



# Smart Contract Audit Report

Prepared by: Alice Zhang

Date: 2025-10-24

# Contents

<b>1</b>	<b>Audit Details</b>	<b>2</b>
1.1	Scope	2
1.2	Roles	2
1.2.1	Owner:	2
1.2.2	Claimer:	2
1.2.3	Donators:	3
<b>2</b>	<b>Executive Summary</b>	<b>4</b>
2.1	Issues found	4
<b>3</b>	<b>Findings</b>	<b>5</b>
3.1	High	5
3.1.1	[H-1] Incorrect Daily ETH Drip Reset, the dailyDrips may not be correct	5
3.2	Medium	6
3.2.1	[M-1] Incorrect Faucet Token Burn Transfer, Faucet has no token after transfer	6
3.2.2	[M-2] Incorrect lastFaucetDripDay set, dailyClaimCount may not be actually counted by a day	6
3.3	Low	7
3.3.1	[L-1] Misspelled SPDX License Identifier	7
<b>4</b>	<b>Informational</b>	<b>8</b>
<b>5</b>	<b>Gas</b>	<b>9</b>

# Chapter 1

## Audit Details

### 1.1 Scope

```
1 src/  
2 |-- RaiseBoxFaucet.sol  
3 |-- DeployRaiseBoxFaucet.s.sol
```

### 1.2 Roles

#### 1.2.1 Owner:

##### RESPONSIBILITIES:

- deploys contract,
- mint initial supply and any new token in future,
- can burn tokens,
- can adjust daily claim limit,
- can refill sepolia eth balance

##### LIMITATIONS:

- cannot claimfaucet tokens

#### 1.2.2 Claimer:

##### RESPONSIBILITIES:

- can claim tokens by calling the claimFaucetTokens function of this contract.

##### LIMITATIONS:

- Doesn't have any owner defined rights above.

### 1.2.3 Donators:

#### RESPONSIBILITIES:

- can donate sepolia eth directly to contract

## Chapter 2

# Executive Summary

### 2.1 Issues found

Severity	Number of issues found
High	1
Medium	2
Low	1

# Chapter 3

## Findings

### 3.1 High

#### 3.1.1 [H-1] Incorrect Daily ETH Drip Reset, the dailyDrips may not be correct

##### Description:

In the `./src/RaiseBoxFaucet.sol` `claimFaucetTokens()` function, the following code resets `dailyDrips` in the else branch:

```
1 //Line-211
2 if (!hasClaimedEth[faucetClaimer] && !sepEthDripsPaused) {
3     ...
4 } else {
5     dailyDrips = 0;
6 }
```

This executes every time a non-first-time claimer calls the faucet, which can unintentionally reset the daily ETH drip counter. As a result, the daily drip limit (`dailySepEthCap`) may be bypassed, allowing more ETH to be claimed than intended within a single day.

##### Impact

- The faucet can distribute more ETH than the intended daily cap.

##### Proof of Concepts

1. Assume `dailySepEthCap` = 5 ETH and `dailyDrips` = 4 ETH.
2. User A (first-time claimer) receives 1 ETH -> `dailyDrips` = 5 ETH.
3. User B (already claimed ETH) calls the faucet -> hits the `else { dailyDrips = 0; }` branch.
4. Now `dailyDrips` is reset to 0, allowing the faucet to drip ETH again, bypassing the cap.

##### Recommended mitigation

- Remove the `else { dailyDrips = 0; }` branch.

## 3.2 Medium

### 3.2.1 [M-1] Incorrect Faucet Token Burn Transfer, Faucet has no token after transfer

#### Description

In the `./src/RaiseBoxFaucet.sol` `burnFaucetTokens()` function, the following line:

```
1 //Line-132
2 _transfer(address(this), msg.sender, balanceOf(address(this)));
```

transfers the entire balance of faucet tokens from the contract to the owner (`msg.sender`). However, according to the function's comment: > "Transfers tokens to owner first, then burns from owner"

the intended behavior is to only transfer the amount of tokens that will be burned (`amountToBurn`).

As a result, the faucet ends up spending more tokens to the owner than intended, and the owner keeps any remaining tokens after the burn.

#### Impact

The current implementation may unintentionally transfer all faucet tokens to the owner, leaving the faucet empty while only a small portion (`amountToBurn`) is actually burned. This breaks the intended faucet logic and allows the owner to take more tokens than expected.

#### Proof of Concepts

1. Assume the contract holds 10000 faucet tokens.
2. Call `burnFaucetTokens(1000)` burns only 1000 tokens.
3. `_transfer(address(this), msg.sender, balanceOf(address(this)))` transfers all 10000 tokens to the owner.
4. `_burn(msg.sender, 1000)` burns only 1000 tokens.
5. Result: owner retains 9000 tokens, faucet balance is 0.
6. This violates the intended logic of burning only the specified amount

#### Recommended mitigation

- Modify the transfer to only send `amountToBurn` tokens before burning:

```
1 _transfer(address(this), msg.sender, amountToBurn)
```

### 3.2.2 [M-2] Incorrect lastFaucetDripDay set, dailyClaimCount may not be actually counted by a day

#### Description

In the `./src/RaiseBoxFaucet.sol` `claimFaucetTokens()` function, the following code resets `dailyClaimCount`:

```
1 //Line-220
2 if (block.timestamp > lastFaucetDrip + 1 days) {
3     lastFaucetDripDay = block.timestamp;
4     dailyClaimCount = 0;
5 }
```

`lastFaucetDripDay` is assigned directly as `block.timestamp`, which represents the exact moment the function is called. This means the “daily” reset is not aligned to natural calendar days, but instead depends on when the first user calls the faucet each day.

As a result, the 24-hour period for `dailyClaimCount` can start at any arbitrary time, leading to inaccurate daily statistics and inconsistent enforcement of the daily claim limit.

#### Impact

- The faucet may allow users to claim more than the intended daily limit if the first claim occurs later in the day.

#### Recommended mitigation

- change the code

```
1 //old-version
2 lastFaucetDripDay = block.timestamp;
3
4 //new-version
5 lastFaucetDripDay = (block.timestamp / 1 days) * 1 days;
```

## 3.3 Low

### 3.3.1 [L-1] Misspelled SPDX License Identifier

#### Description

In the both `./script/DeployRaiseBoxFaucet.s.sol` and `./src/RaiseBoxFaucet.sol`, the SPDX license identifier is incorrectly written as:

```
1 //SPDX-Lincense-Identifier: MIT
```

#### Impact

- Trigger Solidity compiler warning.

#### Recommended mitigation

Correct the spelling of the SPDX identifier to the official format:

```
1 // SPDX-License-Identifier: MIT
```



# Chapter 4

## Informational

# Chapter 5

## Gas