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AUDIT COMPANY

Smart Contract Security Audit

TechRate

November, 2021

Audit Details

Audited project

Squirt Game

Deployer address

0x384695239a0a957674f2c7694c0a683c9c1a86f8

Client contacts:

Squirt Game team

Blockchain

Binance Smart Chain

Project website:

Not provided by Squirt Game team

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 Squirt Game to perform an audit of smart contracts:

https://bscscan.com/address/0xd2d7289DB68395593D65101753Fec9450ddFB699#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.

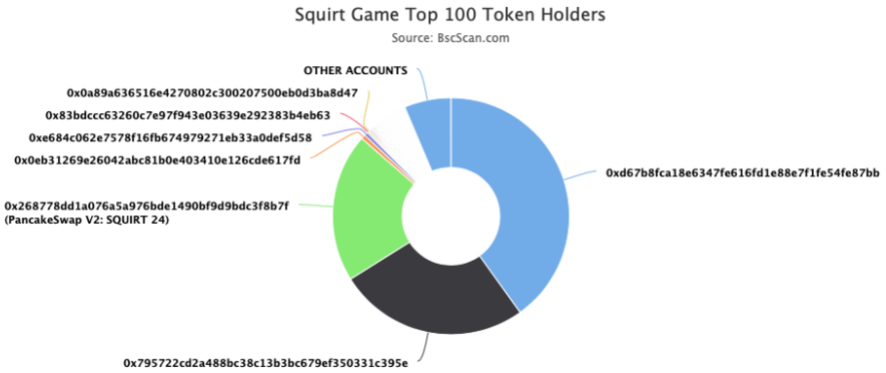
Contracts Details

Token contract details for 23.11.2021

Contract name	Squirt Game
Contract address	0xd2d7289DB68395593D65101753Fec9450ddFB699
Total supply	1,000,000,000,000,000
Token ticker	SQUIRT
Decimals	9
Token holders	4,625
Transactions count	21,315
Top 100 holders dominance	93.63%
Liquidity fee	200
Tax fee	300
Total fees	17905729980364535956988
Uniswap V2 pair	0x268778dd1a076a5a976bde1490bf9d9bdc3f8b7f
Contract deployer address	0x384695239a0a957674f2c7694c0a683c9c1a86f8
Contract's current owner address	0x795722cd2a488bc38c13b3bc679ef350331c395e

Squirt Game Token Distribution

The top 100 holders collectively own 93.63% (936,271,739,887,611.00 Tokens) of Squirt Game | Token Total Supply: 1,000,000,000,000,000.00 Token | Total Token Holders: 4,624

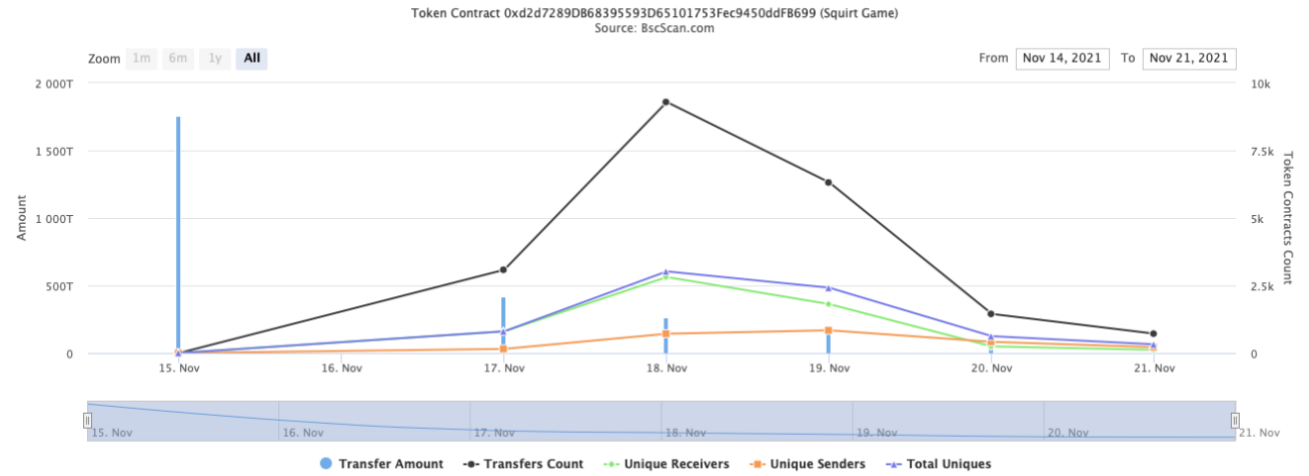


(A total of 936,271,739,887,611.00 tokens held by the top 100 accounts from the total supply of 1,000,000,000,000,000.00 token)

Squirt Game Contract Interaction Details

Time Series: Token Contract Overview

Mon 15, Nov 2021 - Sun 21, Nov 2021



Squirt Game Top 10 Token Holders

Rank	Address	Quantity (Token)	Percentage
1	0xd67b8fca18e6347fe616fd1e88e7f1fe54fe87bb	400,829,843,750,000.000000012	40.0830%
2	0x795722cd2a488bc38c13b3bc679ef350331c395e	260,269,488,226,212.602662572	26.0269%
3	PancakeSwap V2: SQUIRT 24	203,100,704,367,688.752685968	20.3101%
4	0x0eb31269e26042abc81b0e403410e126cde617fd	6,012,828,775,579.575667434	0.6013%
5	0xe684c062e7578f16fb674979271eb33a0def5d58	4,552,534,215,538.586731506	0.4553%
6	0x83bdccc63260c7e97f943e03639e292383b4eb63	2,053,854,208,784.289058824	0.2054%
7	0x0a89a636516e4270802c300207500eb0d3ba8d47	1,951,546,612,675.258585813	0.1952%
8	0xf5458573c36a03ec00348d2b01b15d6924cfc61e	1,919,829,355,342.243874861	0.1920%
9	0x113d86c354aad96f65c296e0e77a694652980640	1,890,572,531,978.220213082	0.1891%
10	0xaca4a400ea467cb8b531fa88b7988c7d5e7a15ad	1,814,024,372,064.871286742	0.1814%

Contract functions details

+ [Lib] AddressUpgradeable
  - [Int] isContract
  - [Int] sendValue #
  - [Int] functionCall #
  - [Int] functionCall #
  - [Int] functionCallWithValue #
  - [Int] functionCallWithValue #
  - [Int] functionStaticCall
  - [Int] functionStaticCall
  - [Prv] _verifyCallResult

+ Initializable
  - [Prv] _isConstructor

+ ContextUpgradeable (Initializable)
  - [Int] __Context_init #
    - modifiers: initializer
  - [Int] __Context_init_unchained #
    - modifiers: initializer
  - [Int] _msgSender
  - [Int] _msgData

+ [Int] ILiquidityGeneratorToken
  - [Ext] initialize #

+ [Int] IUniswapV2Pair
  - [Ext] name
  - [Ext] symbol
  - [Ext] decimals
  - [Ext] totalSupply
  - [Ext] balanceOf
  - [Ext] allowance
  - [Ext] approve #
  - [Ext] transfer #
  - [Ext] transferFrom #
  - [Ext] DOMAIN_SEPARATOR
  - [Ext] PERMIT_TYPEHASH
  - [Ext] nonces
  - [Ext] permit #
  - [Ext] MINIMUM_LIQUIDITY
  - [Ext] factory
  - [Ext] token0
  - [Ext] token1
  - [Ext] getReserves
  - [Ext] price0CumulativeLast
  - [Ext] price1CumulativeLast
  - [Ext] kLast
  - [Ext] mint #
  - [Ext] burn #
  - [Ext] swap #
  - [Ext] skim #

  - [Ext] sync #
  - [Ext] initialize #

+ [Int] IUniswapV2Router01
  - [Ext] factory
  - [Ext] WETH
  - [Ext] addLiquidity #
  - [Ext] addLiquidityETH ($)
  - [Ext] removeLiquidity #
  - [Ext] removeLiquidityETH #
  - [Ext] removeLiquidityWithPermit #
  - [Ext] removeLiquidityETHWithPermit #
  - [Ext] swapExactTokensForTokens #
  - [Ext] swapTokensForExactTokens #
  - [Ext] swapExactETHForTokens ($)
  - [Ext] swapTokensForExactETH #
  - [Ext] swapExactTokensForETH #
  - [Ext] swapETHForExactTokens ($)
  - [Ext] quote
  - [Ext] getAmountOut
  - [Ext] getAmountIn
  - [Ext] getAmountsOut
  - [Ext] getAmountsIn

+ [Int] IUniswapV2Router02 (IUniswapV2Router01)
  - [Ext] removeLiquidityETHSupportingFeeOnTransferTokens #
  - [Ext] removeLiquidityETHWithPermitSupportingFeeOnTransferTokens #
  - [Ext] swapExactTokensForTokensSupportingFeeOnTransferTokens #
  - [Ext] swapExactETHForTokensSupportingFeeOnTransferTokens ($)
  - [Ext] swapExactTokensForETHSupportingFeeOnTransferTokens #

+ [Int] IUniswapV2Factory
  - [Ext] feeTo
  - [Ext] feeToSetter
  - [Ext] getPair
  - [Ext] allPairs
  - [Ext] allPairsLength
  - [Ext] createPair #
  - [Ext] setFeeTo #
  - [Ext] setFeeToSetter #

+ [Lib] Address
  - [Int] isContract
  - [Int] sendValue #
  - [Int] functionCall #
  - [Int] functionCall #
  - [Int] functionCallWithValue #
  - [Int] functionCallWithValue #
  - [Int] functionStaticCall
  - [Int] functionStaticCall
  - [Int] functionDelegateCall #
  - [Int] functionDelegateCall #
  - [Prv] _verifyCallResult

+ [Lib] SafeMath

  - [Int] tryAdd
  - [Int] trySub
  - [Int] tryMul
  - [Int] tryDiv
  - [Int] tryMod
  - [Int] add
  - [Int] sub
  - [Int] mul
  - [Int] div
  - [Int] mod
  - [Int] sub
  - [Int] div
  - [Int] mod

+ OwnableUpgradeable (Initializable, ContextUpgradeable)
  - [Int] __Ownable_init #
    - modifiers: initializer
  - [Int] __Ownable_init_unchained #
    - modifiers: initializer
  - [Pub] owner
  - [Pub] renounceOwnership #
    - modifiers: onlyOwner
  - [Pub] transferOwnership #
    - modifiers: onlyOwner

+ [Int] IERC20Upgradeable
  - [Ext] totalSupply
  - [Ext] balanceOf
  - [Ext] transfer #
  - [Ext] allowance
  - [Ext] approve #
  - [Ext] transferFrom #

+ LiquidityGeneratorToken (IERC20Upgradeable, OwnableUpgradeable, ILiquidityGeneratorToken)
  - [Ext] initialize #
    - modifiers: initializer
  - [Pub] name
  - [Pub] symbol
  - [Pub] decimals
  - [Pub] totalSupply
  - [Pub] balanceOf
  - [Pub] transfer #
  - [Pub] allowance
  - [Pub] approve #
  - [Pub] transferFrom #
  - [Pub] increaseAllowance #
  - [Pub] decreaseAllowance #
  - [Pub] isExcludedFromReward
  - [Pub] totalFees
  - [Pub] deliver #
  - [Pub] reflectionFromToken
  - [Pub] tokenFromReflection
  - [Pub] excludeFromReward #
    - modifiers: onlyOwner

- [Ext] includeInReward #
  - modifiers: onlyOwner
- [Prv] _transferBothExcluded #
- [Pub] excludeFromFee #
  - modifiers: onlyOwner
- [Pub] includeInFee #
  - modifiers: onlyOwner
- [Pub] setExcludeFromMaxTx #
  - modifiers: onlyOwner
- [Pub] isExcludedFromMaxTx
- [Ext] setTaxFeePercent #
  - modifiers: onlyOwner
- [Ext] setLiquidityFeePercent #
  - modifiers: onlyOwner
- [Ext] setMaxTxPercent #
  - modifiers: onlyOwner
- [Pub] setSwapAndLiquifyEnabled #
  - modifiers: onlyOwner
- [Ext] <Fallback> ($)
- [Prv] _reflectFee #
- [Prv] _getValues
- [Prv] _getTValues
- [Prv] _getRValues
- [Prv] _getRate
- [Prv] _getCurrentSupply
- [Prv] _takeLiquidity #
- [Prv] _takeCharityFee #
- [Prv] calculateTaxFee
- [Prv] calculateLiquidityFee
- [Prv] calculateCharityFee
- [Prv] removeAllFee #
- [Prv] restoreAllFee #
- [Pub] isExcludedFromFee
- [Prv] _approve #
- [Prv] _transfer #
- [Prv] swapAndLiquify #
  - modifiers: lockTheSwap
- [Prv] swapTokensForEth #
- [Prv] addLiquidity #
- [Prv] _tokenTransfer #
- [Prv] _transferStandard #
- [Prv] _transferToExcluded #
- [Prv] _transferFromExcluded #

($) = 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.	Low issues
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

1. Out of gas

Issue:

- The function `includeInReward()` uses the loop to find and remove addresses from the `_excluded` list. Function will be aborted with `OUT_OF_GAS` exception if there will be a long excluded addresses list.

```
function includeInReward(address account⬆) external onlyOwner() {
    require(_isExcluded[account⬆], "Account is already excluded");
    for (uint256 i = 0; i < _excluded.length; i++) {
        if (_excluded[i] == account⬆) {
            _excluded[i] = _excluded[_excluded.length - 1];
            _tOwned[account⬆] = 0;
            _isExcluded[account⬆] = false;
            _excluded.pop();
            break;
        }
    }
}
```

- The function `_getCurrentSupply` also uses the loop for evaluating total supply. It also could be aborted with `OUT_OF_GAS` exception if there will be a long excluded addresses list.

```
function _getCurrentSupply() private view returns (uint256, uint256) {
    uint256 rSupply = _rTotal;
    uint256 tSupply = _tTotal;
    for (uint256 i = 0; i < _excluded.length; i++) {
        if (
            _rOwned[_excluded[i]] > rSupply ||
            _tOwned[_excluded[i]] > tSupply
        ) return (_rTotal, _tTotal);
        rSupply = rSupply.sub(_rOwned[_excluded[i]]);
        tSupply = tSupply.sub(_tOwned[_excluded[i]]);
    }
    if (rSupply < _rTotal.div(_tTotal)) return (_rTotal, _tTotal);
    return (rSupply, tSupply);
}
```

Recommendation:

Check that the excluded array length is not too big.

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

- Owner can change the tax and liquidity fee.

```
function setTaxFeePercent(uint256 taxFeeBps↑) external onlyOwner {
    require(taxFeeBps↑ >= 0 && taxFeeBps↑ <= 10**4, "Invalid bps");
    _taxFee = taxFeeBps↑;
}

ftrace | funcSig
function setLiquidityFeePercent(uint256 liquidityFeeBps↑)
    external
    onlyOwner
{
    require(
        liquidityFeeBps↑ >= 0 && liquidityFeeBps↑ <= 10**4,
        "Invalid bps"
    );
    _liquidityFee = liquidityFeeBps↑;
}
```

- Owner can change the maximum transaction amount.

```
function setMaxTxPercent(uint256 maxTxBps↑) external onlyOwner {
    require(maxTxBps↑ >= 0 && maxTxBps↑ <= 10**4, "Invalid bps");
    _maxTxAmount = _tTotal.mul(maxTxBps↑).div(10**4);
}
```

- Owner can exclude from the fee and maxTx.

```
function setExcludeFromMaxTx(address account↑, bool exclude↑)
    public
    onlyOwner
{
    _isExcludedFromMaxTx[account↑] = exclude↑;
}

    function excludeFromFee(address account↑) public onlyOwner {
        _isExcludedFromFee[account↑] = true;
    }
```

Conclusion

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

Liquidity locking details NOT provided by the team.

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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.