



Cyberscope

# Audit Report

## **Solex Launch**

January 2024

SHA256      f8285ed2b4421e3efaa10270d0a0e2839437c74e243d0beb95829dfb6bbf7128

Audited by   © cyberscope

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## Review

Network	SOL
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## Audit Updates

Initial Audit	25 Jan 2024
Corrected Phase 2	30 Jan 2024

## Source Files

Filename	SHA256
programs/solex-contrib/src/lib.rs	f8285ed2b4421e3efaa10270d0a0e2839437c74e243d0beb95829dfb6b bf7128

# Overview

This document presents the overview of the audit conducted for the "Solex launch" project and the "solex\_contrib" program. The purpose of this audit is to identify and address security vulnerabilities, provide recommendations for code improvements, and ensure the robustness of the codebase. Recommendations have been provided to enhance security and functionality.

## "solex\_contrib" Program Functionality

### Presale Management

The program facilitates the creation and management of presale events, enabling the setting of various parameters like total tokens for sale, soft and hard caps, and contribution limits.

### Contributor Interaction

Users can participate in the presale by contributing funds, and their contributions are tracked in individual contributor profiles. The program allows for the accumulation of unclaimed tokens based on contributions.

### Claiming Rewards

Contributors can claim their rewards, dependent on the claiming status having to be enabled by the presale authority.

### Withdrawal Functionality

The presale authority has the capability to withdraw accumulated funds from the presale event.

### Administrative Controls

Functions for enabling claiming status and changing presale dates provide administrative control over the presale's lifecycle.

## Findings Breakdown



Critical	0
Medium	0
Minor / Informative	4

Severity	Unresolved	Acknowledged	Resolved	Other
Critical	0	0	0	0
Medium	0	0	0	0
Minor / Informative	4	0	0	0

## Diagnostics

● Critical ● Medium ● Minor / Informative

Severity	Code	Description	Status
●	ICPC	Incomplete Claiming Process Controls	Unresolved
●	PCR	Program Centralization Risk	Unresolved
●	UEC	Unused Error Code	Unresolved
●	USV	Unused State Variable	Unresolved

## ICPC - Incomplete Claiming Process Controls

Criticality	Minor / Informative
Location	lib.rs#115
Status	Unresolved

### Description

The program allows contributors to continue making contributions even after they are able to start claiming their rewards, which is achieved by the boolean variable `claiming_enabled` being set to true. This practice deviates from standard presale mechanisms where, typically, contributions are halted once the claiming phase begins. Allowing contributions to continue after the commencement of the claiming phase could lead to confusion among participants and potential discrepancies. This issue arises from the lack of a check in the `contribute` function to prevent new contributions once the claiming phase is active.

```
pub fn contribute(ctx: Context<ContributeSOL>, amount: u64) ->
Result<()> {
    ...
    Ok(())
}
```

### Recommendation

To align with standard presale practices and enhance clarity for participants, it is recommended to implement additional controls within the `contribute` function. This modification will clearly separate the contribution phase from the claiming phase, preventing new contributions during the claiming period and ensuring a more structured and predictable presale process. This change will align the program with conventional presale standards.

## PCR - Program Centralization Risk

<b>Criticality</b>	Minor / Informative
<b>Location</b>	lib.rs#15,84,90
<b>Status</b>	Unresolved

### Description

The programs's functionality and behavior are heavily dependent on external parameters or configurations. While external configuration can offer flexibility, it also poses several centralization risks that warrant attention. Centralization risks arising from the dependence on external configuration include Single Point of Control, Vulnerability to Attacks, Operational Delays, Trust Dependencies, and Decentralization Erosion.

Furthermore, after the admin sets these key configurations, they have the authority to change some of these initial values that are crucial for the smooth functionality of the program.

Lastly, the admin has to enable the claiming of rewards that is initially disabled. Once it is enabled, it can never be disabled again.



```
pub fn create_presale(...) -> Result<()> { ... }

pub fn enable_claiming(ctx: Context<UpdatePresalePool>) ->
Result<()> {
    let pool = &mut ctx.accounts.presale;
    pool.claiming_enabled = true;
    Ok(())
}

pub fn change_sale_dates(
    ctx: Context<UpdatePresalePool>,
    start_timestamp: i64,
    end_timestamp: i64
) -> Result<()> {
    let pool = &mut ctx.accounts.presale;

    // Check that the start_timestamp is less than the
    end_timestamp
    require!(start_timestamp < end_timestamp,
PresaleError::EndTimeStampIsBeforeStartTimestamp);

    pool.start_timestamp = start_timestamp;
    pool.end_timestamp = end_timestamp;

    Ok(())
}
```

## Recommendation

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

## UEC - Unused Error Code

<b>Criticality</b>	Minor / Informative
<b>Location</b>	lib.rs#423
<b>Status</b>	Unresolved

### Description

Error code `NoTokensLeft` is present that is not referenced or used anywhere in the program's logic. The presence of this unused error codes can be misleading, suggesting potential authentication checks that are not actually implemented. This could lead to a misunderstanding of the program's security features and possibly overlook actual authentication mechanisms that are in place.

```
#[msg("There are no tokens left for sale. All tokens have been  
sold.")]  
NoTokensLeft
```

### Recommendation

The development team should review the program to determine if this error code was intended for specific authentication checks that have not been implemented.

## USV - Unused State Variable

Criticality	Minor / Informative
Location	lib.rs#229
Status	Unresolved

### Description

The variable `soft_cap` within the `PresalePool` struct is defined but not effectively utilized in the program's core logic, apart from the initial validation to ensure that `soft_cap` is less than `hard_cap`. This lack of use may lead to misunderstandings about the variable's role and its impact on the program's functionality. Specifically, `soft_cap` is traditionally understood in presale contexts to represent the minimum amount of funds the presale aims to raise, and its underutilization could imply missed checks or underdeveloped features related to the presale's financial goals.

```
soft_cap: u64
```

### Recommendation

The development team should reassess the intended functionality associated with `soft_cap`. If it is meant to play a significant role in the presale logic, such as affecting the distribution of tokens or influencing the continuation of the presale, appropriate logic should be implemented to reflect this. Alternatively, if `soft_cap` does not serve a purpose in the current iteration of the program, it should be removed to avoid confusion and reduce unnecessary complexity in the program's state.

## Summary

Solex Launch establishes a solid foundation for managing presale events within the Solana ecosystem.

### Team update 7 Feb 2024

The team has provided the following as the deployed address:

GZd6iT5iehBHfhWxj1PMdXzgf2CoAEStPkxThzb1sGCy

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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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