



**For Bscf Token**

**13 Feb 2023**



# **Smart Contract Security Assassment**

## **Final Report**



**Maxloop.org**



**Maxloop.org@gmail.com**



**Telegram/MaxLoop**

# Disclaimer

Maxloop Blockchain Security (“Maxloop”) has conducted an independent audit to verify the integrity of and highlight any vulnerabilities or errors, intentional or unintentional, that may be present in the codes that were provided for the scope of this audit. This audit report does not constitute agreement, acceptance, or advocacy for the Project that was audited, and users relying on this audit report should not consider this as having any merit for financial advice in any shape, form, or nature. The contracts audited do not account for any economic developments that may be pursued by the Project in question, and the veracity of the findings thus presented in this report relate solely to the proficiency, competence, aptitude, and discretion of our independent auditors, who make no guarantees nor assurance that the contracts are completely free of exploits, bugs, vulnerabilities or deprecation of technologies. Further, this audit report shall not be disclosed nor transmitted to any persons or parties on any objective, goal or justification without due written assent, acquiescence, or approval by Maxloop.

All information provided in this report does not constitute financial or investment advice, nor should it be used to signal that any persons reading this report should invest their funds without sufficient individual due diligence regardless of the findings presented in this report. Information is provided ‘as is’, and Maxloop is under no covenant to the completeness, accuracy, or solidity of the contracts audited. In no event will Maxloop or its partners, employees, agents, or parties related to the provision of this audit report be liable to any parties for, or lack thereof, decisions and/or actions with regard to the information provided in this audit report.

Cryptocurrencies and any technologies by extension directly or indirectly related to cryptocurrencies are highly volatile and speculative by nature. All reasonable due diligence and safeguards may yet be insufficient, and users should exercise considerable caution when participating in any shape or form in this nascent industry.

The audit report has made all reasonable attempts to provide clear and articulate recommendations to the Project team with respect to the rectification, amendment and/or revision of any highlighted issues, vulnerabilities or exploits within the contracts provided. It is the sole responsibility of the Project team to sufficiently test and perform checks, ensuring that the contracts are functioning as intended, specifically that the functions therein contained within said contracts have the desired intended effects, functionalities, and outcomes of the Project team.



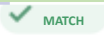

# 1 Overview

This report has been prepared for Bscf Token on the Binance Smart Chain (BSC). Maxloop provides a user-centred examination of the smart contracts to look for vulnerabilities, logic errors or other issues from both an internal and external perspective.

## 1.1 Summary

Project Name	Bscf Token
URL	<a href="https://bscgems.finance/">https://bscgems.finance/</a>
Platform	Binance Smart Chain
Language	Solidity

## 1.2 Contracts Assessed

Name	Contract	Live Code Match
Bscf Token	0xeFAB33F16b013220d89Ca483C307e76f7097D5bE	 MATCH
Bscf Token.sol	0ba7816bf8f01cfea414140de5dae2223b0036...15ad	 MATCH

## Audit Summary



<b>Delivery Date</b>	Feb. 13th, 2023
<b>Method of Audit</b>	Static Analysis, Manual Review
<b>Consultants Engaged</b>	2
<b>Timeline</b>	Feb. 10, 2023 - Feb. 13, 2023

## 1.3 Findings Summary

Severity	Found	Resolved	Partially Resolved	Acknowledged (no change made)
● High	0	-	-	-
● Medium	0	-	-	-
● Low	3	1	-	2
● Informational	1	-	-	1
<b>Total</b>	<b>4</b>	<b>1</b>	<b>-</b>	<b>3</b>

### Classification of Issues

Severity	Description
● High	Exploits, vulnerabilities or errors that will certainly or probabilistically lead towards loss of funds, control, or impairment of the contract and its functions. Issues under this classification are recommended to be fixed with utmost urgency.
● Medium	Bugs or issues with that may be subject to exploit, though their impact is somewhat limited. Issues under this classification are recommended to be fixed as soon as possible.



● Low	Effects are minimal in isolation and do not pose a significant danger to the project or its users. Issues under this classification are recommended to be fixed nonetheless.
● Informational	Consistency, syntax or style best practices. Generally pose a negligible level of risk, if any.

## 1.3.1 Bscf TokenToken

ID	Severity Summary	Status
01	<div>LOW</div> Mint function can be used to pre-mint large amounts of tokens before Ownership is transferred to the <b>Masterchef</b>	RESOLVED

## 1.3.2 Bscf TokenMasterChef

ID	Severity Summary	Status
01	<div>LOW</div> Inconsistency between deposit fee cap in add and set	ACKNOWLEDGED
02	<div>LOW</div> PendingMondo will show inaccurate pending harvests on the dapp frontend If the pending rewards causes totalSupply to be exceed <b>MAXSUPPLYCAP</b>	ACKNOWLEDGED
03	<div>INFO</div> Total token supply might not be minted due to try and catch pattern	ACKNOWLEDGED



## 2 Findings

### 2.1 Bscf TokenToken

The Bscf Token token is a simple BEP-20 token that will be used as the main reward token for the Masterchef. The contract allows for Bscf Token tokens to be minted when the mint function is called by the contract Owner, who at the time of deployment would be the deployer. Ownership is generally transferred to the Masterchef via the transferOwnership function for emission rewards to be minted and distributed to users staking in the Masterchef. The token has a max supply cap of 1.

#### 2.1.1 Token Overview

<b>Address</b>	<b>0xeFAB33F16b013220d89Ca483C307e76f7097D5bE</b>
<b>Token Supply</b>	20,000,000
<b>Decimal Places</b>	18
<b>Fairlaunch</b>	10%
<b>Liquidity</b>	5.5%
<b>Marketing</b>	2%
<b>Ecosystem Fund</b>	45%
<b>Burn</b>	25%





## 2.1.2 Privileges

The following functions can be called by the owner of the contract:

- mint
- renounceOwnership
- transferOwnership

## 2.1.3 Issues & Recommendations

<b>Issue #01</b>	<b>mint function can be used to pre-mint large amounts of tokens before ownership is transferred to the Masterchef</b>
<b>Severity</b>	 LOW SEVERITY
<b>Description</b>	<p>The mint function could be used to pre-mint tokens for legitimate uses including, but not limited to, the injection of initial liquidity, token presale, or airdrops; however, this function may also be used to pre-mint and dump tokens when the token contract has been deployed but before ownership is set to the Masterchef contract.</p> <p>This risk is prevalent amongst less-reputable projects, and any pre-mints can be prominently seen on the Blockchain.</p>
<b>Recommendation</b>	<p>Consider being forthright if this mint function is to be used by letting your community know how much was minted, where they are currently stored, if a vesting contract was used for token unlocking, and finally the purpose of the mints.</p>
<b>Resolution</b>	 RESOLVED
	<p>1 tokens were pre-minted and ownership has been transferred to the Masterchef.</p>



## 2.2.1 Privileges

The following functions can be called by the owner of the Masterchef:

- add
- set
- updateEmissionRate
- updateStartTimestamp
- transferOwnership
- renounceOwnership

The following functions can be called by the DevAddr of the Masterchef:

- setDevAddress

The following functions can be called by the FeeAddr of the Masterchef:

- setFeeAddress

## 2.2.2 Issues & Recommendations

Issue #02

Inconsistency between deposit fee cap in add and set

Severity

LOW SEVERITY





---

## Description

For deposit fees, while add has a max cap of 8%, set has a max cap of 4%.

add: Line 1136 require(\_depositFeeBP <= 800, "add: invalid deposit fee basis points");

set: Line 1159 require(\_depositFeeBP <= 400, "set: invalid deposit fee basis points");

This behavior is inconsistent, and could allow the owner to add a pool with 8% fee, even if 4% is the expected maximum cap.

---

## Recommendation

The Bscf Token team should clarify what their maximum cap on the deposit fee is, and ensure that checks in both add and set use the same value. It is encouraged to use the lower value as the cap.

---

## Resolution

ACKNOWLEDGED

---

## Issue #03

**pendingBscf Token will show inaccurate pending harvests on the dapp frontend if the pending rewards causes totalSupply to be exceed MAXSUPPLYCAP**

## Severity

LOW SEVERITY



## Location

Similarly to updatePool, pendingBscf Token does not check if the pending rewards will cause the total supply to exceed the MAXSUPPLYCAP.

This can cause inaccurate pending harvests to be shown towards the end of token emissions.

## Description

Consider factoring in the MAXSUPPLYCAP, and set the pending reward to be the difference between MAXSUPPLYCAP and totalSupply if the pending reward causes totalSupply to exceed MAXSUPPLYCAP.

---

```
uint256 Bscf TokenReward = multiplier.mul(Bscf  
TokenPerBlock).mul(pool.allocPoint).div(total AllocPoint);
```

```
if (Bscf Token.totalSupply().add(Bscf TokenReward) >  
Bscf Token.maxSupply()) { Bscf TokenReward =  
accBscf TokenPerShare = accBscf TokenPerShare.add(Bscf  
TokenReward.mul(1e18).div(pool.lpSupply ));
```

## Recommendation

pendingBscf Token will show inaccurate pending harvests on the dapp frontend if the pending rewards causes totalSupply to be exceed

```
Bscf Token.maxSupply() .sub(Bscf Token.totalSupply());  
}
```

MAXSUPPLYCAP.



## Resolution

ACKNOWLEDGED

### Issue #04

### Total token supply might not be minted due to try and catch pattern

### Severity

INFORMATIONAL

### Description

As there is a MAXCAPSUPPLY for the Bscf Token token, minting the reward and causing the maximum cap to exceed would result in a revert.

```
Bscf TokenToken::Line 814: require(_totalSupply.add(amount) <=
MAXCAPSUPPLY, "Max supply reached");
```

To prevent this, the following try and catch pattern is done in updatePool.

Line 1209~

```
try Bscf Token.mint(devaddr, Bscf TokenReward.div(10)) {
} catch (bytes memory reason) { Bscf TokenReward = 0;
    emit Bscf TokenMintError(reason);
}
```

```
try Bscf Token.mint(address(this), Bscf TokenReward) {
} catch (bytes memory reason) { Bscf TokenReward = 0;
    emit Bscf TokenMintError(reason); }
```

In the case where totalSupply + amount does exceed MAXCAPSUPPLY, the mint will not be done. This means that the token supply could be capped at an amount slightly lower than MAXCAPSUPPLY.

### Recommendation

Consider minting the difference between MAXCAPSUPPLY and totalSupply, if any.



```

uint256 Bscf TokenReward = multiplier.mul(Bscf
TokenPerBlock).mul(pool.allocPoint).div(total AllocPoint);
uint256 devReward = Bscf TokenReward.div(10); uint256 totalRewards
= Bscf Token.totalSupply().add(devReward).add(Bscf TokenReward);

if (totalRewards <= Bscf Token.maxSupply()) {
    // mint dev reward as normal as not at maxSupply
    Bscf Token.mint(devaddr, devReward);
} else {
    // update Bscf TokenReward to difference
    Bscf TokenReward= Bscf Token.maxSupply() - Bscf Token.totalSupply();
}
if (Bscf TokenReward != 0) {
    // only mint to MC and calculate and update accBscf TokenPerShare if Bscf
TokenReward is non 0    Bscf Token.mint(address(this), Bscf TokenReward);
pool.accBscf TokenPerShare = pool.accBscf TokenPerShare.add(Bscf
TokenReward.mul(1e18).div(pool.lpS upply)); }
pool.lastRewardBlock = block.number;

```

## Resolution

ACKNOWLEDGED



MAXLOOP