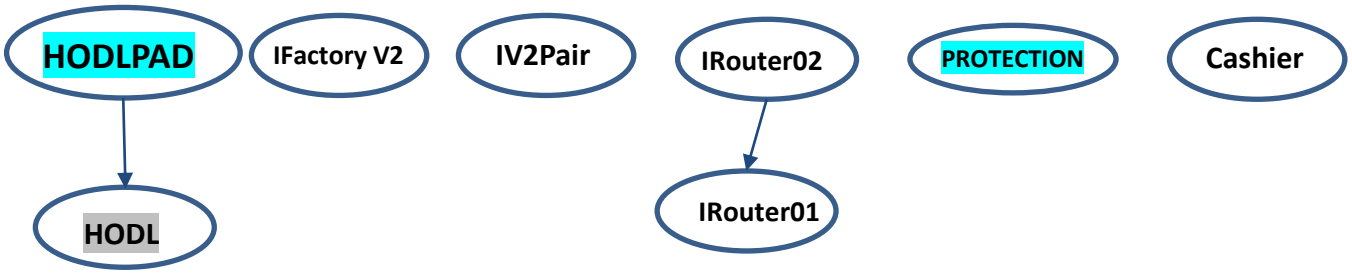
Deployed Contracts:

0x34bA6ED408D6AEA512a0dd7583D4871e8d81f967

Creator TXH Contracts:

https://bscscan.com/tx/0x46eba5c749484e54d86cdae35bb06444254fc7769910580976ac17ba33977508

INHERITANCE GRAPH



Identifier	Definition	Severity
CEN-12	Centralization privileges of HODLPAD	Medium

Vulnerability 0 : No important security issue detected.
Threat level: Low

```
Home  hodlpad.sol 1
17  * `onlyOwner`, which can be applied to your functions to restrict their use to
18  * the owner.
19  */
20  abstract contract Ownable is Context {
21      address private _owner;
22
23      event OwnershipTransferred(address indexed previousOwner, address indexed newOwner);
24
25      /**
26       * @dev Initializes the contract setting the deployer as the initial owner.
27       */
28      constructor() {
29          _transferOwnership(_msgSender());
30      }
31
32      /**
33       * @dev Throws if called by any account other than the owner.
34       */
35      modifier onlyOwner() {
36          _checkOwner();
37          _;
38      }
39
40      /**
41       * @dev Returns the address of the current owner.
```

ISSUES CHECKING STATUS

	Issue Description	Checking Status
1.	Compiler errors.	PASSED
2.	Race Conditions and reentrancy. Cross-Function Race Conditions.	PASSED
3.	Possible Delay In Data Delivery.	PASSED
4.	Oracle calls.	PASSED
5.	Front Running.	PASSED
6.	Sol. Dependency.	PASSED
7.	Integer Overflow And Underflow.	PASSED
8.	DoS with Revert.	PASSED
9.	Dos With Block Gas Limit.	PASSED
10.	Methods execution permissions.	PASSED
11.	Economy Model of the contract.	PASSED
12.	The Impact Of Exchange Rate On the solidity Logic.	PASSED
13.	Private use data leaks.	PASSED
14.	Malicious Event log.	PASSED
15.	Scoping and Declarations.	PASSED
16.	Uninitialized storage pointers.	PASSED
17.	Arithmetic accuracy.	PASSED
18.	Design Logic.	PASSED
19.	Cross-Function race Conditions	PASSED
20.	Save Upon solidity contract Implementation and Usage.	PASSED
21.	Fallback Function Security	PASSED

AUDIT RESULT

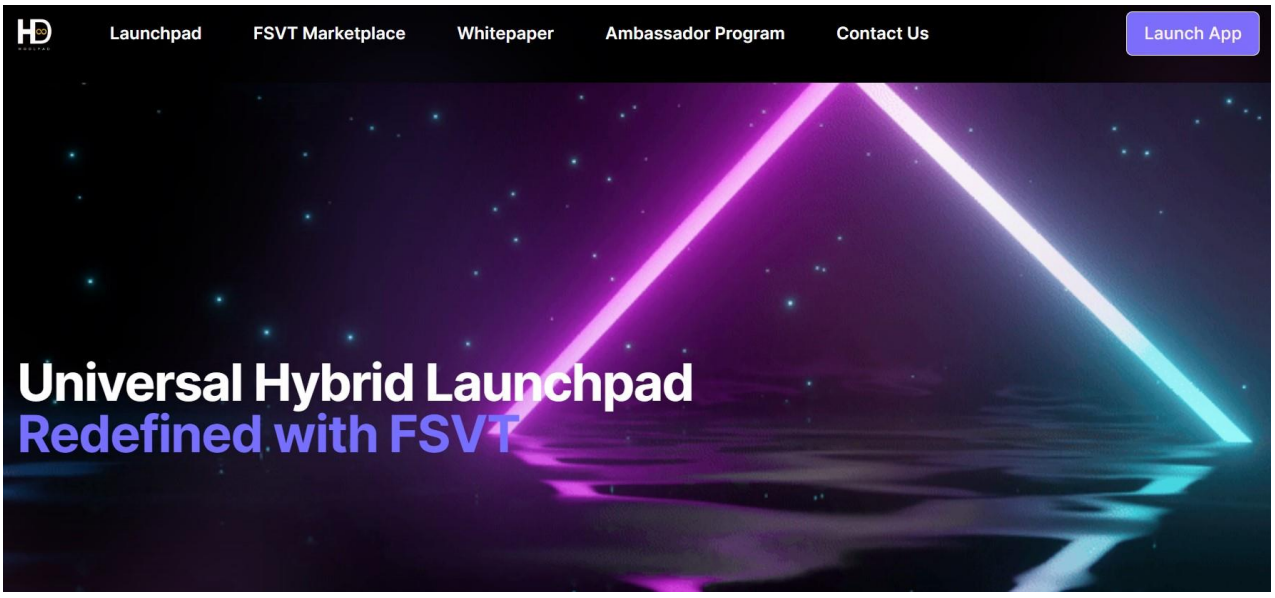
PASSED

MANUAL REVIEW

HODLPad operates on the BNB Chain (BSC) network for the time being, there are plans to expand and have offerings on other chains such as Bitcoin (BRC), Ethereum and Solana Network. This has been carefully structured to create an inclusive community. DeFi users on all networks will be able to connect their wallets and participate on HODLPad

TOKEN NAME: HODLPAD
Ticker: HODL
DECIMALS: 18
Total Supply: 100.000.000

The HODLPAD Platform Is Launched On The BSC Network



Identifier	Definition	Severity
CEN-02	Initial asset distribution	Minor

All of the initially minted assets are sent to the contract deployer when deploying the contract. This is Normal for most deployer and/or contract owner .

```
function transferOwnership(address newOwner) public virtual onlyOwner {
        require(newOwner != address(0), "Ownable: new owner is the zero address");
        _transferOwnership(newOwner);
    }
```

RECOMMENDATION

Project stakeholders should be consulted during the initial asset distribution process.

RECOMMENDATION

Deployer and/or contract owner private keys are secured carefully.

Please refer to PAGE-7 CENTRALIZED PRIVILEGES for a detailed understanding.

ALLEVIATION

The HODLPAD project team understands the centralization risk. Some functions are provided privileged access to ensure a good runtime behavior in the project

References

1 MITRE. CWE-1041: Use of Redundant Code. https://cwe.mitre.org/data/definitions/1041.html.

2 MITRE. CWE-1099: Inconsistent Naming Conventions for Identifiers. https://cwe.mitre.org/data/definitions/1099.html.

3 MITRE. CWE-561: Dead Code. https://cwe.mitre.org/data/definitions/561.html.

4 MITRE. CWE-563: Assignment to Variable without Use. https://cwe.mitre.org/data/definitions/563.html.

5 MITRE. CWE-663: Use of a Non-reentrant Function in a Concurrent Context. https://cwe.mitre.org/data/definitions/663.html.

6 MITRE. CWE-837: Improper Enforcement of a Single, Unique Action. https://cwe.mitre.org/data/definitions/837.html.

7 MITRE. CWE-841: Improper Enforcement of Behavioral Workflow. https://cwe.mitre.org/data/definitions/841.html.

8 MITRE. CWE CATEGORY: Bad Coding Practices. https://cwe.mitre.org/data/definitions/1006.html.

9 MITRE. CWE CATEGORY: Business Logic Errors. https://cwe.mitre.org/data/definitions/840.html.

10 MITRE. CWE CATEGORY: Concurrency. https://cwe.mitre.org/data/definitions/557.html.

11 MITRE. CWE VIEW: Development Concepts. https://cwe.mitre.org/data/definitions/699.html.

12 OWASP. Risk Rating Methodology. https://www.owasp.org/index.php/OWASP_Risk_Rating_Methodology.

Identifier	Definition	Severity
COD-10	Third Party Dependencies	Minor

Smart contract is interacting with third party protocols e.g., Pancakeswap router, cashier contract, protections contract. The scope of the audit treats third party entities as black boxes and assumes their functional correctness. However, in the real world, third parties can be compromised, and exploited. Moreover, upgrades in third parties can create severe impacts, e.g., increased transactional fees, deprecation of previous routers, etc.

RECOMMENDATION

Inspect and validate third party dependencies regularly, and mitigate severe impacts whenever necessary.

DISCLAIMERS

Vital Block Security provides the easy-to-understand audit of Solidity, Move and Raw source codes (commonly known as smart contracts).

The smart contract for this particular audit was analyzed for common contract vulnerabilities, and centralization exploits. This audit report makes no statements or warranties on the security of the code. This audit report does not provide any warranty or guarantee regarding the absolute bug-free nature of the smart contract analyzed, nor do they provide any indication of the client's business, business model or legal compliance. This audit report does not extend to the compiler layer, any other areas beyond the programming language, or other programming aspects that could present security risks. Cryptographic tokens are emergent technologies, they carry high levels of technical risks and uncertainty. You agree that your access and/or use, including but not limited to any services, reports, and materials, will be at your sole risk on an as-is, where-is, and as-available basis. This audit report could include false positives, false negatives, and other unpredictable results.

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ABOUT VITAL BLOCK

Vital Block provides intelligent blockchain Security Solutions. We provide solidity and Raw Code Review, testing, and auditing services. We have Partnered with 15+ Crypto Launchpads, audited 50+ smart contracts, and analyzed 200,000+ code lines. We have worked on major public blockchains e.g., Ethereum, Binance, Cronos, Doge, Polygon, Avalanche, Metis, Fantom, Bitcoin Cash, Aptos, Oasis, etc.

Vital Block is Dedicated to Making Defi & Web3 A Safer Place. We are Powered by Security engineers, developers, UI experts, and blockchain enthusiasts. Our team currently consists of 5 core members, and 4+ casual contributors.

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