

# SMART CONTRACT AUDIT

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PREPARED FOR

TRUMP CASH STAKE AND BOND CONTRACTS



# **INTRODUCTION**

Auditing Firm	InterFi Network
Client Firm	Trump Cash
Methodology	Automated Analysis, Manual Code Review
Language	Solidity
Stake Contract	0xD75A90Cd8b44b099220dAd95aaffB9cB6B87a296
Bond Contract	0x63fbFCbbaBeA2C710b893e768d7f495083D84399
Blockchain	Ethereum Chain
Centralization	Active Ownership T INTERFI INTERFI INTERFI INTERFI DENTIAL AUDIT REPORT CONFIDENTIAL AUDIT REPORT
Commit	bel301aeb424250d1f1afd0eca09c7f1200d4efd
Website	https://www.trumpcash.org/
Telegram	https://t.me/TrumpCashEth/
X (Twitter)	https://x.com/trumpcasheth/
Report Date	September 03, 2024

I Verify the authenticity of this report on our website: <a href="https://www.github.com/interfinetwork">https://www.github.com/interfinetwork</a>



# **EXECUTIVE SUMMARY**

InterFi has performed the automated and manual analysis of solidity codes. Solidity codes were reviewed for common contract vulnerabilities and centralized exploits. Here's a quick audit summary:

Status	Critical 🛑	Major 🛑	Medium 🖯	Minor	Unknown
Open	0	0	2	4	1
Acknowledged	1	1	2	0	1
Resolved	0	1	0	0	0
Noteworthy Functions	claim, stake, bond, extractUser				
Noteworthy Privileges	setPool, setURI, extractUser, pause, unpause, recoverRewards, toggleAuto, extractBonds				

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.



# **TABLE OF CONTENTS**

TABLE OF CONTENTS	4
SCOPE OF WORK	
AUDIT METHODOLOGY	
RISK CATEGORIES	
CENTRALIZED PRIVILEGES	9
AUTOMATED ANALYSIS	10
NHERITANCE GRAPH	
MANUAL REVIEW	
DISCLAIMERS	28
ABOUT INTERFI NETWORK	31



# **SCOPE OF WORK**

InterFi was consulted by Trump Cash to conduct the smart contract audit of their solidity source codes.

The audit scope of work is strictly limited to mentioned solidity file(s) only:

- Vance.sol
- Vivek.sol
- If source codes are not deployed on the main net, they can be modified or altered before mainnet deployment. Verify the contract's deployment status below:

Public Contract Link				
https://etherscan.io/addres	s/0xD75A90Cd8b44b099220dAd95aaffB9cB6B87a296#code			
AUDIT REPORT CONFIDENTIAL Contract Name	NTERF INTERF INTERF INTERF INTERF AUDIT REPORT CONFIDENTIAL AUDIT REPORT Vance			
Compiler Version	0.8.26			
License	MIT			

Public Contract Link			
https://etherscan.io/address/0x63fbFCbbaBeA2C710b893e768d7f495083D84399#code			
Contract Name	Vivek		
Compiler Version 0.8.26			
License MIT			



# **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 InterFi's 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:

	o Token Supply Manipulation
	o Access Control and Authorization
	o Assets Manipulation
Controlized Evaleite	o Ownership Control
Centralized Exploits	o Liquidity Access
	<ul> <li>Stop and Pause Trading</li> </ul>
	<ul> <li>Ownable Library Verification</li> </ul>



	0	Integer Overflow
	0	Lack of Arbitrary limits
	0	Incorrect Inheritance Order
	0	Typographical Errors
	0	Requirement Violation
	0	Gas Optimization
	0	Coding Style Violations
Common Contract Vulnerabilities	0	Re-entrancy
	0	Third-Party Dependencies
	0	Potential Sandwich Attacks
	0	Irrelevant Codes
	0	Divide before multiply
	FI IN	Conformance to Solidity Naming Guides  Compiler Specific Warnings
	0	Language Specific Warnings

#### **REPORT**

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

#### **PUBLISH**

- o 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.



# **RISK CATEGORIES**

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:

Risk Type	Definition
Critical •	These risks pose immediate and severe threats, such as asset theft, data manipulation, or complete loss of contract functionality. They are often easy to exploit and can lead to significant, irreparable damage. Immediate fix is required.
Major	These risks can significantly impact code performance and security, and they may indirectly lead to asset theft and data loss. They can allow unauthorized access or manipulation of sensitive functions if exploited. Fixing these risks are important.
Medium O	These risks may create attack vectors under certain conditions. They may enable minor unauthorized actions or lead to inefficiencies that can be exploited indirectly to escalate privileges or impact functionality over time.
Minor •	These risks may include inefficiencies, lack of optimizations, code-style violations.  These should be addressed to enhance overall code quality and maintainability.
Unknown	These risks pose uncertain severity to the contract or those who interact with it.  Immediate fix is required to mitigate risk uncertainty.

All statuses which are identified in the audit report are categorized here:

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



# **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:

- o 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.

- o The client can lower centralization-related risks by implementing below mentioned practices:
- o 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.
- o Renouncing the contract ownership, and privileged roles.
- o Remove functions with elevated centralization risk.
- 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.



# **AUTOMATED ANALYSIS**

Symbol	Definition
	Function modifies state
<b>Es</b>	Function is payable
	Function is internal
	Function is private
Ţ	Function is important

```
| **Stake** | Implementation | ERC721Enumerable, Ownable, Pausable |||
| └ | <Constructor> | Public ! | ● | ERC721 Ownable |
| L | setPool | External ! | 🔎 | onlyOwner |
| └ | _baseURI | Internal 🗎 | | |
| L | setURI | External ! | ● | onlyOwner |
| L | stake | External ! | 📦 | whenNotPaused |
| └ | claim | External ! | ● | whenNotPaused |
| L | _withdraw | Internal 🔒 | 🛑 | |
| └ | extractUser | External ! | ● | onlyOwner |
| └ | pause | External ! | ● | onlyOwner |
| L | unpause | External ! | 📦 | onlyOwner |
| L | addRewards | External ! | • | NO! |
| └ | recoverRewards | External ! | ● | onlyOwner |
| L | stakes | External ! | NO! |
```

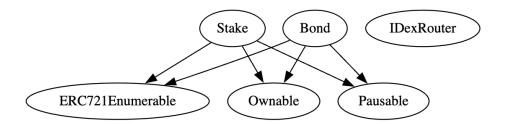




```
| | | | | | | |
| **Bond** | Implementation | ERC721Enumerable, Ownable, Pausable |||
| └ | <Constructor> | Public ! | ● | ERC721 Ownable |
| L | setPool | External ! | 🔎 | onlyOwner |
| └ | _baseURI | Internal 🗎 | | |
| L | setURI | External ! | 🔴 | onlyOwner |
| L | getTokenAmount | Public ! | NO! |
| L | bond | External ! | 🐸 | whenNotPaused |
| └ | claim | External ! | ● | whenNotPaused |
| L | extractUser | External ! | 🛑 | onlyOwner |
| └ | pause | External ! | ● | onlyOwner |
| L | unpause | External ! | 🔎 | onlyOwner |
| └ | toggleAuto | External ! | ● | onlyOwner |
| L | addRewards | External ! | 🔎 |NO! |
| └ | recoverRewards | External ! | ● | onlyOwner |
| └ | extractBonds | External ! | ● | onlyOwner |
| L | bonds | External ! | NO! |
```



# **INHERITANCE GRAPH**







# **MANUAL REVIEW**

Identifier	Definition	Severity
CEN-01	Centralized privileges	
CEN-01-06	Centralized role can pause smart contract	Critical 🔵
CEN-01-09	Centralized role can withdraw arbitrary amounts without specific checks	

Important only0wner centralized privileges are listed below:

setPool()
setURI()
extractUser()
pause()
unpause()
recoverRewards()

toggleAuto()
extractBonds()



Securing private keys or access credentials of deployers, contract owners, operators, and other roles with privileged access is crucial to prevent single points of failure that can compromise contract security.

Use of multi-signature wallets is recommended – These wallets require multiple authorizations to execute sensitive contract functions, reducing the risk associated with single-party control.

Use of decentralized governance model is recommended – This model allows token holders and stakeholders to actively participate in decision-making, such as contract upgrades and parameter adjustments, enhancing overall security and resilience.







#### **ACKNOWLEDGEMENT**

Trump Cash team argued that centralized and controlled privileges are used as required.





Identifier	Definition	Severity
CEN-04	Auto deposit risk	Medium •

autoDeposit() feature in Bond contract allows automatic forwarding of Ether to the owner's address.

This can be risky and potentially abused.

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#### **RECOMMENDATION**

Introduce confirmations or additional checks to secure autoDeposit() process.



Identifier	Definition	Severity
LOG-01	Insufficient input restrictions	Medium 🔵

Below mentioned functions are set without sufficient input restrictions:

setPool()
stake()
bond()
extractUser()
addRewards()
extractBonds()

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#### **RECOMMENDATION**

Add require statements to validate inputs and states effectively. For example, checking that pool rates and lock times are within certain bounds.

#### **ACKNOWLEDGEMENT**

Trump Cash team has added require statements to some of the discussed functions.



Identifier	Definition	Severity
LOG-02	Potential front-running	Medium

Front-running is a risk when transactions can be predictably profitable if placed before another user's transaction. Functions like stake(), claim(), addRewards(), and bond() can be targets for front-running because they involve financial transactions based on contract state that might be advantageous if ordered in a specific way.

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#### **RECOMMENDATION**

Functions that execute critical state changes should enforce minimum output thresholds. Setting these minimums above zero can deter malicious actors by reducing the predictability and profitability of front-running strategies.

Implement commit-reveal schemes or transaction ordering to protect against front-running.

#### **ACKNOWLEDGEMENT**

Front-running is not avoidable on public blockchains. Trump Cash team commented that, most EVM chains are prone to some sort of front-running and external manipulation.



Identifier	Definition	Severity
LOG-03	Re-entrancy	Below ▼
LOG-04	Checks-Effects-Interactions	pelow .

Below mentioned functions are used without Re-entrancy Guard:

claim()
stake()

bond()

extractUser()

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#### **RECOMMENDATION**

Use Checks-Effects-Interactions (CEI) pattern when transferring control to external entities. This design pattern ensures that all state changes are completed before external interactions occur. Additionally, implement re-entrancy guard to block recursive calls from external contracts.

#### **RESOLUTION**

Trump Cash team has added custom re-entrancy guard to above mentioned functions.



Identifier	Definition	Severity
LOG-03-01	Re-entrancy	Medium 🔵

Below mentioned functions are used with custom Re-entrancy Guard:

claim()
stake()

bond()

extractUser()

It is recommended to use well-used OpenZeppelin Re-entrancy Guard to protect against re-entrancy.

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#### **RECOMMENDATION**

Use well-used OpenZeppelin Re-entrancy Guard to protect against re-entrancy.



Identifier	Definition	Severity
LOG-05	Logical inconsistencies	Minor •

In Stake contract, there's a mismatch in how poolTotal and deposits are managed. This discrepancy will lead to inconsistencies in tracking the total staked amount.

Use of call{value: ...} without specifying gas can lead to DDoS or similar gas exhaustion related vulnerabilities.

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#### **RECOMMENDATION**

Fix logical inconsistencies.



Identifier	Definition	Severity
LOG-06	Incorrect reward calculation	Major 🔵

In Bond contract, reward calculation using rewardPool = amount; directly reduces reward pool without ensuring that rewards being deducted were meant to be given out at that time, potentially allowing for draining of the pool in certain conditions.

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#### **RECOMMENDATION**

Implement checks to ensure that the reductions are accurate and expected.

#### **RESOLUTION**

Trump Cash team has added payoutTotal unsigned integer for payout related calculation, that lets deduction of rewards.



Identifier	Definition	Severity
COD-02	Timestamp dependence	Minor •

Be aware that the timestamp of the block can be manipulated by miners. Since miners can slightly adjust the timestamp, they may influence contract outcomes to their advantage.

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#### **RECOMMENDATION**

Avoid relying solely on timestamp of the block for critical contract functions. Follow 15 seconds rule, and scale time dependent events accordingly.



Identifier	Definition	Severity	
COD-10	Direct and indirect dependencies	Unknown	

Smart contract is interacting with third party protocols e.g., DEX routers, external contracts, web3 applications, *OpenZeppelin* upgradeable and ERC20 libraries. The scope of the audit treats these entities as black boxes and assumes their functional correctness. However, in the real world, all of them can be compromised, and exploited. Moreover, upgrades in these entities can create severe impacts, e.g., increased transactional fees, deprecation of previous routers, etc.

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#### **RECOMMENDATION**

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

#### **ACKNOWLEDGEMENT**

Trump Cash team will inspect third party dependencies regularly, and push upgrades whenever required.



Identifier	Definition	Severity
COD-11	Insufficient access control mechanism	Major 🔵

Below mentioned function is implemented with sufficient role-based access control (RBAC): addRewards()

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#### **RECOMMENDATION**

Implement robust role-based access control mechanisms to ensure that only authorized users have the ability to execute sensitive operations.

#### **ACKNOWLEDGEMENT**

Trump Cash team argued that their logic design must allow any user to add rewards, hence role-based access control is not added to this function.



Identifier	Definition	Severity
COD-12	Lack of event-driven architecture	Minor •

Smart contract uses function calls to update state, which can make it difficult to track and analyze changes to the contract over time.

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#### **RECOMMENDATION**

Use events to track state changes. Events improve transparency and provide a more granular view of contract activity.



Identifier	Definition	Severity
COD-13	Note regarding flash loan attack	Unknown

Flash loans are typically exploited in contracts that rely on external state, such as the prices of tokens or the balances of accounts, which can be manipulated temporarily within a single transaction. Bond contract uses a DexRouter to determine token amounts via getTokenAmount. When this function is used to influence critical logic without proper checks, it can be manipulated through a flash loan attack. For instance, acquiring a large number of tokens to temporarily manipulate the price or liquidity can mislead the contract into issuing more tokens than appropriate.

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#### **RECOMMENDATION**

Add additional checks to ensure price stability or use oracles with time-weighted average prices to mitigate price manipulation risks.



Identifier	Definition	Severity
VOL-01	Irrelevant code	Minor •

Redundant code is found in across the smart contract. Remove redundant code.

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#### **RECOMMENDATION**

Remove redundant and dead code.



# **DISCLAIMERS**

InterFi Network provides the easy-to-understand audit of solidity 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 INTERFI NETWORK**

InterFi Network provides intelligent blockchain solutions. We provide solidity development, testing, and auditing services. We have developed 150+ solidity codes, audited 1000+ smart contracts, and analyzed 500,000+ code lines. We have worked on major public blockchains e.g., Ethereum, Binance, Cronos, Doge, Polygon, Avalanche, Metis, Fantom, Bitcoin Cash, Velas, Oasis, etc.

InterFi Network is built by engineers, developers, UI experts, and blockchain enthusiasts. Our team currently consists of 4 core members, and 6+ casual contributors.

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SMART CONTRACT AUDITS | SOLIDITY DEVELOPMENT AND TESTING RELENTLESSLY SECURING PUBLIC AND PRIVATE BLOCKCHAINS