Audit Report

ShibaSafe

February 2022

Type	Github
SHA256	16fedae6781fffb1ba8fc02d40826b40dcdc5578ce02eb95caf25a7909048b59
Audited by	© coinscope

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Contract Review

Github	https://github.com/Elevate-Software/ShibaSafe
Commit	17f0720bcc6d0809f3dbf75eca823a4e966475f5
SHA256	16fedae6781fffb1ba8fc02d40826b40dcdc5578ce02eb95caf25a7909048b59
Domain	shibasafe.com

Audit Updates

Initial Audit	16th February 2022
Corrected	18th February 2022

Contract Analysis

Critical Medium Minor Pass

Severity	Code	Description
●	ST	Contract Owner is not able to stop or pause transactions
●	OCTD	Contract Owner is not able to transfer tokens from specific address
●	OTUT	Owner Transfer User's Tokens
●	ELFM	Contract Owner is not able to increase fees more than a reasonable percent (25%)
●	ULTW	Contract Owner is not able to increase the amount of liquidity taken by dev wallet more than a reasonable percent
●	MT	Contract Owner is not able to mint new tokens
●	BT	Contract Owner is not able to burn tokens from specific wallet
●	BC	Contract Owner is not able to blacklist wallets from selling

ST - Stop Transactions

Criticality	medium
Location	contract.sol#L1017

Description

The contract owner has the authority to stop the transactions for all users excluding the owner. The owner may take advantage of it by setting the *tradingActive* to false and adding the owner's address to the *_isExcludedFromFee* list

```
require(tradingActive || (_isExcludedFromFee[sender] ||
_isExcludedFromFee[recipient]), "Trading is currently not active");
```

Recommendation

The team should carefully manage the private keys of the owner's account. We strongly recommend a powerful security mechanism that will prevent a single user from accessing the contract admin functions. That risk can be prevented by temporarily locking the contract or renouncing ownership.

BC - Blacklisted Contracts

Criticality	medium
Location	contract.sol#L1014

Description

The contract owner has the authority to stop contracts from transactions. The owner may take advantage of it by calling the `addBotToBlacklist` function.

```
require(!_isBlackListedBot[sender], "You are blacklisted");
require(!_isBlackListedBot[msg.sender], "You are blacklisted");
require(!_isBlackListedBot[tx.origin], "You are blacklisted");
```

Recommendation

The team should carefully manage the private keys of the owner's account. We strongly recommend a powerful security mechanism that will prevent a single user from accessing the contract admin functions. That risk can be prevented by temporarily locking the contract or renouncing ownership.

Fixed Swap Address

Description

The swap address is assigned once in the constructor and it can not be changed. The decentralized swaps sometimes create a new swap version or abandon the current. A contract that cannot change the swap address may not be able to catch-up the upgrade.

```
IUniswapV2Router02 _uniswapV2Router =
IUniswapV2Router02(0x10ED43C718714eb63d5aA57B78B54704E256024E);
// Create a uniswap pair for this new token
uniswapV2Pair = IUniswapV2Factory(_uniswapV2Router.factory())
    .createPair(address(this), _uniswapV2Router.WETH());

// set the rest of the contract variables
uniswapV2Router = _uniswapV2Router;
```

Recommendation

It could be better to allow the swap address mutation in case of future swap updates.

Contract Diagnostics

Critical Medium Minor

Severity	Code	Description
	DSM	Data Structure Misuse
	L01	Public Function could be Declared External
	L05	Unused State Variable
	L04	Conformance to Solidity Naming Conventions
	L09	Dead Code Elimination
	L07	Missing Events Arithmetic
	L13	Divide before Multiply Operation

DSM - Data Structure Misuse

Criticality	minor
Location	contract.sol#L904,911

Description

The contract uses the `_isBlackListedBot` and the `_blackListedBots` in order to store the blacklisted addresses. The `_blackListedBots` is not used anywhere in the contract. Hence, it merely produces unnecessary gas consumption.

```
function addBotToBlacklist (address account) external onlyOwner() {
    require(account != 0x10ED43C718714eb63d5aA57B78B54704E256024E, 'We cannot
blacklist UniSwap router');
    require (!_isBlackListedBot[account], 'Account is already blacklisted');
    _isBlackListedBot[account] = true;
    _blackListedBots.push(account);
}

function removeBotFromBlacklist(address account) external onlyOwner() {
    require (_isBlackListedBot[account], 'Account is not blacklisted');
    for (uint256 i = 0; i < _blackListedBots.length; i++) {
            if (_blackListedBots[i] == account) {
                _blackListedBots[i] = _blackListedBots[_blackListedBots.length -
1];
                _isBlackListedBot[account] = false;
                _blackListedBots.pop();
                break;
            }
    }
}
```

Recommendation

The `_blackListedBots` could be eliminated from the contract since it is not used.

L01 - Public Function could be Declared External

Criticality	minor
Location	contract.sol#L420,429,815,819,823,827,836,841,845,850 and 22 more

Description

Public functions that are never called by the contract should be declared external to save gas.

```
_getETHBalance
_getMaxTxAmount
_getFutureFee
_getStakingFee
_getBuyUseFee
_getUseFee
_getBuyFutureFee
_getBuyMarketingFee
_getMarketingFee
...
```

Recommendation

Use the external attribute for functions never called from the contract

L05 - Unused State Variable

Criticality	minor
Location	contract.sol#L386

Description

There are segments that contain unused state variables.

```
_previousOwner
```

Recommendation

Remove unused state variables.

L04 - Conformance to Solidity Naming Conventions

Criticality	minor
Location	contract.sol#L487,488,517,536,783,784,1226,1230,1235,1239 and 33 more

Description

Solidity defines a naming convention that should be followed. Rule exceptions:

- Allow constant variable name/symbol/decimals to be lowercase.
- Allow _ at the beginning of the mixed_case match for private variables and unused parameters.

```
_numOfTokensToExchangeForTeam
_futureFeeWalletAddress
_stakingWalletAddress
_useCaseWalletAddress
_marketingWalletAddress
_decimals
_symbol
_name
_tTotal
...
```

Recommendation

Follow the Solidity naming convention.
https://docs.soliditylang.org/en/v0.4.25/style-guide.html#naming-conventions

L09 - Dead Code Elimination

Criticality	minor
Location	contract.sol#L360,320,330,345,355,267,294,14,227,243

Description

Functions that are not used in the contract, and make the code's size bigger.

```
mod
_msgData
sendValue
isContract
functionCallWithValue
functionCall
_functionCallWithValue
...
```

Recommendation

Remove unused functions.

L07 - Missing Events Arithmetic

Criticality	minor
Location	contract.sol#L878,1331,1339,1346,1353,1361,1369,1376,1399

Description

Detected missing events for critical arithmetic parameters. There are functions that have no event emitted, so it is difficult to track off-chain changes.

```
_maxTxAmount = maxTxAmount
_futureFee = futureFee
_stakingFee = stakingFee
_buyUseFee = buyUseFee
_useFee = useFee
_buyFutureFee = buyFutureFee
_buyMarketingFee = buyMarketingFee
_marketingFee = marketingFee
_tFeeTotal = _tFeeTotal.add(tAmount)
```

Recommendation

Emit an event for critical parameter changes.

L13 - Divide before Multiply Operation

Criticality	minor
Location	contract.sol#L1010,1085

Description

Performing divisions before multiplications may cause lose of prediction.

```
_futureFeeWalletAddress.transfer(amount.div(_buyTotalFee).mul(_buyFutureFee))
_futureFeeWalletAddress.transfer(amount.div(_totalFee).mul(_futureFee))
_useCaseWalletAddress.transfer(amount.div(_buyTotalFee).mul(_buyUseFee))
_useCaseWalletAddress.transfer(amount.div(_totalFee).mul(_useFee))
_marketingWalletAddress.transfer(amount.div(_buyTotalFee).mul(_buyMarketingFee))
_marketingWalletAddress.transfer(amount.div(_totalFee).mul(_marketingFee))
takeStakingReward = amount.div(100).mul(_stakingFee)
```

Recommendation

The multiplications should be prior to the divisions.

Contract Functions

Contract	Type	Bases		
	Function Name	**Visibility**	**Mutability**	**Modifiers**
Context	Implementation			
	_msgSender	Internal		
	_msgData	Internal		
IERC20	Interface			
	totalSupply	External		-
	balanceOf	External		-
	transfer	External	✓	-
	allowance	External		-
	approve	External	✓	-
	transferFrom	External	✓	-
SafeMath	Library			
	add	Internal		
	sub	Internal		
	sub	Internal		
	mul	Internal		
	div	Internal		
	div	Internal		
	mod	Internal		
	mod	Internal		
Address	Library			
	isContract	Internal		
	sendValue	Internal	✓	
	functionCall	Internal	✓	
	functionCall	Internal	✓	
	functionCallWithValue	Internal	✓	
	functionCallWithValue	Internal	✓	

	_functionCallWithValue	Private	✓	
Ownable	Implementation	Context		
	<Constructor>	Internal	✓	
	owner	Public		-
	renounceOwnership	Public	✓	onlyOwner
	transferOwnership	Public	✓	onlyOwner
IUniswapV2Factory	Interface			
	feeTo	External		-
	feeToSetter	External		-
	getPair	External		-
	allPairs	External		-
	allPairsLength	External		-
	createPair	External	✓	-
	setFeeTo	External	✓	-
	setFeeToSetter	External	✓	-
IUniswapV2Pair	Interface			
	name	External		-
	symbol	External		-
	decimals	External		-
	totalSupply	External		-
	balanceOf	External		-
	allowance	External		-
	approve	External	✓	-
	transfer	External	✓	-
	transferFrom	External	✓	-
	DOMAIN_SEPARATOR	External		-
	PERMIT_TYPEHASH	External		-
	nonces	External		-
	permit	External	✓	-
	MINIMUM_LIQUIDITY	External		-
	factory	External		-

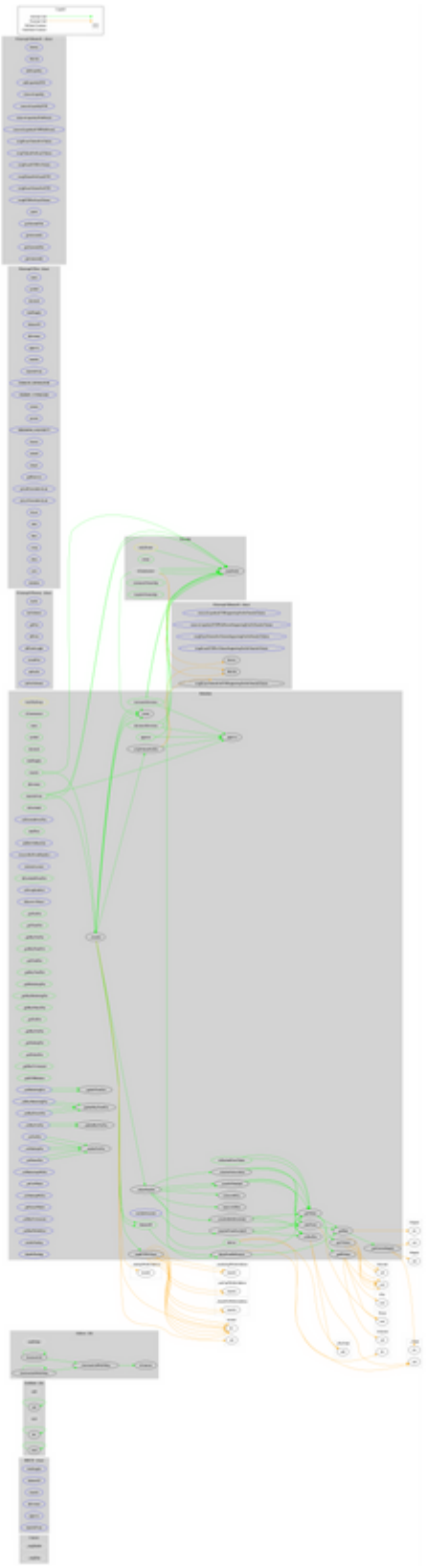
	token0	External		-
	token1	External		-
	getReserves	External		-
	price0CumulativeLast	External		-
	price1CumulativeLast	External		-
	kLast	External		-
	mint	External	✓	-
	burn	External	✓	-
	swap	External	✓	-
	skim	External	✓	-
	sync	External	✓	-
	initialize	External	✓	-
IUniswapV2Router01	Interface			
	factory	External		-
	WETH	External		-
	addLiquidity	External	✓	-
	addLiquidityETH	External	Payable	-
	removeLiquidity	External	✓	-
	removeLiquidityETH	External	✓	-
	removeLiquidityWithPermit	External	✓	-
	removeLiquidityETHWithPermit	External	✓	-
	swapExactTokensForTokens	External	✓	-
	swapTokensForExactTokens	External	✓	-
	swapExactETHForTokens	External	Payable	-
	swapTokensForExactETH	External	✓	-
	swapExactTokensForETH	External	✓	-
	swapETHForExactTokens	External	Payable	-
	quote	External		-
	getAmountOut	External		-
	getAmountIn	External		-
	getAmountsOut	External		-
	getAmountsIn	External		-

IUniswapV2Router02	Interface	IUniswapV2Router01		
	removeLiquidityETHSupportingFeeOnTransferTokens	External	✓	-
	removeLiquidityETHWithPermitSupportingFeeOnTransferTokens	External	✓	-
	swapExactTokensForTokensSupportingFeeOnTransferTokens	External	✓	-
	swapExactETHForTokensSupportingFeeOnTransferTokens	External	Payable	-
	swapExactTokensForETHSupportingFeeOnTransferTokens	External	✓	-
ShibaSafe	Implementation	Context, IERC20, Ownable		
	<Constructor>	Public	✓	-
	name	Public		-
	symbol	Public		-
	decimals	Public		-
	totalSupply	Public		-
	balanceOf	Public		-
	transfer	Public	✓	-
	allowance	Public		-
	approve	Public	✓	-
	transferFrom	Public	✓	-
	increaseAllowance	Public	✓	-
	decreaseAllowance	Public	✓	-
	isExcluded	Public		-
	setExcludeFromFee	External	✓	onlyOwner
	totalFees	Public		-
	deliver	Public	✓	-
	reflectionFromToken	Public		-
	tokenFromReflection	Public		-
	addBotToBlacklist	External	✓	onlyOwner
	removeBotFromBlacklist	External	✓	onlyOwner
	excludeAccount	External	✓	onlyOwner
	includeAccount	External	✓	onlyOwner

	removeAllFee	Private	✓	
	restoreAllFee	Private	✓	
	isExcludedFromFee	Public		-
	_approve	Private	✓	
	_transfer	Private	✓	
	swapTokensForEth	Private	✓	lockTheSwap
	sendETHToTeam	Private	✓	
	setSwapEnabled	External	✓	onlyOwner
	_tokenTransfer	Private	✓	
	_transferStandard	Private	✓	
	_transferToExcluded	Private	✓	
	_transferFromExcluded	Private	✓	
	_transferBothExcluded	Private	✓	
	_takeTeam	Private	✓	
	_reflectFee	Private	✓	
	<Receive Ether>	External	Payable	-
	_getValues	Private		
	_getTValues	Private		
	_getRValues	Private		
	_getRate	Private		
	_getCurrentSupply	Private		
	_getTaxFee	Public		-
	_getTeamFee	Public		-
	_getBuyTaxFee	Public		-
	_getBuyTeamFee	Public		-
	_getTotalFee	Public		-
	_getBuyTotalFee	Public		-
	_getMarketingFee	Public		-
	_getBuyMarketingFee	Public		-
	_getBuyFutureFee	Public		-
	_getUseFee	Public		-
	_getBuyUseFee	Public		-
	_getStakingFee	Public		-
	_getFutureFee	Public		-
	_getMaxTxAmount	Public		-

	_getETHBalance	Public		-
	_updateTeamFee	Private	✓	
	_updateBuyTeamFee	Private	✓	
	_updateTaxFee	Private	✓	
	_updateBuyTaxFee	Private	✓	
	_setMarketingFee	External	✓	onlyOwner
	_setBuyMarketingFee	External	✓	onlyOwner
	_setBuyFutureFee	External	✓	onlyOwner
	_setUseFee	External	✓	onlyOwner
	_setBuyUseFee	External	✓	onlyOwner
	_setStakingFee	External	✓	onlyOwner
	_setFutureFee	External	✓	onlyOwner
	_setMarketingWallet	External	✓	onlyOwner
	_setUseWallet	External	✓	onlyOwner
	_setStakingWallet	External	✓	onlyOwner
	_setFutureWallet	External	✓	onlyOwner
	_setMaxTxAmount	External	✓	onlyOwner
	_setMaxWalletSize	External	✓	onlyOwner
	enableTrading	External	✓	onlyOwner
	disableTrading	External	✓	onlyOwner

Contract Flow



Domain Info

Domain Name	shibasafe.com
Registry Domain ID	2659543673_DOMAIN_COM-VRSN
Creation Date	2021-12-04T21:03:54Z
Updated Date	2021-12-04T21:03:54Z
Registry Expiry Date	2022-12-04T21:03:54Z
Registrar WHOIS Server	whois.godaddy.com
Registrar URL	http://www.godaddy.com
Registrar	GoDaddy.com, LLC
Registrar IANA ID	146

The domain has been created 2 months before the creation of the audit. It will expire in 10 months.

There is no public billing information, the creator is protected by the privacy settings.

Summary

In the scope of the audit we focus on security, performance optimizations and business logic recommendations.

There are some functions that can be abused by the owner, like blacklisting addresses and stopping transactions. A multi-wallet signing pattern will provide security against potential hacks. Temporarily locking the contract or renouncing ownership will eliminate all the contract threats.

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