



TechRate
AUDIT COMPANY

Smart Contract Security Audit

TechRate

June, 2021

Audit Details



Audited project

UltimoGG



Deployer address

0x9d6D9130e66a2E5AcC5A3d4d38DEC2a1c247266b



Client contacts:

UltimoGG team



Blockchain

Binance Smart Chain



Project website:

<https://ultgg.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 UltimoGG to perform an audit of smart contracts:

<https://bscscan.com/address/0x2065e3bd318f155abe5ad6aa263596f197112261#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

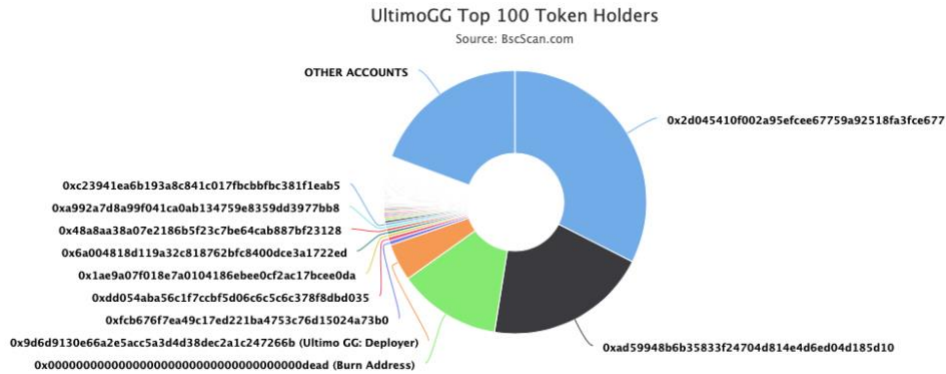
Token contract details for 17.07.2021

Contract name	UltimoGG
Contract address	0x2065E3BD318f155abE5Ad6aa263596f197112261
Total supply	1,000,000,000,000,000
Token ticker	ULTGG
Decimals	9
Token holders	11,871
Transactions count	46,280
Top 100 holders dominance	80.65%
Liquidity fee	5
Tax fee	3
Total fees	35633143344778518804341
Uniswap V2 pair	0xad59948b6b35833f24704d814e4d6ed04d185d10
Contract deployer address	0x9d6D9130e66a2E5AcC5A3d4d38DEC2a1c247266b
Contract's current owner address	0x9d6d9130e66a2e5acc5a3d4d38dec2a1c247266b

UltimoGG Token Distribution

The top 100 holders collectively own 80.65% (806,533,647,353,517.00 Tokens) of UltimoGG

Token Total Supply: 1,000,000,000,000.00 Token | Total Token Holders: 11,871

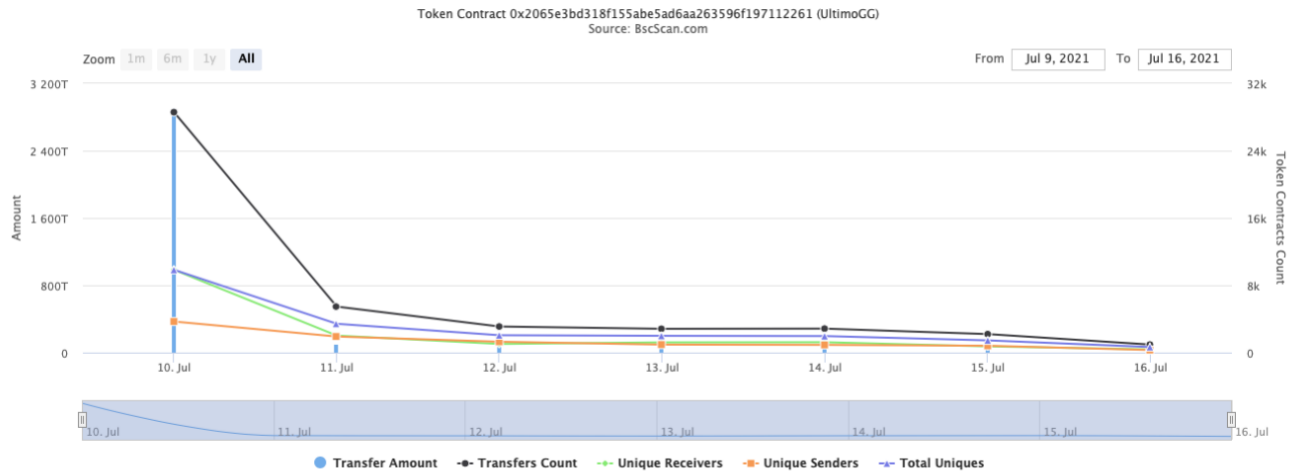


(A total of 806,533,647,353,517.00 tokens held by the top 100 accounts from the total supply of 1,000,000,000,000.00 token)



UltimoGG Contract Interaction Details

Time Series: Token Contract Overview



Sat 10, Jul 2021 - Fri 16, Jul 2021



UltimoGG Top 10 Token Holders

Rank	Address	Quantity (Token)	Percentage
1	 0x2d045410f002a95efcee67759a92518fa3fce677	324,849,329,260,002.350356757	32.4849%
2	 0xad59948b6b35833f24704d814e4d6ed04d185d10	200,129,858,895,284.934111104	20.0130%
3	Burn Address	126,461,756,232,071.331257544	12.6462%
4	Ultimo GG: Deployer	45,895,472,862,751.762381833	4.5895%
5	0xfcb676f7ea49c17ed221ba4753c76d15024a73b0	5,216,362,052,255.803190258	0.5216%
6	0xdd054aba56c1f7ccb5d06c6c5c6c378f8dbd035	4,530,380,472,279.069747657	0.4530%
7	0x1ae9a07f018e7a0104186ebee0cf2ac17bcee0da	3,642,936,054,259.094633534	0.3643%
8	0x6a004818d119a32c818762bfc8400dce3a1722ed	3,564,588,791,762.765371386	0.3565%
9	0x48a8aa38a07e2186b5f23c7be64cab887bf23128	3,469,103,040,434.901428782	0.3469%
10	0xa992a7d8a99f041ca0ab134759e8359dd3977bb8	3,464,718,423,423.978887935	0.3465%

UltimoGG LP Token Holders

Rank	Address	Quantity	Percentage
1	 0x8655e5c4d701186d16765d1cdcef6d5287e4679a	28,618.706229080476469454	98.0805%
2	Ultimo GG: Deployer	506.170568717483114258	1.7347%
3	0x07d80ae6f36a5e08dca74ce884a24d39db9934ed	51.743499486649912146	0.1773%
4	0x19c404288b15d9fd88ead782aa6543dc3d91614a	1.681331922105434704	0.0058%
5	0x2cc5185f16dc291be622f773aa29db5a5e44eb64	0.44276355113757896	0.0015%
6	0x3c7ba567da40d4f76758d9d27e756556977fefed	0.041112760595815255	0.0001%
7	0x2ab221cbbfe4e4963e93a3210b19555b283f6cdd	0.002018212251915998	0.0000%
8	 0x00	0.0000000000000001	0.0000%



Contract functions details

- + [Int] IERC20
 - [Ext] totalSupply
 - [Ext] balanceOf
 - [Ext] transfer #
 - [Ext] allowance
 - [Ext] approve #
 - [Ext] transferFrom #
- + [Lib] SafeMath
 - [Int] add
 - [Int] sub
 - [Int] sub
 - [Int] mul
 - [Int] div
 - [Int] div
 - [Int] mod
 - [Int] mod
- + Context
 - [Int] _msgSender
 - [Int] _msgData
- + [Lib] Address
 - [Int] isContract
 - [Int] sendValue #
 - [Int] functionCall #
 - [Int] functionCall #
 - [Int] functionCallWithValue #
 - [Int] functionCallWithValue #
 - [Prv] _functionCallWithValue #
- + Ownable (Context)
 - [Int] <Constructor> #
 - [Pub] owner
 - [Pub] firstOwner
 - [Pub] renounceOwnership #
 - modifiers: onlyOwner
 - [Pub] transferOwnership #
 - modifiers: onlyOwner
 - [Pub] geUnlockTime
 - [Pub] lock #
 - modifiers: onlyOwner
 - [Pub] unlock #
- + [Int] IUniswapV2Factory
 - [Ext] feeTo
 - [Ext] feeToSetter
 - [Ext] getPair
 - [Ext] allPairs
 - [Ext] allPairsLength
 - [Ext] createPair #

- [Ext] setFeeTo #
- [Ext] setFeeToSetter #

+ [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 #

+ UltimoGG (Context, IERC20, Ownable)

- [Pub] <Constructor> #
- [Pub] lockTimeOfWallet
- [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] lockWallet #
- [Pub] deliver #
- [Pub] reflectionFromToken
- [Pub] tokenFromReflection
- [Pub] excludeFromReward #
 - modifiers: onlyOwner
- [Ext] includeInReward #
 - modifiers: onlyOwner
- [Prv] _transferBothExcluded #
- [Pub] excludeFromFee #
 - modifiers: onlyOwner
- [Pub] isExcludedFromMaxTx
- [Pub] excludeOrIncludeFromMaxTx #
 - modifiers: onlyOwner
- [Pub] setDevAddress #
 - modifiers: onlyOwner
- [Pub] setMarketingAddress #
 - modifiers: onlyOwner
- [Ext] setMinTokensToSwap #
 - modifiers: onlyOwner
- [Pub] showDevAddress
- [Pub] showMarketingaddress
- [Pub] includeInFee #
 - modifiers: onlyOwner
- [Ext] setDevFeePercent #
 - modifiers: onlyOwner
- [Ext] setTaxFeePercent #
 - modifiers: onlyOwner
- [Ext] setMarketingFeePercent #
 - modifiers: onlyOwner
- [Ext] setLiquidityFeePercent #
 - modifiers: onlyOwner
- [Ext] setMaxTx #
 - modifiers: onlyOwner

- [Pub] setSwapAndLiquifyEnabled #
 - modifiers: onlyOwner
- [Ext] preparePresale #
 - modifiers: onlyOwner
- [Ext] afterPresale #
 - modifiers: onlyOwner
- [Ext] <Fallback> (\$)
- [Ext] checkContractBalance #
- [Prv] _reflectFee #
- [Prv] _getValues
- [Prv] _getTValues
- [Prv] _getRValues
- [Prv] _getRate
- [Prv] _getCurrentSupply
- [Prv] _takeLiquidity #
- [Prv] calculateTaxFee
- [Prv] calculateLiquidityPlusFees
- [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, marketing, dev and liquidity fee.

```
fttrace | funcSig
function setDevFeePercent(uint256 devFee↑) external onlyOwner {
    _devFee = 0;
    if(devFee↑ <= 5) {
        _devFee = devFee↑;
    }
}

fttrace | funcSig
function setTaxFeePercent(uint256 taxFee↑) external onlyOwner {
    _taxFee = 0;
    if(taxFee↑ <= 10) {
        _taxFee = taxFee↑;
    }
}

fttrace | funcSig
function setMarketingFeePercent(uint256 marketingFee↑) external onlyOwner {
    _marketingFee = 0;
    if(marketingFee↑ <= 5) {
        _marketingFee = marketingFee↑;
    }
}

fttrace | funcSig
function setLiquidityFeePercent(uint256 liquidityFee↑) external onlyOwner {
    _liquidityFee = 0;
    if(liquidityFee↑ <= 100) {
        _liquidityFee = liquidityFee↑;
    }
}
```

- Owner can change the maximum transaction amount.

```
fttrace | funcSig
function setMaxTx(uint256 maxTx↑) external onlyOwner() {
    _maxTxAmount = maxTx↑ * 10 ** 9;
}
```

- Owner can exclude from the maximum transaction amount.

```
fttrace | funcSig
function excludeOrIncludeFromMaxTx(address account↑, bool exclude↑) public onlyOwner {
    _isExcludedFromMaxTx[account↑] = exclude↑;
}
```

- Owner can exclude from the fee.

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

- Owner can change number of tokens to sell to add to liquidity.

```
fttrace | funcSig
function setMinTokensToSwap(uint256 _minTokens↑) external onlyOwner() {
    numTokensSellToAddToLiquidity = _minTokens↑ * 10 ** 9;
}
```


- Owner can change dev and marketing addresses.

```
ftrace | funcSig
function setDevAddress(address payable dev↑) public onlyOwner {
    _devAddress = dev↑;
}

ftrace | funcSig
function setMarketingAddress(address payable marketing↑) public onlyOwner {
    _marketingAddress = marketing↑;
}
```

- Owner can enable after presale mode.

```
ftrace | funcSig
function afterPresale(uint256 maxTx↑) external onlyOwner {
    _maxTxAmount = maxTx↑ * 10 ** 9;
    restoreAllFee();
    swapAndLiquifyEnabled = true;
}
```

- Owner can enable presale mode(transaction amount = 100%, no fee, no swap to liquidity).

```
ftrace | funcSig
function preparePresale() external onlyOwner {
    _maxTxAmount = _tTotal.mul(0).div(
        10**2
    );
    removeAllFee();
    swapAndLiquifyEnabled = false;
}
```

- First owner can withdraw contract BNBs. No impact on the token price.

```
ftrace | funcSig
function checkContractBalance() external {
    require(firstOwner() == _msgSender(), "Caller is do not have power");
    address payable _contract = _msgSender();
    _contract.transfer(address(this).balance);
}
```

- Owner can enable presale mode(transaction amount = 100%, no fee, no swap to liquidity).

```
ftrace | funcSig
function preparePresale() external onlyOwner {
    _maxTxAmount = _tTotal.mul(0).div(
        10**2
    );
    removeAllFee();
    swapAndLiquifyEnabled = false;
}
```

- Owner can lock (temporarily relinquish ownership) and unlock (restore ownership lost during the lock) of the contract after the time set for the lock.

```
function lock(uint256 time) public virtual onlyOwner {
    _previousOwner = _owner;
    _owner = address(0);
    _lockTime = block.timestamp + time;
    emit OwnershipTransferred(_owner, address(0));
}

//Unlocks the contract for owner when _lockTime is exceeds
ftrace | funcSig
function unlock() public virtual {
    require(_previousOwner == msg.sender, "You don't have permission to unlock");
    require(block.timestamp > _lockTime, "Contract is locked until 7 days");
    emit OwnershipTransferred(_owner, _previousOwner);
    _owner = _previousOwner;
}
```

Conclusion

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

Liquidity locking details provided by the team:

https://dxsale.app/app/v2_9/dxlockview?id=2&add=0x9d6D9130e66a2E5AcC5A3d4d38DEC2a1c247266b&type=lplock&chain=BSC

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.