

Audit Report Viking DEX

June 2024

Network Stacks

Identifier SP31BV8VGBSGAR453P6PEQ9SB3AMYMZ1ATBPWDGKY.viking

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Table of Contents

Table of Contents	1
Review	2
Audit Updates	2
Source Files	2
Overview	3
Findings Breakdown	4
Diagnostics	5
ITA - Initial Token Allocation	6
Description	6
Recommendation	6
MMCR - Metadata Mutation Centralization Risk	7
Description	7
Recommendation	7
NMA - Notification Mechanism Absence	8
Description	8
Recommendation	8
Functions Analysis	9
Summary	9
Disclaimer	11
About Cyberscope	12



Review

Explorer	https://explorer.hiro.so/txid/SP31BV8VGBSGAR453P6PEQ9SB3 AMYMZ1ATBPWDGKY.viking?chain=mainnet
Contract Identifier	SP31BV8VGBSGAR453P6PEQ9SB3AMYMZ1ATBPWDGKY.viki
Network	Stacks
Symbol	VIKI
Decimals	6
Total Supply	1,000,000,000

Audit Updates

Initial Audit	07 Jun 2024
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Source Files

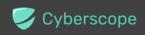
Filename	SHA256
odin-tkn.clar	10a3dc51d0281bea618c9b49f3e23c8bb843afa53b41ba1e2a8a8f65d4 229bd6



Overview

The smart contract is an implementation of a fungible token on the Stacks blockchain, adhering to the SIP-010 standard. It defines a fungible token named "Viking" with the symbol "VIKI" and a precision of 6 decimal places. The contract includes standard functionalities for token transfer, balance inquiry, total supply check, and token burning. Specifically, it allows users to transfer tokens to other principals, including an optional memo for each transfer. The contract owner has the ability to set and update the token's metadata URI, which provides additional information about the token.

To facilitate these operations, the contract implements public functions such as transfer, get-name, get-symbol, get-decimals, get-balance, get-total-supply, set-token-uri, and burn. Additionally, it includes utility functions like send-many, which allows batch transfers to multiple recipients, and private helper functions check-err, send-token, and send-token-with-memo to manage internal logic. Upon deployment, the contract mints a predefined number of tokens to the contract owner. The design ensures that only authorized actions are performed by incorporating necessary checks and assertions, particularly around the ownership and authorization mechanisms.



Findings Breakdown



Severity	Unresolved	Acknowledged	Resolved	Other
Critical	0	0	0	0
Medium	0	0	0	0
Minor / Informative	3	0	0	0



Diagnostics

CriticalMediumMinor / Informative

Severity	Code	Description	Status
•	ITA	Initial Token Allocation	Unresolved
•	MMCR	Metadata Mutation Centralization Risk	Unresolved
•	NMA	Notification Mechanism Absence	Unresolved



ITA - Initial Token Allocation

Criticality	Minor / Informative
Location	viking.clar#L94
Status	Unresolved

Description

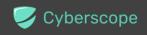
During the deployment of the contract, the account

SP31BV8VGBSGAR453P6PEQ9SB3AMYMZ1ATBPWDGKY acquires the entire token supply of the token. This concentration of 100% of the token supply in some addresses raises significant concerns about centralization within the token's ecosystem. Such a scenario creates a risk of market manipulation and could lead to other adverse effects, potentially undermining the token's decentralized nature and the overall health of its ecosystem.

```
(begin
  (try! (ft-mint? viking u1000000000000 (var-get
contract-owner))
)
```

Recommendation

It is recommended to distribute the tokens more broadly to achieve a more decentralized token holding structure. This can mitigate the risks associated with centralization and ensure a more stable and secure ecosystem for all participants. If the new addresses consist of a team's wallet address, then the team should carefully manage the private keys of those accounts. We strongly recommend implementing a robust security mechanism to prevent a single user from accessing the contract admin functions, such as a multi-sign wallet so that many addresses will confirm the action.



MMCR - Metadata Mutation Centralization Risk

Criticality	Minor / Informative
Location	viking.clar#L49
Status	Unresolved

Description

The contract configuration grants the contract creator exclusive control over the token-uri variable. This allows for modifications to the URI that directs users to the token's metadata. The fact that the contract creator has the authority to modify the metadata URI, leaves the token vulnerable to potential risks, as the designated address retains the capability to make changes to the metadata. This could lead to unauthorized or malicious modifications that might compromise the integrity and intended functionality of the token.

```
(define-public (set-token-uri (value (string-utf8 256)))
    (if
          (is-eq tx-sender (var-get contract-owner))
               (ok (var-set token-uri (some value)))
                (err ERR-UNAUTHORIZED)
    )
)
```

Recommendation

To address this finding and mitigate centralization risks, it is recommended to evaluate the feasibility of migrating critical configurations and functionality into the contract's codebase itself. This approach would reduce external dependencies and enhance the contract's self-sufficiency. It is essential to carefully weigh the trade-offs between external configuration flexibility and the risks associated with centralization.



NMA - Notification Mechanism Absence

Criticality	Minor / Informative
Location	viking.clar#L49
Status	Unresolved

Description

The smart contract implementation allows the contract owner to update the token-uri, which contains metadata about the token. However, this implementation does not include a notification mechanism to inform users and external systems of such updates. The absence of a notification system means that any changes to the token metadata URI can occur without any alert or record, potentially leading to a lack of transparency and traceability. This could result in users and dependent systems being unaware of critical updates to the token metadata, which could affect the token's usability and trustworthiness.

```
(define-public (set-token-uri (value (string-utf8 256)))
    (if
          (is-eq tx-sender (var-get contract-owner))
               (ok (var-set token-uri (some value)))
                (err ERR-UNAUTHORIZED)
)
```

Recommendation

To enhance transparency and ensure that all stakeholders are informed of changes to the token metadata, it is recommended to implement a notification mechanism within the set-token-uri function. This can be achieved by including a print statement that logs a notification whenever the token-uri is updated. The notification should contain relevant details such as the contract ID and the nature of the update. This will enable systems and users to be aware of and react to changes in the token metadata, thereby improving the overall robustness and trust in the contract.



Functions Analysis

Contract	Туре	Bases		
	Function Name	Visibility	Mutability	Modifiers
viking	Implementation			
	transfer	Public	✓	tx-sender
	get-name	Public		-
	get-symbol	Public		-
	get-decimals	Public		-
	get-balance	Public		-
	get-total-supply	Public		-
	set-token-uri	Public	1	contract-owner
	get-token-uri	Public		-
	send-many	Public	1	-
	check-err	Private	1	-
	send-token	Private	1	-
	send-token-with-memo	Private	1	-
	burn	Public	1	tx-sender



Summary

Viking DEX implements a token mechanism on the Stacks Blockchain. This audit investigates security issues, business logic concerns and potential improvements.



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Cyberscope is one of the leading smart contract audit firms in the crypto space and has built a high-profile network of clients and partners.



The Cyberscope team

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