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AUDIT COMPANY

Smart Contract Security Audit

TechRate

October, 2021

Audit Details

Audited project

SparkLab

Deployer address

0xD8959d3b64E1Cd313F524debD7AcB918E0bFFdc9

Client contacts:

SparkLab team

Blockchain

Binance Smart Chain

Project website:

https://thesparklab.io/

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 below disclaimer below – please make sure to read it in full.

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The analysis of the security is purely based on the smart contracts alone. No applications or operations were reviewed for security. No product code has been reviewed.

Background

TechRate was commissioned by SparkLab to perform an audit of smart contracts:
https://bscscan.com/address/0x683b383E9D6Cc523F4C9764daceBB5752892fc53#code

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.

Contracts Details

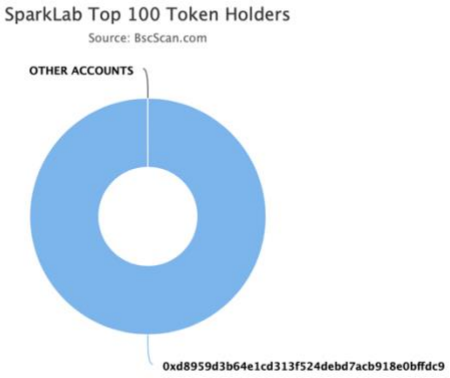
Token contract details for 23.10.2021

Contract name	SparkLab
Contract address	0x683b383E9D6Cc523F4C9764daceBB5752892fc53
Total supply	1,000,000,000
Token ticker	Spark
Decimals	18
Token holders	1
Transactions count	1
Top 100 holders dominance	100.00%
Contract deployer address	0xD8959d3b64E1Cd313F524debD7AcB918E0bFFdc9
Contract's current owner address	0xD8959d3b64E1Cd313F524debD7AcB918E0bFFdc9

SparkLab Token Distribution

The top 100 holders collectively own 100.00% (1,000,000,000.00 Tokens) of SparkLab

Token Total Supply: 1,000,000,000.00 Token | Total Token Holders: 1



(A total of 1,000,000,000.00 tokens held by the top 100 accounts from the total supply of 1,000,000,000.00 token)

SparkLab Contract Interaction Details

SparkLab Top 10 Token Holders

Rank	Address	Quantity	Percentage
1	0xd8959d3b64e1cd313f524debd7acb918e0bffdc9	1,000,000,000	100.0000%

Contract functions details

+ [Int] IBEP20
  - [Ext] totalSupply
  - [Ext] decimals
  - [Ext] symbol
  - [Ext] name
  - [Ext] getOwner
  - [Ext] balanceOf
  - [Ext] transfer #
  - [Ext] allowance
  - [Ext] approve #
  - [Ext] transferFrom #

+ [Int] IPancakeFactory
  - [Ext] createPair #

+ [Int] IPancakeRouter
  - [Ext] addLiquidityETH ($)
  - [Ext] swapExactTokensForETHSupportingFeeOnTransferTokens #
  - [Ext] factory
  - [Ext] WETH

+ Ownable
  - [Pub] <Constructor> #
  - [Pub] owner
  - [Pub] renounceOwnership #
    - modifiers: onlyOwner
  - [Pub] transferOwnership #
    - modifiers: onlyOwner

+ SparkLab (IBEP20, Ownable)
  - [Pub] ChangeMarketingWallet #
  - [Prv] _isTeam
  - [Pub] <Constructor> #
  - [Prv] _transfer #
  - [Prv] _taxedTransfer #
  - [Prv] _getStartTax
  - [Prv] _calculateFee
  - [Prv] _feelessTransfer #
  - [Pub] setSwapTreshold #
    - modifiers: onlyTeam
  - [Pub] SetOverLiquifiedTreshold #
    - modifiers: onlyTeam
  - [Pub] SetTaxes #
    - modifiers: onlyTeam
  - [Pub] isOverLiquified
  - [Prv] _swapContractToken #
    - modifiers: lockTheSwap
  - [Prv] _swapTokenForBNB #
  - [Prv] _addLiquidity #
  - [Pub] getLiquidityReleaseTimeInSeconds
  - [Pub] getBurnedTokens

- [Pub] SetAMM #
  - modifiers: onlyTeam
- [Pub] SwitchManualSwap #
  - modifiers: onlyTeam
- [Pub] SwapContractToken #
  - modifiers: onlyTeam
- [Pub] ExcludeAccountFromFees #
  - modifiers: onlyTeam
- [Pub] SetupEnableTrading #
  - modifiers: onlyTeam
- [Pub] limitLiquidityReleaseTo20Percent #
  - modifiers: onlyTeam
- [Pub] LockLiquidityForSeconds #
  - modifiers: onlyTeam
- [Prv] _prolongLiquidityLock #
- [Pub] LiquidityRelease #
  - modifiers: onlyTeam
- [Ext] <Fallback> ($)
- [Ext] getOwner
- [Ext] name
- [Ext] symbol
- [Ext] decimals
- [Ext] totalSupply
- [Ext] balanceOf
- [Ext] transfer #
- [Ext] allowance
- [Ext] approve #
- [Prv] _approve #
- [Ext] transferFrom #
- [Ext] increaseAllowance #
- [Ext] decreaseAllowance #

($) = payable function
= non-constant function

Issues Checking Status

	Issue description	Checking status
1.	Compiler errors.	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 of the contract.	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
19.	Cross-function race conditions.	Passed
20.	Safe Open Zeppelin contracts implementation and usage.	Passed
21.	Fallback function security.	Passed

Security Issues

High Severity Issues

No high severity issues found.

Medium Severity Issues

No medium severity issues found.

Low Severity Issues

No low severity issues found.

Owner privileges (In the period when the owner is not renounced)

- Owner and wallet address can change swapThreshold value.

```
uint public swapTreshold=2;
function setSwapTreshold(uint newSwapTresholdPermille) public onlyTeam{
    require(newSwapTresholdPermille<=10);//MaxTreshold= 1%
    swapTreshold=newSwapTresholdPermille;
}
```

- Owner and wallet address can change overLiquifyThreshold value.

```
function SetOverLiquifiedTreshold(uint newOverLiquifyTresholdPermille) public onlyTeam{
    require(newOverLiquifyTresholdPermille<=1000);
    overLiquifyTreshold=newOverLiquifyTresholdPermille;
}
```

- Owner and wallet address can change buy, sell, transfer, burn, marketing and liquidity taxes.

```
function SetTaxes(uint buy, uint sell, uint transfer_, uint burn, uint marketing,uint liquidity) public onlyTeam{
    uint maxTax=TAX_DENOMINATOR/MAXTAXDENOMINATOR;
    require(buy<=maxTax&&sell<=maxTax&&transfer_<=maxTax,"Tax exceeds maxTax");
    require(burn+marketing+liquidity==TAX_DENOMINATOR,"Taxes don't add up to denominator");

    buyTax=buy;
    sellTax=sell;
    transferTax=transfer_;
    marketingTax=marketing;
    liquidityTax=liquidity;
    burnTax=burn;
    emit OnSetTaxes(buy, sell, transfer_, burn, marketing,liquidity);
}
```

- Owner and wallet address can include in and exclude from buy / sell taxes.

```
function SetAMM(address AMM, bool Add) public onlyTeam{
    require(AMM!=_pancakePairAddress,"can't change pancake");
    isAMM[AMM]=Add;
}
```

- Owner and wallet address can enable / disable automatic swap.

```
function SwitchManualSwap(bool manual) public onlyTeam{
    manualSwap=manual;
}
```

- Owner and wallet address can swap contract tokens without limit.

```
function SwapContractToken() public onlyTeam{
_swapContractToken(true);
}
```

- Owner and wallet address can include in and exclude from fees.

```
function ExcludeAccountFromFees(address account, bool exclude) public onlyTeam{
    require(account!=address(this),"can't Include the contract");
    excludedFromFees[account]=exclude;
    emit ExcludeAccount(account,exclude);
}
```

- Owner and wallet address can enable trading.

```
function SetupEnableTrading() public onlyTeam{
    require(LaunchTimestamp==0,"AlreadyLaunched");
    LaunchTimestamp=block.timestamp;
    emit OnEnableTrading();
}
```

- Owner and wallet address can change liquidity release to 20%.

```
function limitLiquidityReleaseTo20Percent() public onlyTeam{
    LPReleaseLimitedTo20Percent=true;
}
```

- Owner and wallet address can lock liquidity for a time.

```
function LockLiquidityForSeconds(uint secondsUntilUnlock) public onlyTeam{
    _prolongLiquidityLock(secondsUntilUnlock+block.timestamp);
}
```

- **Owner and wallet address can release liquidity tokens once unlock time is over.**

```
function LiquidityRelease() public onlyTeam {
    //Only callable if liquidity Unlock time is over
    require(block.timestamp >= _liquidityUnlockTime, "Not yet unlocked");

    IBEP20 liquidityToken = IBEP20(_pancakePairAddress);
    uint amount = liquidityToken.balanceOf(address(this));
    if(LPReleaseLimitedTo20Percent)
    {
        _liquidityUnlockTime=block.timestamp+DefaultLiquidityLockTime;
        //regular liquidity release, only releases 20% at a time and locks liquidity for another week
        amount=amount*2/10;
    }
    liquidityToken.transfer(msg.sender, amount);
    emit OnReleaseLP();
}
```

Conclusion

Smart contracts do not contain high severity issues! Smart contracts contain owner privileges. Liquidity pair contract's security is not checked due to out of scope.

Liquidity locking details NOT provided by the team.

TechRate note:

Please check the disclaimer above and note, the audit makes no statements or warranties on business model, investment attractiveness or code sustainability. The report is provided for the only contract mentioned in the report and does not include any other potential contracts deployed by Owner.