

Smart Contract Security Audit V1

Infinity Presale Smart Contract

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Background

The purpose of the audit was to achieve the following:

- Ensure that the smart contract functions as intended.
- Identify potential security issues with the smart contract.

The information in this report should be used to understand the risk exposure of the smart contract, and as a guide to improve the security posture of the smart contract by remediating the issues that were identified.

Project Information

- **Platform:** Binance Smart Chain
- **Contract Address:** 0xe227406b51507dB631894DA7d8627652c9547E29

Presale Smart Contract Information

- Name: Presale
- Hard cap: 560
- Token per BNB: 2.5 BNB
- End Time: Wed Jan 12 2022 20:58:10 GMT

Contracts address deployed to test net (BSC)

Presale Smart contract on testnet.bsc (BSC Test Net)

<https://testnet.bscscan.com/address/0xdb89c81d3e27e6e3d119bcea8702f6874b42887a>

Executive Summary

According to our assessment, the customer`s solidity smart contract is **InSecured**.

Well Secured	
Secured	
Poor Secured	
Insecure	✓

Automated checks are with remix IDE. All issues were performed by the team, which included the analysis of code functionality, manual audit found during automated analysis were manually reviewed and applicable vulnerabilities are presented in the audit overview section. The general overview is presented in the Project Information section and all issues found are located in the audit overview section.

Team found 4 critical, 1 high, 2 medium, 0 low, 0 very low-level issues and 0 note in all solidity files.

The files:

Presale.sol

File and Function Level Report

File in Scope:

Contract Name	SHA 256 hash	Contract Address
presale.sol	fb0ce094825403b8ac444dc cbe09a579968368854fb819 ddb491b164747ce386	0xe227406b51507dB631894DA7d8627652c95 47E29

- Contract: Presale
- Inherit: Ownable
- Observation: Not passed including security check
- Test Report: Not passed
- Score: Not passed
- Conclusion: Not passed

Function	Test Result	Type / Return Type	Score
claimedTokens	✓	Read / public	Passed
contributions	✓	Read / public	Passed
endTime	✓	Read / public	Passed
finalized	✓	Read / public	Passed
hardCap	✓	Read / public	Passed
softCap	✓	Read / public	Passed
isOpen	✓	Read / public	Passed
owner	✓	Read / public	Passed
maxContribution	✓	Read / public	Passed
minContribution	✓	Read / public	Passed
softCapReached	✓	Read / public	Passed
refunds	✓	Read / public	Passed

startTime	✓	Read / public	Passed
token	✓	Read / public	Passed
tokensPerBnb	✓	Read / public	Passed
weiRaised	✓	Read / public	Passed
withdrawAddr	✓	Read / public	Passed
renounceOwnership	✓	Write / public	Not Passed
transferOwnership	✓	Write / public	Not Passed
claimRefund	✓	Write / public	Not Passed
claimToken	✓	Write / public	Not Passed
buyToken	✓	Write / payable	Passed
endPresale	✓	Write / public	Passed
setHardCap	✓	Write / public	Passed
setStartTime	✓	Write / public	Passed
setEndTime	✓	Write / public	Passed
setSoftCap	✓	Write / public	Passed
setWithdrawAddr	✓	Write / public	Passed
withdrawTokens	✓	Write / public	Not Passed

Issues Checking Status

No.	Issue Description	Checking Status
1	Compiler warnings.	Passed
2	Race conditions and Reentrancy. Cross-function race conditions.	Passed
3	Possible delays in data delivery.	Passed
4	Oracle calls.	Passed
5	Front running.	Passed
6	Timestamp dependence.	Passed
7	Integer Overflow and Underflow.	Passed
8	DoS with Revert.	Passed
9	DoS with block gas limit.	Passed
10	Methods execution permissions.	Passed
11	Economy model. If application logic is based on an incorrect economic model, the application would not function correctly and participants would incur financial losses. This type of issue is most often found in bonus rewards systems, Staking and Farming contracts, Vault and Vesting contracts, etc.	Passed
12	The impact of the exchange rate on the logic.	Passed
13	Private user data leaks.	Passed
14	Malicious Event log.	Passed
15	Scoping and Declarations.	Passed
16	Uninitialized storage pointers.	Passed
17	Arithmetic accuracy.	Passed
18	Design Logic.	Passed

Severity Definitions

Risk Level	Description
Critical	Critical vulnerabilities are usually straightforward to exploit and can lead to tokens loss etc.
High	High-level vulnerabilities are difficult to exploit; however, they also have significant impact on smart contract execution, e.g. public access to crucial functions
Medium	Medium-level vulnerabilities are important to fix; however, they can't lead to tokens lose
Low	Low-level vulnerabilities are mostly related to outdated, unused etc. code snippets, that can't have significant impact on execution
Note	Lowest-level vulnerabilities, code style violations and info statements can't affect smart contract execution and can be ignored.

Audit Findings

Critical:

Issue 1 Inactive buyToken function

Description

The most important function in the contract which allows to the investors buy token is not active which make all the contract useless

```
function _buyTokens(address beneficiary) internal{
    uint256 weiToHardcap = hardCap.sub(weiRaised);
    uint256 weiAmount = weiToHardcap < msg.value ? weiToHardcap :
msg.value;
    _buyTokens(beneficiary, weiAmount);

    uint256 refund = msg.value.sub(weiAmount);
    if (refund > 0) {
        payable(beneficiary).transfer(refund);
    }
}
```

Issue 2 &3 claimTokens and claimRefunds functions not work

Description

These functions don't work even all conditions is enabled.

```
function claimTokens() external {
    require(hasEnded(), "Presale: presale is not over");
    require(softCapReached(), "Presale: soft cap not reached, refund is
available");
    require(contributions[msg.sender] > 0, "Presale: nothing to claim");
    uint256 tokens = _getTokenAmount(contributions[msg.sender]);
    contributions[msg.sender] = 0;
    claimedTokens[msg.sender] = tokens;
    token.safeTransfer(msg.sender, tokens);
    emit TokenClaim(msg.sender, tokens);
}

function claimRefund() external {
    require(hasEnded(), "Presale: presale is not over");
    require(!softCapReached(), "Presale: soft cap not reached");
    require(contributions[msg.sender] > 0, "Presale: nothing to claim");
    uint256 refundAmount = contributions[msg.sender];
    contributions[msg.sender] = 0;
    refunds[msg.sender] = refundAmount;
    payable(msg.sender).transfer(refundAmount);
    emit Refund(msg.sender, refundAmount);
}
```

Issue 4 withdrawTokens isn't working

Description

After the presale had ended the owner use this function everyone get 0 token not the amount you should have

```
function withdrawTokens() public onlyOwner {
    require(hasEnded(), "Presale: presale is not over");
    uint256 tokens = token.balanceOf(address(this));
    token.transfer(owner(), tokens);
}
```

High:

Issue 1 can't change the owner even the owner uses the transfer ownership

Description

Initializes the contract setting the deployer as the initial owner if he wants change the owner using transfer ownership he will still the controller of the owner even if he use renounceOwnership he still the controller and the new owner can't controller anything of the contract.

Medium:

Issue 1 The deploy address can change withdraw address

Description

The owner has the ability to change withdraw address anytime he wants.

```
function setWithdrawAddr(address _withdrawAddr) public onlyOwner {
    withdrawAddr = _withdrawAddr;
}
```

Issue 2 The owner can change almost everything in the contract even after deployed it

Description

The owner has the ability to set new start time , can start presale again anytime he want , change all of these end time of presale, softCap and hardCap.

```
function setStartTime(uint256 _startTime) public onlyOwner {
    startTime = _startTime;
}

function setEndTime(uint256 _endTime) public onlyOwner {
    endTime = _endTime;
}

function setHardCap(uint256 _hardCap) public onlyOwner {
    hardCap = _hardCap;
}

function setSoftCap(uint256 _softCap) public onlyOwner {
    softCap = _softCap;
}
```

Low:

No Very Low severity vulnerabilities were found.

Very Low:

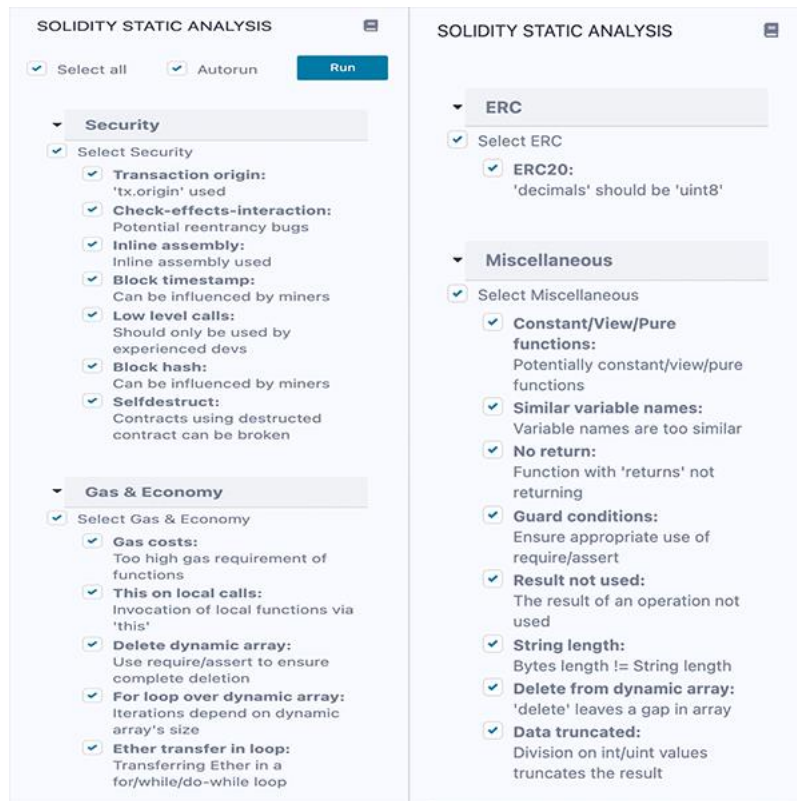
No Very Low severity vulnerabilities were found.

Notes:

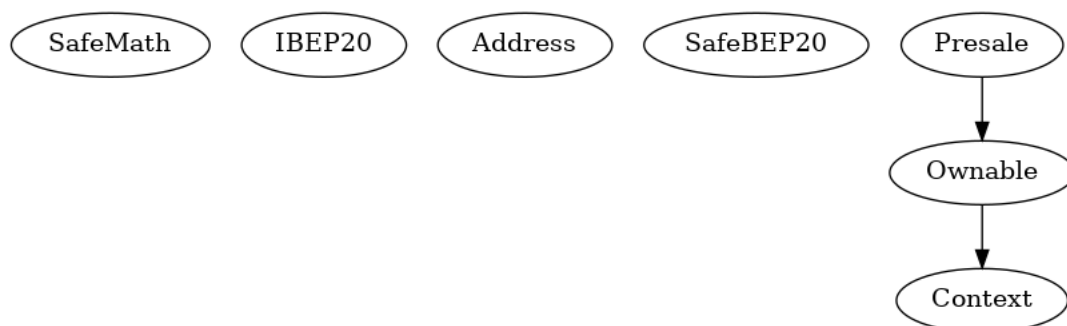
No Notes were found.

Automatic Testing

1- SOLIDITY STATIC ANALYSIS



2- Inheritance graph



3- SOLIDITY UNIT TESTING

SOLIDITY UNIT TESTING

Test your smart contract in Solidity.

Select directory to load and generate test files.

Test directory:

☒ Select all

☒ tests/Presale_test.sol

Progress: 1 finished (of 1)

PASS

testSuite (tests/Presale_test.sol)

✓ Before all

✓ Check success

✓ Check success2

✓ Check failure

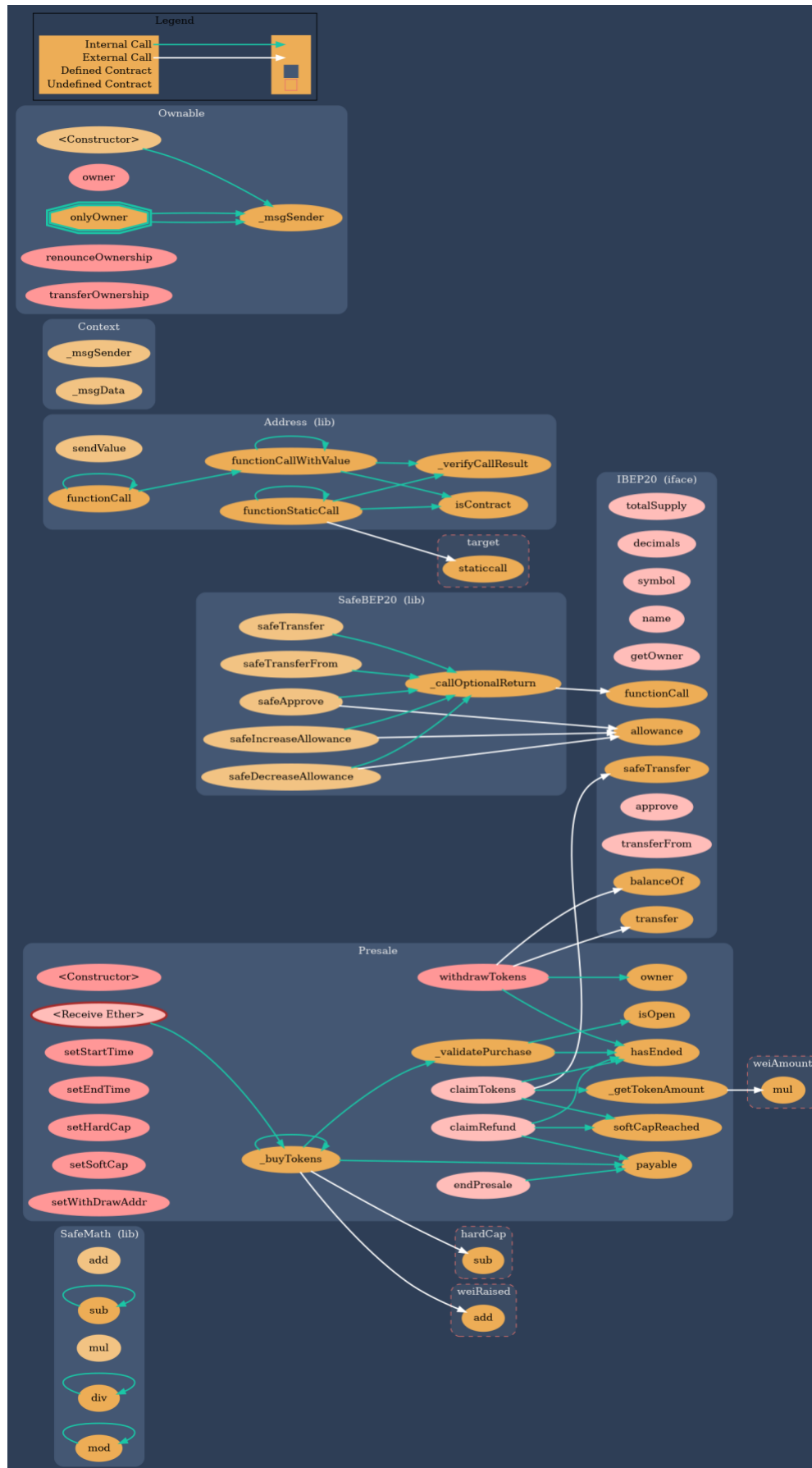
✓ Check sender and value

Result for tests/Presale_test.sol

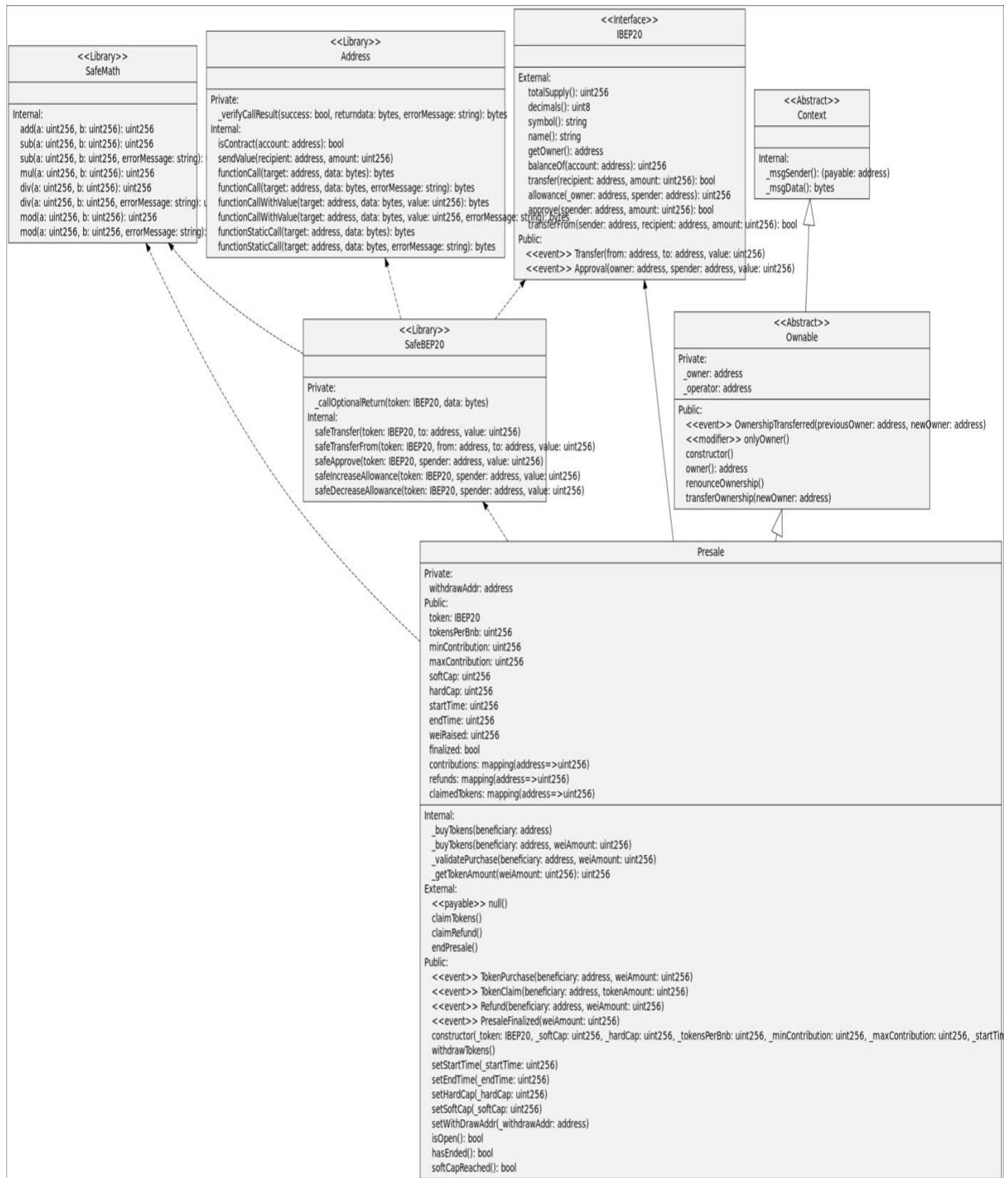
Passing: 5

Total time: 0.37s

4- Call graph



Unified Modeling Language (UML)



Functions signature

```
16279055 => isContract(address)
771602f7 => add(uint256,uint256)
b67d77c5 => sub(uint256,uint256)
e31bdc0a => sub(uint256,uint256,string)
c8a4ac9c => mul(uint256,uint256)
a391c15b => div(uint256,uint256)
b745d336 => div(uint256,uint256,string)
f43f523a => mod(uint256,uint256)
71af23e8 => mod(uint256,uint256,string)
18160ddd => totalSupply()
313ce567 => decimals()
95d89b41 => symbol()
06fdde03 => name()
893d20e8 => getOwner()
70a08231 => balanceOf(address)
a9059cbb => transfer(address,uint256)
dd62ed3e => allowance(address,address)
095ea7b3 => approve(address,uint256)
23b872dd => transferFrom(address,address,uint256)
24a084df => sendValue(address,uint256)
a0b5ffb0 => functionCall(address,bytes)
241b5886 => functionCall(address,bytes,string)
2a011594 => functionCallWithValue(address,bytes,uint256)
d525ab8a => functionCallWithValue(address,bytes,uint256,string)
c21d36f3 => functionStaticCall(address,bytes)
dbc40fb9 => functionStaticCall(address,bytes,string)
18c2c6a2 => _verifyCallResult(bool,bytes,string)
71ef09a2 => safeTransfer(IBEP20,address,uint256)
fee2e02e => safeTransferFrom(IBEP20,address,address,uint256)
a93f2c02 => safeApprove(IBEP20,address,uint256)
e6ae193b => safeIncreaseAllowance(IBEP20,address,uint256)
4988652c => safeDecreaseAllowance(IBEP20,address,uint256)
a096fbe2 => _callOptionalReturn(IBEP20,bytes)
119df25f => _msgSender()
8b49d47e => _msgData()
8da5cb5b => owner()
715018a6 => renounceOwnership()
f2fde38b => transferOwnership(address)
1f5e881f => _buyTokens(address)
781db835 => _buyTokens(address,uint256)
f07da436 => _validatePurchase(address,uint256)
48c54b9d => claimTokens()
b5545a3c => claimRefund()
a43be57b => endPresale()
8d8f2adb => withdrawTokens()
3e0a322d => setStartTime(uint256)
ccb98ffc => setEndTime(uint256)
d18d944b => setHardCap(uint256)
d5cf5c72 => setSoftCap(uint256)
37ad4fc4 => setWithdrawAddr(address)
7a99bb0a => _getTokenAmount(uint256)
47535d7b => isOpen()
ecb70fb7 => hasEnded()
2b9edee9 => softCapReached()
```


Automatic general report

Files Description Table

File Name	SHA-1 Hash
/Users/macbook/Desktop/smart contracts/Presale.sol	7eb7b1a1f227faba3251b85189056773a5ae7a68

Contracts Description Table

Contract	Type	Bases		
:-----: :-----: :-----: :-----: :-----				
-----:				
L	**Function Name**	**Visibility**	**Mutability**	
Modifiers				
SafeMath Library				
L add	Internal			
L sub	Internal			
L sub	Internal			
L mul	Internal			
L div	Internal			
L div	Internal			
L mod	Internal			
L mod	Internal			
IBEP20 Interface				
L totalSupply	External		NO	
L decimals	External		NO	
L symbol	External		NO	
L name	External		NO	
L getOwner	External		NO	
L balanceOf	External		NO	
L transfer	External		NO	
L allowance	External		NO	
L approve	External		NO	
L transferFrom	External		NO	
Address Library				
L isContract	Internal			
L sendValue	Internal			
L functionCall	Internal			
L functionCall	Internal			
L functionCallWithValue	Internal			
L functionCallWithValue	Internal			
L functionStaticCall	Internal			
L functionStaticCall	Internal			
L _verifyCallResult	Private			
SafeBEP20 Library				
L safeTransfer	Internal			
L safeTransferFrom	Internal			
L safeApprove	Internal			
L safeIncreaseAllowance	Internal			
L safeDecreaseAllowance	Internal			

```

| L | _callOptionalReturn | Private 🔒 | 🔒 | | |
| | | | |
| **Context** | Implementation | | | |
| L | _msgSender | Internal 🔒 | | | |
| L | _msgData | Internal 🔒 | | | |
| | | | |
| **Ownable** | Implementation | Context | | |
| L | <Constructor> | Internal 🔒 | 🔒 | | |
| L | owner | Public ! | NO! | | |
| L | renounceOwnership | Public ! | 🔒 | onlyOwner |
| L | transferOwnership | Public ! | 🔒 | onlyOwner |
| | | | |
| **Presale** | Implementation | Ownable | | |
| L | <Constructor> | Public ! | 🔒 | NO! |
| L | <Receive Ether> | External ! | 💰 | NO! |
| L | _buyTokens | Internal 🔒 | 🔒 | | |
| L | _buyTokens | Internal 🔒 | 🔒 | | |
| L | _validatePurchase | Internal 🔒 | | | |
| L | claimTokens | External ! | 🔒 | NO! |
| L | claimRefund | External ! | 🔒 | NO! |
| L | endPresale | External ! | 🔒 | onlyOwner |
| L | withdrawTokens | Public ! | 🔒 | onlyOwner |
| L | setStartTime | Public ! | 🔒 | onlyOwner |
| L | setEndTime | Public ! | 🔒 | onlyOwner |
| L | setHardCap | Public ! | 🔒 | onlyOwner |
| L | setSoftCap | Public ! | 🔒 | onlyOwner |
| L | setWithdrawAddr | Public ! | 🔒 | onlyOwner |
| L | _getTokenAmount | Internal 🔒 | | | |
| L | isOpen | Public ! | NO! | | |
| L | hasEnded | Public ! | NO! | | |
| L | softCapReached | Public ! | NO! | | |

```

Legend

Symbol	Meaning
🔒	Function can modify state
💰	Function is payable

Conclusion

The contracts are written systematically. Team found no critical issues. So, it is good to go for production.

Since possible test cases can be unlimited and developer level documentation (code flow diagram with function level description) not provided, for such an extensive smart contract protocol, we provide no such guarantee of future outcomes. We have used all the latest static tools and manual observations to cover maximum possible test cases to scan Everything.

Security state of the reviewed contract is “IN secured”.

- ✗ No volatile code.
- ✗ Not many high severity issues were found.
- ✗ Contract Ownership Renounced.

Disclaimer

This is a limited report on our findings based on our analysis, in accordance with good industry practice as of the date of this report, in relation to cybersecurity vulnerabilities and issues in the framework and algorithms based on smart contracts, the details of which are set out in this report. In order to get a full view of our analysis, it is crucial for you to read the full report. While we have done our best in conducting our analysis and producing this report, it is important to note that you should not rely on this report and cannot claim against the team on the basis of what it says or doesn't say, or how team produced it, and it is important for you to conduct your own independent investigations before making any decisions. team go into more detail on this in the below disclaimer below – please make sure to read it in full.

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