AuditAce
FROM INCEPTION TO SUCCESS

Smart Contract Audit

FOR

BEN

DATED : 26 MAY 23'

AUDIT SUMMARY

Project name – BEN

Date: 26 May, 2023

Scope of Audit- Audit Ace was consulted to conduct the smart contract audit of the solidity source codes.

Audit Status: Passed

Issues Found

Status	Critical	High	Medium	Low	Suggestion
Open	0	1	0	0	0
Acknowledged	0	0	0	0	0
Resolved	0	0	0	0	0

USED TOOLS

Tools:

1.Manual Review: The code has undergone a line-by-line review by the **Ace** team.

2.ETH Test Network: All tests were conducted on the ETH Test network, and each test has a corresponding transaction attached to it. These tests can be found in the "Functional Tests" section of the report.

3.Slither: The code has undergone static analysis using Slither.

Testnet version:
The tests were performed using the contract deployed on the BSC Testnet, which can be found at the following address:
https://testnet.bscscan.com/token/0x6c7bC3370441 6F0BfcA7D9f5c11C595CA0a0ba70

Token Information

Name : Ben

Symbol : BEN

Decimals: 18

Network: BSC

Token Type:BEP20

Token Address:
0xCFA43Ed34809a2fe1bf3552F1918f362C96F3c52

Owner:
0xBfad7c2332E071cb5BFCEf45a7D3939Cf41B9F64
(at time of writing the audit)

Deployer:0xBfad7c2332E071cb5BFCEf45a7D3939Cf
41B9F64

Token Information

Fees:

Buy Fees: 0%

Sell Fees: 0%

Transfer Fees: 0%

Fees Privilige: No fees

Ownership :

0xe11d0Ea7e24DCDaB70225beFA94E42c6574D354A

Minting: None

Max Tx Amount/ Max Wallet Amount: No

Blacklist: No

Other Priviliges:- Enabling trades

- Fee whitelist

AUDIT METHODOLOGY

The auditing process will follow a routine as special considerations by Auditace:

- Review of the specifications, sources, and instructions provided to Auditace to make sure the contract logic meets the intentions of the client without exposing the user's funds to risk.

- Manual review of the entire codebase by our experts, which is the process of reading source code line-by-line in an attempt to identify potential vulnerabilities.

- Specification comparison is the process of checking whether the code does what the specifications, sources, and instructions provided to Auditace describe.

- Test coverage analysis determines whether the test cases are covering the code and how much code isexercised when we run the test cases.

- Symbolic execution is analysing a program to determine what inputs cause each part of a program to execute.

- Reviewing the codebase to improve maintainability, security, and control based on the established industry and academic practices.

VULNERABILITY CHECKLIST

- ✅ Return values of low-level calls
- ✅ Private modifier
- ✅ Multiple Sends
- ✅ Using Suicide
- ✅ Gas Limitand Loops
- ✅ Address hardcoded
- ✅ Exception Disorder
- ✅ Using inline assembly
- ✅ Divide before multiply
- ✅ Missing Zero Address Validation
- ✅ Compiler version not fixed

- ✅ **Gasless Send**
- ✅ Using block.timestamp
- ✅ Re-entrancy
- ✅ Tautology or contradiction
- ✅ Timestamp Dependence
- ✅ Revert/require functions
- ✅ Use of tx.origin
- ✅ Integer overflow/underflow
- ✅ Dangerous strict equalities
- ✅ Using SHA3
- ✅ Using throw

CLASSIFICATION OF RISK

Severity

Description

◆ **Critical**

These vulnerabilities could be exploited easily and can lead to asset loss, data loss, asset, or data manipulation. They should be fixed right away.

◆ **High-Risk**

A vulnerability that affects the desired outcome when using a contract, or provides the opportunity to use a contract in an unintended way.

◆ **Medium-Risk**

A vulnerability that could affect the desired outcome of executing the contract in a specific scenario.

◆ **Low-Risk**

A vulnerability that does not have a significant impact on possible scenarios for the use of the contract and is probably subjective.
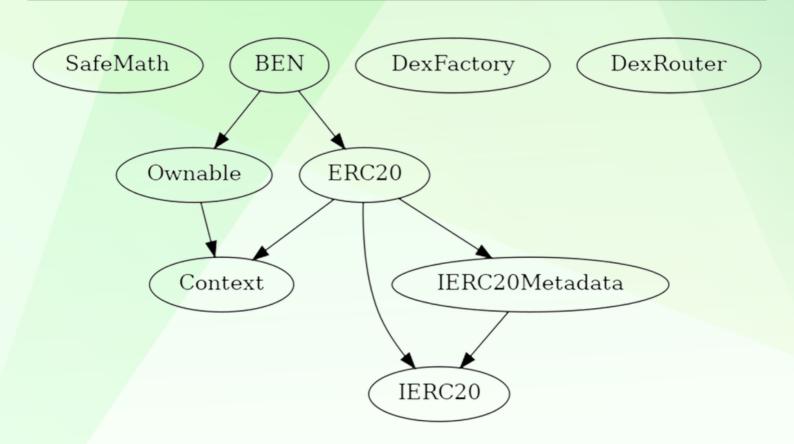
◆ **Gas Optimization /Suggestion**

A vulnerability that has an informational character but is not affecting any of the code.

Findings

Severity	Found
◆ Critical	0
◆ High-Risk	1
◆ Medium-Risk	0
◆ Low-Risk	0
◆ Gas Optimization / Suggestions	0

INHERITANCE TREE

POINTS TO NOTE

- Fees are 0 (static)
- Owner is not able to blacklist an arbitrary address.
- Owner is not able to disable trades
- Owner is not able to limit buy/sell/transfer/wallet amounts
- Owner is not able to mint new tokens
- **Owner must enable trades**

CONTRACT ASSESMENT

Contract	Type	Bases		
└	**Function Name**	**Visibility**	**Mutability**	**Modifiers**
SafeMath	Library			
└	tryAdd	Internal 🔒		
└	trySub	Internal 🔒		
└	tryMul	Internal 🔒		
└	tryDiv	Internal 🔒		
└	tryMod	Internal 🔒		
└	add	Internal 🔒		
└	sub	Internal 🔒		
└	mul	Internal 🔒		
└	div	Internal 🔒		
└	mod	Internal 🔒		
└	sub	Internal 🔒		
└	div	Internal 🔒		
└	mod	Internal 🔒		
Context	Implementation			
└	_msgSender	Internal 🔒		
└	_msgData	Internal 🔒		
Ownable	Implementation	Context		
└	<Constructor>	Public ❗	🔴	NO ❗
└	owner	Public ❗		NO ❗
└	_checkOwner	Internal 🔒		
└	renounceOwnership	Public ❗	🔴	onlyOwner
└	transferOwnership	Public ❗	🔴	onlyOwner
└	_transferOwnership	Internal 🔒	🔴	
IERC20	Interface			
└	totalSupply	External ❗	NO ❗	
└	balanceOf	External ❗	NO ❗	
└	transfer	External ❗	🔴	NO ❗
└	allowance	External ❗	NO ❗	
└	approve	External ❗	🔴	NO ❗
└	transferFrom	External ❗	🔴	NO ❗
IERC20Metadata	Interface	IERC20		
└	name	External ❗	NO ❗	
└	symbol	External ❗	NO ❗	
└	decimals	External ❗	NO ❗	

CONTRACT ASSESMENT

ERC20	Implementation	Context, IERC20, IERC20Metadata		
└	<Constructor>	Public ❗	🔴	NO ❗
└	name	Public ❗		NO ❗
└	symbol	Public ❗		NO ❗
└	decimals	Public ❗		NO ❗
└	totalSupply	Public ❗		NO ❗
└	balanceOf	Public ❗		NO ❗
└	transfer	Public ❗	🔴	NO ❗
└	allowance	Public ❗		NO ❗
└	approve	Public ❗	🔴	NO ❗
└	transferFrom	Public ❗	🔴	NO ❗
└	increaseAllowance	Public ❗	🔴	NO ❗
└	decreaseAllowance	Public ❗	🔴	NO ❗
└	_transfer	Internal 🔒	🔴	
└	_mint	Internal 🔒	🔴	
└	_burn	Internal 🔒	🔴	
└	_approve	Internal 🔒	🔴	
└	_spendAllowance	Internal 🔒	🔴	
└	_beforeTokenTransfer	Internal 🔒	🔴	
└	_afterTokenTransfer	Internal 🔒	🔴	
DexFactory	Interface			
└	createPair	External ❗	🔴	NO ❗
DexRouter	Interface			
└	factory	External ❗		NO ❗
└	WETH	External ❗		NO ❗
└	addLiquidityETH	External ❗	💵	NO ❗
└	swapExactTokensForETHSupportingFeeOnTransferTokens	External ❗	🔴	NO ❗
BEN	Implementation	ERC20, Ownable		
└	<Constructor>	Public ❗	🔴	ERC20
└	enableTrading	External ❗	🔴	onlyOwner
└	setWhitelistStatus	External ❗	🔴	onlyOwner
└	checkWhitelist	External ❗		NO ❗
└	_transfer	Internal 🔒	🔴	

Legend

Symbol	Meaning
🔴	Function can modify state
💵	Function is payable

STATIC ANALYSIS

```
Context._msgData() (contracts/Token.sol#269-271) is never used and should be removed
ERC20._burn(address,uint256) (contracts/Token.sol#782-798) is never used and should be removed
SafeMath.add(uint256,uint256) (contracts/Token.sol#113-115) is never used and should be removed
SafeMath.div(uint256,uint256) (contracts/Token.sol#155-157) is never used and should be removed
SafeMath.div(uint256,uint256,string) (contracts/Token.sol#211-220) is never used and should be removed
SafeMath.mod(uint256,uint256) (contracts/Token.sol#171-173) is never used and should be removed
SafeMath.mod(uint256,uint256,string) (contracts/Token.sol#237-246) is never used and should be removed
SafeMath.mul(uint256,uint256) (contracts/Token.sol#141-143) is never used and should be removed
SafeMath.sub(uint256,uint256) (contracts/Token.sol#127-129) is never used and should be removed
SafeMath.sub(uint256,uint256,string) (contracts/Token.sol#188-197) is never used and should be removed
SafeMath.tryAdd(uint256,uint256) (contracts/Token.sol#27-36) is never used and should be removed
SafeMath.tryDiv(uint256,uint256) (contracts/Token.sol#78-86) is never used and should be removed
SafeMath.tryMod(uint256,uint256) (contracts/Token.sol#93-101) is never used and should be removed
SafeMath.tryMul(uint256,uint256) (contracts/Token.sol#58-71) is never used and should be removed
SafeMath.trySub(uint256,uint256) (contracts/Token.sol#43-51) is never used and should be removed
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#dead-code

Pragma version^0.8.17 (contracts/Token.sol#9) necessitates a version too recent to be trusted. Consider deploying with 0.6.12/0.7.6/0.8.16
solc-0.8.19 is not recommended for deployment
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#incorrect-versions-of-solidity

Function DexRouter.WETH() (contracts/Token.sol#904) is not in mixedCase
Parameter BEN.setWhitelistStatus(address,bool)._wallet (contracts/Token.sol#956) is not in mixedCase
Parameter BEN.setWhitelistStatus(address,bool)._status (contracts/Token.sol#957) is not in mixedCase
Parameter BEN.checkWhitelist(address)._wallet (contracts/Token.sol#963) is not in mixedCase
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#conformance-to-solidity-naming-conventions

BEN.constructor() (contracts/Token.sol#936-947) uses literals with too many digits:
        - _mint(msg.sender,420690000000000 * 10 ** decimals()) (contracts/Token.sol#946)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#too-many-digits
```

Static Analysis
an static analysis of the code were performed using slither. No issues were found

FUNCTIONAL TESTING

Router (PCS V2):
0xD99D1c33F9fC3444f8101754aBC46c52416550D1

1- Adding liquidity (passed):
https://testnet.bscscan.com/tx/0x55b415e834d775f4dfe24d563b
ba597eeb1b54b91dd0726dfbda2ae99d6f375b

2- Buying (0% tax) (passed):
https://testnet.bscscan.com/tx/0xb9f3d7b805d14a82be96067d71
c4c884db7ac6524b7bd4cd83d379d8230896b8

3- Selling (0% tax) (passed):
https://testnet.bscscan.com/tx/0x365d710cc2e10631c0385cf80d8
9d900777d542dbe88fc1ec33a2cb5f7e95f0a

4- Transferring 0% tax) (passed):
https://testnet.bscscan.com/tx/0xd0fc17ca214e0f920527ad78309
76a771ab1a621a71277ca30d8e48e0b2ea558

FUNCTIONAL TESTING

Centralization – Owner must enable trades

Severity: High

function: enableTrading

Status: Not Resolved

Overview:

Owner must enable trades for investors manually. If trades remain disabled, no one would be able to buy/sell/transfer tokens (except owner)

```
function enableTrading() external onlyOwner {
    require(!tradingEnabled, "Trading is already enabled");
    tradingEnabled = true;
    startTradingBlock = block.number;
}
```

Suggestion

To mitigate this issue, there are several options:

- Enable trades before starting the presale

- Transfer ownership of the contract to a trust 3rd party like pinksale (safu dev) in order to guarantee that trades will be enabled

- create a mechanism which will enable trades automatically after a preiod of time

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