

RugFreeCoins Audit



Versa Token

Smart Contract Security Audit

August 24, 2022

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Audit details



Audited project Versatile Finance Token



Contract Address

0xfD3dBB4709Af9FeEB87EB842Cf6b6b5F37B30fAc



Client contact

Versatile Finance Team



Blockchain

Binance smart chain



Project website

https://versatile.finance/

Disclaimer

This is a limited report on our findings based on our analysis, in accordance with good industry practice as at 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 us on the basis of what it says or doesn't say, or how we produced it, and it is important for you to conduct your own independent investigations before making any decisions. We go into more detail on this in the disclaimer below – please make sure to read it in full.

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Overview

- ☑ No mint function found, the owner cannot mint tokens after initial deployment.
- ✓ The owner can't set a max transaction limit lower than 0.1% of the circulating supply.
- ▼ The owner can't pause trading.
- ✓ The owner can't set fees over 25%.
- ✓ Owner can't blacklist wallets.
- The owner can't claim the contract's balance of its own token.
- ① The owner can set a max wallet limit lower than 1% of the circulating supply, but cannot limit it lower than 0.1%.

Background

Rugfreecoins was commissioned by the Versa Team to perform an audit of the smart contract.

https://bscscan.com/address/0xfD3dBB4709Af9FeEB87EB842Cf6b6b5F37B30fAc

The focus of this audit is to verify that the smart contract is secure, resilient, and working according to the specifications.

The information in this report should be used to understand the risk exposure of the smart contract, project feasibility, and long-term sustainability, and as a guide to improving the security posture of the smart contract by remediating the issues that were identified.

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About the project

Features

- The **BUSD** rewards will be distributed among every holder proportional to how many tokens each individual holds in values of 3% when buying and selling.
- The additional component included under the sustainability section is a liquidity fee of 1% when buying and selling, which is a redistribution mechanism that ensures the trading pool always has sufficient liquidity.
- The sustainability fee of 3% for marketing and development and 1% strategic wallet, is what allows Versa Token to hold the aforementioned promise. Tokens will be swapped into BUSD and will be sent to the marketing wallet and strategic wallet. This way, Versa Token will have enough funds to promote the coin and spend for future development without selling tokens as the traditional way.

ROADMAP

Crawl

- Contract and Audit
- Business Incubator Platform Initial Release
- Seed and Pre-sale
- PCS Launch
- Business and Partnership pitch deck
- · Core Partnership onboarding

Walk

- Versa Rewards and Autoswap
- Versa Blockchain Fund
- Versa Lottery
- Versa Stake
- Business Incubator Platform New utilities and Services
- Expand Team and Partnership

Run

- Market Research on DeFi trends
- New utilities ideation and selection
- Business Incubator Platform New utilities and Services
- Expand Partnership
- Scale Versa Blockchain Fund
- · Secret utility planning kick-off

Fly

- Register Versatile Finance (Country TBD)
- Regulatory approval for Versa Blockchain Fund
- · Secret utility build and launch
- Continue Building new products and service

Tokenomics

8% fee when buying and selling

- 3% of trade goes in BUSD among all holders
- 3% of trade goes to the marketing & development wallet in BNB.
- 1% of trade goes to the liquidity pool.
- 1% of trade goes to the strategic project tax wallet.

Target market and the concept

Target market

- Anyone who's interested in the Crypto space with long-term investment plans.
- Anyone who's ready to earn a passive income by holding tokens.
- Anyone who's interested in trading tokens.
- Anyone who's interested in taking part in the future plans of the Versa token.
- Anyone who's interested in making financial transactions with any other party using Versa Token as the currency.

Potential to grow with score points

1.	Project efficiency	10/10
2.	Project uniqueness	10/10
3	Information quality	10/10
4	Service quality	10/10
5	System quality	9/10
6	Impact on the community	10/10
7	Impact on the business	10/10
8	Preparing for the future	10/10
9	Smart contract security	10/10
10	Smart contract functionality assessment	10/10
Total Points		10/10

Contract details

Token contract details for 24th August 2022

Contract name	Versatile Finance
Contract address	0xfD3dBB4709Af9FeEB87EB842Cf6b6b5F37B30fAc
Token supply	1,000,000,000
Token ticker	\$VERSA
Decimals	9
Token holders	3
Transaction count	9
Dev Fee Receiver	0xddb447078428c9bed6287a0cfc80a25120f1724a
Dividend Tracker	0x94f9839cf56565f5dea464cc4a311e0d7205d84d
P2E fee receiver	0x47644e55068c0cd885b31bd7f589e7b1d6a39aeb
Stake Fee Receiver	0x02ce017765da681ba29fbbeecb990515d172e617
Strategic Fee Receiver	0x31e0fadd311c26d1b2ef645533cc03ebd27846fd
Contract deployer address	0xD28EBE5C504cC7416e287881e6991223F353D95f
Contract's current owner address	0x22ca22519a1bed1834933af0ed8aa1f66c4281c2

Contract code function details

No	Category	Item	Result
1	Coding conventions	BRC20 Token standards	pass
		compile errors	pass
		Compiler version security	pass
		visibility specifiers	pass
		Gas consumption	pass
		SafeMath features	pass
		Fallback usage	pass
		tx.origin usage	pass
		deprecated items	pass
		Redundant code	pass
		Overriding variables	pass
2	Function call audit	Authorization of function call	pass
		Low level function (call/delegate call) security	pass
		Returned value security	pass
		Self-destruct function security	pass
3	Business security	Access control of owners	pass
		Business logics	pass
		Business implementations	Low severity
4	Integer overflow/underflow		pass
5	Reentrancy		pass
6	Exceptional reachable state		pass
7	Transaction ordering dependence		pass
8	Block properties dependence		pass
9	Pseudo random number generator (PRNG)		pass
10	DoS (Denial of Service)		pass
11	Token vesting implementation		pass

12	Fake deposit	pass
13	Event security	pass

Contract description table

The below table represents the summary of the contracts and methods in the token contract. We scanned the whole contract and listed down all the Interfaces, functions, and implementations with their visibility and mutability.

Contract	Туре	Bases		
L	Function Name	Visibility	Mutability	Modifiers
VERSA	Implementation	IERC20, Ownable		
L		Public		NO
L		External [GD	NO
L	totalSupply	External [NO
L	name	Public		NO
L	symbol	Public		NO
L	decimals	Public		NO
L	balanceOf	Public		NO
L	getHolderDetails	Public		NO
L	getLastProcessedIndex	Public		NO
L	getNumberOfTokenHolders	Public		NO
L	totalDistributedRewards	Public		NO
L	allowance	External		NO
L	approve	Public		NO

L	_approve	Internal 🦺	
L	approveMax	External [NO !
L	transfer	External [NO.
L	transferFrom	External	NO.
L	_transferFrom	Internal 🖺	
L	_basicTransfer	Internal 🖺	
L	shouldTakeFee	Internal 🖺	
L	takeFee	Internal 🖺	
L	shouldSwapBack	Internal 🖺	
L	clearStuckBalance	External	onlyOwner
L	updateLpAddress	External	onlyOwner
L	getBep20Tokens	External	onlyOwner
L	updateBuyFees	Public	onlyOwner
L	updateSellFees	Public	onlyOwner
L	updateSwapPercentages	Public	onlyOwner
L	enableTrading	Public	onlyOwner
L	whitelistPreSale	Public	onlyOwner
L	claimRewards	Public	NO.
L	claimProcess	Public	NO.
L	isRewardExclude	Public	NO.
L	isFeeExclude	Public	NO.

L	isMaxTxExcluded	Public	NO
L	isMaxWalletExcluded	Public	NO
L	setMaxTxAmount	External	onlyOwner
L	swapBackInBnb	Internal 🖺	swapping
L	swapAndLiquify	Private 🖺	
L	swapTokensForEth	Private 🖺	
L	swapTokensForTokens	Private 🖺	
L	addLiquidity	Private 🖺	
L	setIsDividendExempt	External [onlyOwner
L	setIsFeeExempt	External	onlyOwner
L	addAuthorizedWallets	External	onlyOwner
L	setMaxWalletToken	External	onlyOwner
L	changeFeeWallets	External [onlyOwner
L	setSwapBackSettings	External	onlyOwner
L	setDistributionCriteria	External	onlyOwner
L	setDistributorSettings	External	onlyOwner
L	purgeBeforeSwitch	Public [onlyOwner
L	includeMeinRewards	Public	NO
L	switchToken	Public	onlyOwner
L	whitelistCustomToken	Public	onlyOwner
L	setCustomToken	Public	NO.

L	setMaxTxExempt	Public	onlyOwner
L	setMaxWalletExempt	Public	onlyOwner
Ownable	Implementation	Context	
L		Public	NO
L	owner	Public	NO
L	renounceOwnership	Public	onlyOwner
L	transferOwnership	Public	onlyOwner
L	_transferOwnership	Internal 🖺	
IERC20	Interface		
L	totalSupply	External	NO
L	balanceOf	External	NO
L	transfer	External	NO
L	allowance	External	NO
L	approve	External	NO
L	transferFrom	External	NO
SafeMath	Library		
L	tryAdd	Internal 🖺	
L	trySub	Internal 🖺	
L	tryMul	Internal 🖺	

L	tryDiv	Internal 🦲		
L	tryMod	Internal 🦲		
L	add	Internal 🦲		
L	sub	Internal 🦺		
L	mul	Internal 🦺		
L	div	Internal 🦺		
L	mod	Internal 🦺		
L	sub	Internal 🦲		
L	div	Internal 🦺		
L	mod	Internal 🦺		
IUniswapV2 Router02	Interface	IUniswapV2 Router01		
L	removeLiquidityETHSupportingFeeOnTransf erTokens	External		NO
L	removeLiquidityETHWithPermitSupportingF eeOnTransferTokens	External		NO.
L	swapExactTokensForTokensSupportingFee OnTransferTokens	External		NO
L	swapExactETHForTokensSupportingFeeOn TransferTokens	External	ED	NO
L	swapExactTokensForETHSupportingFeeOn TransferTokens	External		NO
IUniswapV2 Factory	Interface			
L	feeTo	External .		NO

L	feeToSetter	External	NO
L	getPair	External	NO
L	allPairs	External	NO
L	allPairsLength	External	NO
L	createPair	External	NO
L	setFeeTo	External .	NO
L	setFeeToSetter	External .	NO
IUniswapV2 Pair	Interface		
L	name	External	NO
L	symbol	External	NO
L	decimals	External	NO
L	totalSupply	External .	NO
L	balanceOf	External	NO
L	allowance	External	NO
L	approve	External	NO
L	transfer	External	NO
L	transferFrom	External	NO
L	DOMAIN_SEPARATOR	External	NO
L	PERMIT_TYPEHASH	External	NO
L	nonces	External [NO
L	<u>L</u>	L	I .

L	permit	External	NO
L	MINIMUM_LIQUIDITY	External	NO
L	factory	External	NO.
L	token0	External	NO.
L	token1	External	NO.
L	getReserves	External	NO.
L	price0CumulativeLast	External	NO.
L	price1CumulativeLast	External	NO.
L	kLast	External	NO.
L	mint	External	NO.
L	burn	External	NO
L	swap	External	NO
L	skim	External	NO.
L	sync	External	NO.
L	initialize	External	NO.
IDividend Distributor	Interface		
L	setDistributionCriteria	External	NO.
L	setShare	External	NO.
L	deposit	External	NO.
L	process	External	NO.

L	purge	External		NO
Dividend Distributor	Implementation	IDividend Distributor		
L		Public [NO
L		External	U D	NO.
L	setDistributionCriteria	External		onlyToken
L	purge	External		onlyToken
L	setCustomTokens	External		onlyToken
L	setShare	External		onlyToken
L	deposit	External		onlyToken
L	process	External [onlyToken
L	shouldDistribute	Internal 🦺		
L	distributeDividend	Internal 🦺		
L	claimDividend	External		NO
L	getUnpaidEarnings	Public		NO.
L	getHolderDetails	Public		NO
L	getCumulativeDividends	Internal 🦺		
L	getLastProcessedIndex	External		NO
L	getNumberOfTokenHolders	External		NO
L	getShareHoldersList	External		NO
L	totalDistributedRewards	External		NO

L	addShareholder	Internal 🖺		
L	removeShareholder	Internal 🖺		
L	swapTokensForTokens	Private 🖺		
Context	Implementation			
L	_msgSender	Internal 🖺		
L	_msgData	Internal 🖺		
IUniswapV2 Router01	Interface			
L	factory	External .		NO
L	WETH	External		NO.
L	addLiquidity	External [NO.
L	addLiquidityETH	External	CD	NO
L	removeLiquidity	External		NO
L	removeLiquidityETH	External		NO
L	removeLiquidityWithPermit	External		NO
L	removeLiquidityETHWithPermit	External		NO
L	swapExactTokensForTokens	External		NO.
L	swapTokensForExactTokens	External		NO
L	swapExactETHForTokens	External	CD	NO.
L	swapTokensForExactETH	External		NO

L	swapExactTokensForETH	External		NO
L	swapETHForExactTokens	External	g p	NO
L	quote	External		NO.
L	getAmountOut	External		NO
L	getAmountIn	External		NO
L	getAmountsOut	External		NO
L	getAmountsIn	External		NO.

Legend

Symbol	Meaning
	Function can modify state
S •	Function is payable

Inheritance Hierarchy



Security issue checking status

- High severity issues
 No High severity issues found
- Medium severity issues
 No medium severity issues found
- Low severity issues

Max wallet and max tx functions are coupled with each other.

Informational

This max wallet function is no longer used and is coupled with the max tx function. Hence. It's recommended to initiate it separately or remove it entirely.

```
ftrace|funcSig
function setMaxWalletToken(uint256 amount1) external onlyOwner {
    require(
        amount1 >= 10000000,
        "Minimum wallet token amount should grater than 1%"
    );
    maxWalletTokens = amount1 * (10**9);
}
```

❖ Centralization Risk

No centralization issues found

Owner privileges

❖ The owner can get the contract BNB balance to the owner's wallet

```
ftrace|funcSig
function clearStuckBalance(uint256 amountPercentage↑) external onlyOwner {
    uint256 amountBNB = address(this).balance;
    payable(msg.sender).transfer((amountBNB * amountPercentage↑) / 100);
}
```

The owner can update the LP address

```
ftrace|funcSig
function updateLpAddress(address _newLpAddress 1) external onlyOwner {
    isDividendExempt [_newLpAddress 1] = true;
    isMaxTxExempt [_newLpAddress 1] = true;
    isMaxWalletExempt [_newLpAddress 1] = true;

pair = _newLpAddress 1;

emit LPAddressChanged(_newLpAddress 1);
}
```

❖ The owner can transfer any BEP20 tokens in the contract to any wallet

❖ The owner can update all buy fees maximum up to 15%

```
function updateBuyFees(
   uint256 reward1,
   uint256 liquidity1,
   uint256 dev1,
   uint256 strategic1,
   uint256 p2e<sup>♠</sup>,
   uint256 stake1,
   uint256 burn 1
) public onlyOwner {
   buyRewardFee = reward1;
   buyLiquidityFee = liquidity1;
    buyDevFee = dev*;
   buyStrategicFee = strategic1;
   buyP2EFee = p2e1;
    buyStakeFee = stake1;
   buyBurnFee = burn1;
   buyTotalFees = reward 1.add(liquidity 1).add(dev 1).add(strategic 1);
   buyTotalFees = buyTotalFees.add(p2e1).add(stake1).add(burn1);
   require(buyTotalFees <= 15, "Fees can not be greater than 15%");</pre>
```

❖ The owner can update sell fees maximum upto 15%

```
function updateSellFees(
   uint256 reward ♠,
   uint256 liquidity1,
   uint256 dev1,
   uint256 strategic1,
   uint256 p2e1,
   uint256 stake 1,
   uint256 burn 1
) public onlyOwner {
   sellRewardFee = reward1;
   sellLiquidityFee = liquidity1;
   sellDevFee = dev*;
   sellStrategicFee = strategic1;
   sellP2EFee = p2e1;
   sellStakeFee = stake1;
   sellBurnFee = burn1;
   sellTotalFees = rewardf.add(liquidityf).add(devf).add(strategicf);
   sellTotalFees = sellTotalFees.add(p2e1).add(stake1).add(burn1);
   require(sellTotalFees <= 15, "Fees can not be greater than 15%");
```

The owner can change all swap percentages

```
ftrace|funcSig
function updateSwapPercentages(
    uint256 reward1,
    uint256 strategic1,
    uint256 liquidity1,
    uint256 dev1
) public onlyOwner {
    rewardSwap = reward1;
    devSwap = dev1;
    liquiditySwap = liquidity1;
    strategicSwap = strategic1;

totalSwap = reward1.add(dev1).add(liquidity1).add(strategic1);
}
```

The owner can enable trading, once enabled can not disable again

```
// switch Trading
ftrace|funcSig
function enableTrading() public onlyOwner {
    tradingOpen = true;
}
```

The owner can whitelist pre-sale address

```
ftrace|funcSig
function whitelistPreSale(address _preSale1) public onlyOwner {
    isFeeExempt[_preSale1] = true;
    isDividendExempt[_preSale1] = true;
    isAuthorized[_preSale1] = true;
    isMaxWalletExempt[_preSale1] = true;
}
```

❖ The owner can exclude/include wallets from the max transaction

```
ftrace|funcSig
function setIsMaxTxExempt(address holder1, bool exempt1) external onlyOwner {
   isMaxTxExempt[holder1] = exempt1;
}
```

❖ The owner can change the max transaction and max wallet limit minimum up to 0.1%.

```
ftrace|funcSig
function setMaxTxAmount(uint256 amount 1) external onlyOwner {
    require(
        amount 1 >= 1000000,
        "Minimum wallet token amount should grater than 0.1%"
    );

maxTxAmount = amount 1 * (10**9);
}
```

The owner can include/exclude wallets from fees

```
ftrace|funcSig
function setIsFeeExempt(address holder , bool exempt ) external onlyOwner {
    isFeeExempt[holder ] = exempt ;
}
```

❖ The owner can include/exclude wallets from max wallet limit

```
ftrace|funcSig
function setIsMaxWalletExempt(address holder1, bool exempt1)
    external
    onlyOwner
{
    isMaxWalletExempt[holder1] = exempt1;
}
```

The owner can add/remove authorized wallets

```
ftrace|funcSig
function addAuthorizedWallets(address holder , bool exempt )
    external
    onlyOwner
{
    isAuthorized[holder ] = exempt ;
}
```

The owner can change all fee receiver wallets

```
ftrace|funcSig
function changeFeeWallets(
   address _dev1,
   address _strategic1,
   address _p2e1,
   address _stake1
) external onlyOwner {
   devFeeReceiver = _dev1;
   strategicFeeReceiver = _strategic1;
   p2eFeeReceiver = _p2e1;
   stakeFeeReceiver = _stake1;
}
```

❖ The owner can enable/disable swapping and can change swap limit

```
ftrace|funcSig
function setSwapBackSettings(bool _enabled ↑, uint256 _amount ↑)
    external
    onlyOwner
{
    swapEnabled = _enabled ↑;
    swapThreshold = _amount ↑;
}
```

The owner can change minimum distribution tokens and time period

```
ftrace|funcSig
function setDistributionCriteria(
    uint256 _minPeriod ↑,
    uint256 _minDistribution ↑
) external onlyOwner {
    dividendTracker.setDistributionCriteria(_minPeriod ↑, _minDistribution ↑);
}
```

❖ The owner can get tokens balance of reward tracker before switch reward token

```
ftrace|funcSig
function purgeBeforeSwitch() public onlyOwner {
    dividendTracker.purge(msg.sender);
}
```

The owner can change reward tracker token address

```
ftrace | funcSig
function switchToken(address rewardToken1, bool isIncludeHolders1)
    public
    onlyOwner
    require(
        rewardToken  != router.WETH(),
        "Can not reward BNB in this tracker"
    REWARD = rewardToken1;
    // get current shareholders list
    address[] memory currentHolders = dividendTracker.getShareHoldersList();
    dividendTracker = new DividendDistributor(address(router), rewardToken1);
    if (isIncludeHolders1) {
        // add old share holders to new tracker
        for (uint256 i = 0; i < currentHolders.length; i++) {
            try
                dividendTracker.setShare(
                    currentHolders[i],
                    _balances[currentHolders[i]]
            {} catch {}
    emit ChangeRewardTracker(rewardToken1);
```

The owner can whitelist custom tokens

```
ftrace|funcSig
function whitelistCustomToken(address token1, bool status1) public onlyOwner {
    require(
        token1 != address(0),
        "Cannot use the zero address as reward address"
    );
    address pairAddress = IUniswapV2Factory(router.factory()).getPair(
        router.WETH(),
        address(this)
    );
    require(
        pairAddress != address(0),
        "Cannot use this address as reward address because this address is not added on pancakeswap"
    );
    whitelistedCustomTokens[token1] = true;
    emit WhiteListCustomToken(token1, status1);
}
```

Audit conclusion

RugFreeCoins team has performed in-depth testings, line-by-line manual code review, and automated audit of the smart contract. The smart contract was analyzed mainly for common smart contract vulnerabilities, exploits, manipulations, and hacks. According to the smart contract audit.

Smart contract functional Status: PASS

Number of risk issues: 0

Solidity code functional issue level: PASS

Number of owner privileges: 20

Centralization risk correlated to the active owner: LOW

Smart contract active ownership: YES