



Security Assessment

Shibaments

Verified on 09/06/2023

SUMMARY

Project

CHAIN

METHODOLOGY

Shibaments

Shibarium

Manual & Automatic Analysis

FILES

DELIVERY

TYPE

Single

09/06/2023

Standard Audit


■ 0 Critical

An exposure that can affect the contract functions in several events that can risk and disrupt the contract

■ 0 Major

An exposure that can affect the outcome when using the contract that can serve as an opening in manipulating the contract in an unwanted manner

■ 0 Medium

An opening that could affect the outcome in executing the contract in a specific situation

■ 0 Minor

An opening but doesn't have an impact on the functionality of the contract

■ 5 Informational

An opening that consists information but will not risk or affect the contract

STATUS
✓ **AUDIT PASSED**

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DISCLAIMER | Shibaments

ContractWolf audits and reports should not be considered as a form of project's "Advertisement" and does not cover any interaction and assessment from "Project Contract" to "External Contracts" such as PancakeSwap, UniSwap, SushiSwap or similar.

ContractWolf does not provide any warranty on its released report and should not be used as a decision to invest into audited projects.

ContractWolf provides a transparent report to all its "Clients" and to its "Clients Participants" and will not claim any guarantee of bug-free code within its **SMART CONTRACT**.

ContractWolf's presence is to analyze, audit and assess the Client's Smart Contract to find any underlying risk and to eliminate any logic and flow errors within its code.

Each company or project should be liable to its security flaws and functionalities.

SCOPE OF WORK | Shibaments

Shibaments team has agreed and provided us with the files that need to be tested (*Github, BSCscan, Etherscan, Local files etc*). The scope of audit is the main contract.

The goal of this engagement is to identify if there is a possibility of security flaws in the implementation of smart contract and its systems.

ContractWolf will be focusing on contract issues and functionalities along with the project claims from smart contract to their website, whitepaper, repository which has been provided by **Shibaments**.

AUDITING APPROACH | Shibaments

Every line of code along with its functionalities will undergo manual review to check for security issues, quality of logic and contract scope of inheritance. The manual review will be done by our team that will document any issues that they discovered.

METHODOLOGY

The auditing process follows a routine series of steps :

1. Code review that includes the following :
 - Review of the specifications, sources and instructions provided to ContractWolf to make sure we understand the size, scope and functionality of the smart contract.
 - Manual review of code. Our team will have a process of reading the code line-by-line with the intention of identifying potential vulnerabilities, underlying and hidden security flaws.
2. Testing and automated analysis that includes :
 - Testing the smart contract function with common test cases and scenarios to ensure that it returns the expected results.
3. Best practices and ethical review. The team will review the contract with the aim to improve efficiency, effectiveness, clarifications, maintainability, security and control within the smart contract.
4. Recommendations to help the project take steps to eliminate or minimize threats and secure the smart contract.

TOKEN DETAILS | Shibaments

Shibaments is a GameFi ecosystem on Shibarium that aims to build fun games that can also be profitable for the users.



Token Name	Symbol	Decimal	Total Supply	Chain
ShibamentToken	SBMT	18	1,000,000	Shibarium

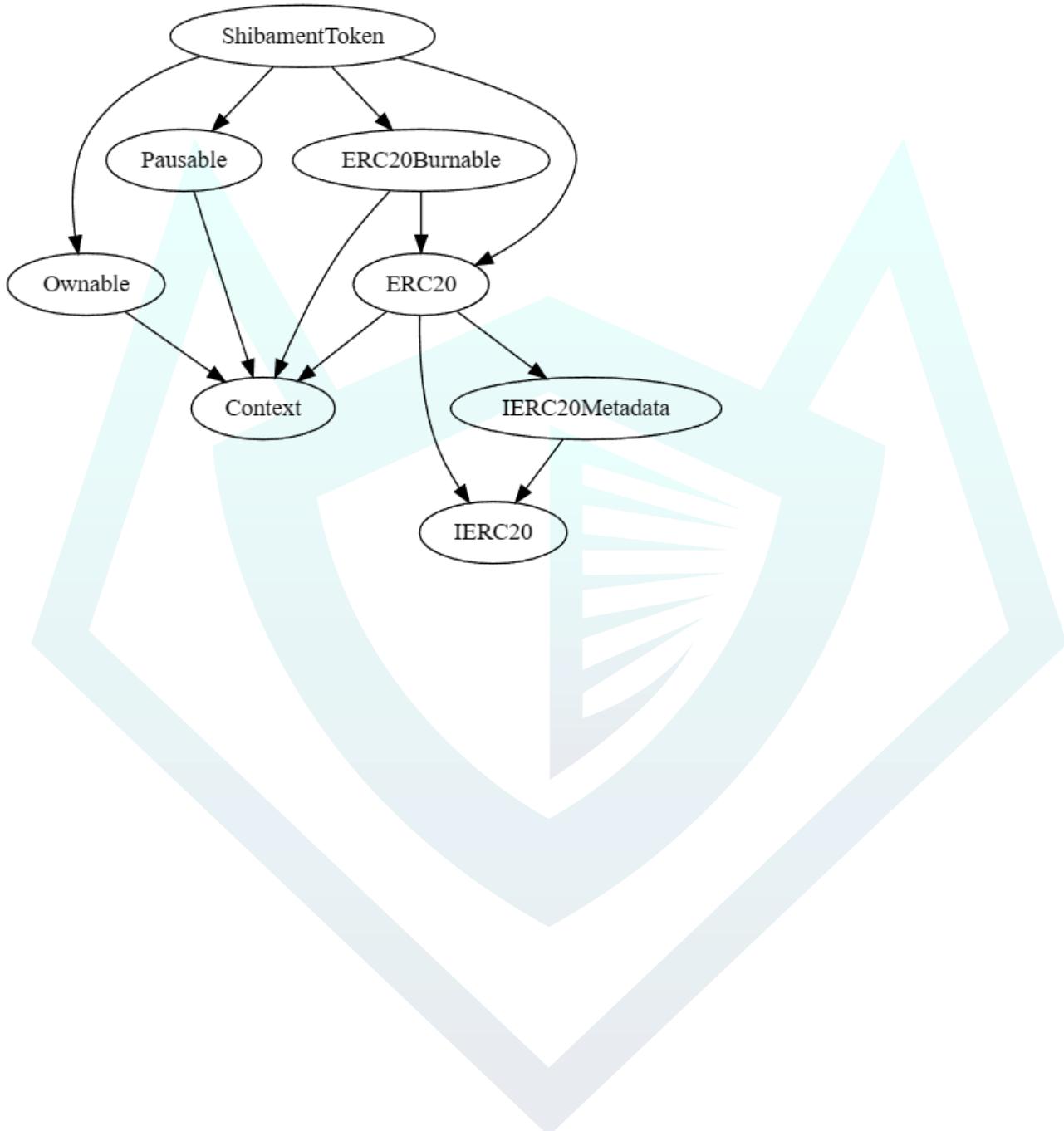
SOURCE

Source *Sent Via local-files*

INHERITANCE GRAPH

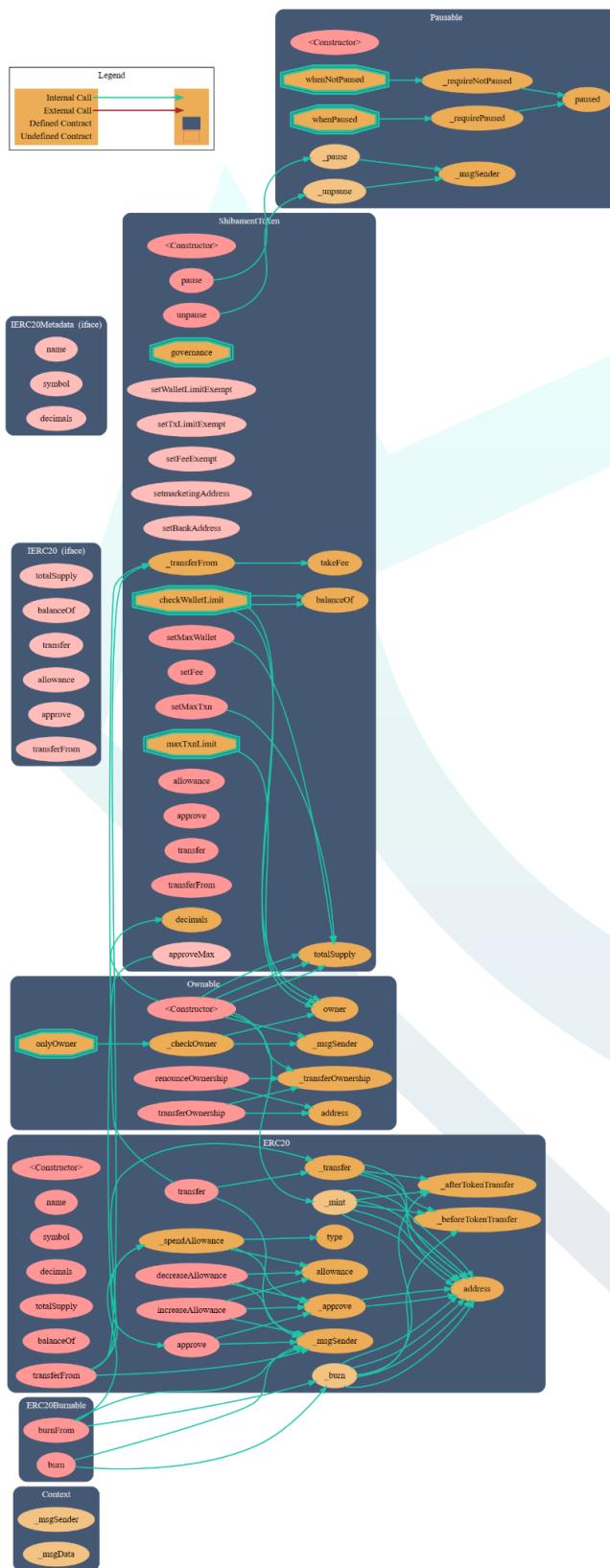
Shibaments

Inheritance Graph of Contract Functions

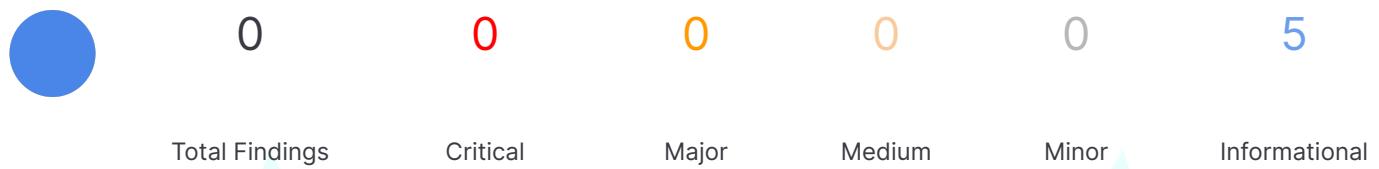


CALL GRAPH | Shibaments

Call Graph of Contract Functions



FINDINGS | Shibaments



This report has been prepared to state the issues and vulnerabilities for Shibaments through this audit. The goal of this report findings is to identify specifically and fix any underlying issues and errors

ID	Title	File & Line #	Severity	Status
SWC-103	Floating Pragma is set	ShibamentsToken.sol, L: 771	Informational	<ul style="list-style-type: none"> Pending
CW-011	Unused Function Parameter	ShibamentsToken.sol, L: 908	Informational	<ul style="list-style-type: none"> Pending
N/A	Fees can be set to 100%	ShibamentsToken.sol, L: 857	Informational	<ul style="list-style-type: none"> Resolved
N/A	MaxTx MaxWallet can be set to 0	ShibamentsToken.sol, L: 852, 863	Informational	<ul style="list-style-type: none"> Resolved
N/A	bankAddress transfer allowance checker	ShibamentsToken.sol, L: 886	Informational	<ul style="list-style-type: none"> Resolved

SWC ATTACKS

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Smart Contract Weakness Classification and Test Cases

ID	Description	Status
SWC-100	Function Default Visibility	● Passed
SWC-101	Integer Overflow and Underflow	● Passed
SWC-102	Outdated Compiler Version	● Passed
SWC-103	Floating Pragma	● Not Passed
SWC-104	Unchecked Call Return Value	● Passed
SWC-105	Unprotected Ether Withdrawal	● Passed
SWC-106	Unprotected SELF DESTRUCT Instruction	● Passed
SWC-107	Reentrancy	● Passed
SWC-108	State Variable Default Visibility	● Passed
SWC-109	Uninitialized Storage Pointer	● Passed
SWC-110	Assert Violation	● Passed
SWC-111	Use of Deprecated Solidity Functions	● Passed
SWC-112	Delegatecall to Untrusted Callee	● Passed
SWC-113	DoS with Failed Call	● Passed
SWC-114	Transaction Order Dependence	● Passed
SWC-115	Authorization through tx.origin	● Passed
SWC-116	Block values as a proxy for time	● Passed
SWC-117	Signature Malleability	● Passed
SWC-118	Incorrect Constructor Name	● Passed
SWC-119	Shadowing State Variables	● Passed
SWC-120	Weak Sources of Randomness from Chain Attributes	● Passed
SWC-121	Missing Protection against Signature Replay Attacks	● Passed
SWC-122	Lack of Proper Signature Verification	● Passed

ID	Description	Status
SWC-123	Requirement Violation	Passed
SWC-124	Write to Arbitrary Storage Location	Passed
SWC-125	Incorrect Inheritance Order	Passed
SWC-126	Insufficient Gas Griefing	Passed
SWC-127	Arbitrary Jump with Function Type Variable	Passed
SWC-128	DoS With Block Gas Limit	Passed
SWC-129	Typographical Error	Passed
SWC-130	Right-To-Left-Override control character(U+202E)	Passed
SWC-131	Presence of unused variables	Passed
SWC-132	Unexpected Ether balance	Passed
SWC-133	Hash Collisions With Multiple Variable Arguments	Passed
SWC-134	Message call with hardcoded gas amount	Passed
SWC-135	Code With No Effects	Passed
SWC-136	Unencrypted Private Data On-Chain	Passed

CW ASSESSMENT

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ContractWolf Vulnerability and Security Tests

ID	Name	Description	Status
CW-001	Multiple Version	Presence of multiple compiler version across all contracts	✓
CW-002	Incorrect Access Control	Additional checks for critical logic and flow	✓
CW-003	Payable Contract	A function to withdraw ether should exist otherwise the ether will be trapped	✓
CW-004	Custom Modifier	major recheck for custom modifier logic	✓
CW-005	Divide Before Multiply	Performing multiplication before division is generally better to avoid loss of precision	✓
CW-006	Multiple Calls	Functions with multiple internal calls	✓
CW-007	Deprecated Keywords	Use of deprecated functions/operators such as block.blockhash() for blockhash(), msg.gas for gasleft(), throw for revert(), sha3() for keccak256(), callcode() for delegatecall(), suicide() for selfdestruct(), constant for view or var for actual type name should be avoided to prevent unintended errors with newer compiler versions	✓
CW-008	Unused Contract	Presence of an unused, unimported or uncalled contract	✓
CW-009	Assembly Usage	Use of EVM assembly is error-prone and should be avoided or double-checked for correctness	✓
CW-010	Similar Variable Names	Variables with similar names could be confused for each other and therefore should be avoided	✓
CW-011	Commented Code	Removal of commented/unused code lines	✗
CW-012	SafeMath Override	SafeMath is no longer needed starting with Solidity v0.8+. The compiler now has built-in overflow checking.	✓

FIXES & RECOMMENDATION

SWC-103 | A FloatingPragma is Set

Code

```
pragma solidity ^0.8.17;
```

The compiler version should be a fixed one to avoid undiscovered compiler bugs. Fixed version sample below

```
pragma solidity 0.8.17;
```

CW-011 | Unused Function Parameter

`address sender` parameter is not used and should be removed to save gas and keep the code clean

```
function takeFee(address sender, uint256 amount) internal returns (uint256) {  
  
    uint256 marketingFeeAmount = (amount * marketingFeeMultiplier) / 100;  
    uint256 devFeeAmount = (amount * devFeeMultiplier) / 100;  
  
    // Deduct the fees from the amount  
    uint256 finalAmount = amount - marketingFeeAmount - devFeeAmount;  
  
    // Transfer the fees  
    balances[marketingAddress] = balances[marketingAddress] + marketingFeeAmount;  
    balances[devAddress] = balances[devAddress] + devFeeAmount;  
  
    return finalAmount;  
}
```

Max Transaction and Max Wallet can be set to 0, pausing the trading
RESOLVED

functions `setMaxWallet` and `setMaxTxn` can be set to 0, and can be used to pause the trading for users freezing their tokens/balance, adding a checker/require to not let `maxTxn` and `maxWallet` not lower than a desired percentage or cannot be 0

```
function setMaxTxn(uint txnMultiplier) public onlyOwner
{
    maxTxn = (totalSupply() * txnMultiplier / 200);
}

function setMaxWallet(uint walletMultiplier) public onlyOwner
{
    maxWallet = (totalSupply() * walletMultiplier / 200);
}
```

Fees can be set to 100%, can take all transfer amount **RESOLVED**

Function setFee can be set to 100%, taking all the transfer amount of the user and giving it all to the receivers, adding a checker/require so taking of fees can be not greater than the desired limit

```
function setMaxTxn(uint txnMultiplier) public onlyOwner
{
    maxTxn = (totalSupply() * txnMultiplier / 200);
```

Function transferFrom doesn't check bankAddress allowance **RESOLVED**

Function transferFrom doesn't check bankAddress allowance, anyone can take tokens from bankAddress when contract is called directly, checking the allowance for bankAddress to avoid unwanted actions within the contract

```
function transferFrom(address sender, address recipient, uint256 amount) public
override returns (bool) {
    // If the sender is not the bank contract, check the allowance
    // This is needed to avoid having the connected gamefi contract approve every
single user when they want to withdraw their winnings
    if (sender != bankAddress)
    {
        if(_allowances[sender][msg.sender] != uint256(2**256 - 1)){
            _allowances[sender][msg.sender] = (_allowances[sender][msg.sender] -
amount);
        }
    }
    return _transferFrom(sender, recipient, amount);
}
```



AUDIT COMMENTS

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Smart Contract audit comment for a non-technical perspective

- Owner can toggle pausing of trading
- Owner can set fees up to 20%
- Owner can set max transaction amount and max wallet not lower than .5% of total supply each
- Contract has public burn function
- Governance address can change bank address
- Owner can include addresses from max wallet exempt, fees exempt and transaction limit exempt
- Owner can renounce and transfer ownership
- Owner can change marketing address receiver
- Owner can burn
- Owner cannot mint after initial deployment
- Owner cannot block users



CONTRACTWOLF

Blockchain Security - Smart Contract Audits