



# Octopus Market Smart Contract Audit Report

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# AUDITED DETAILS

## Audited Project

Project name	Token ticker	Blockchain
Octopus Market	OTP	Ethereum

## Addresses

Contract address	0x8b42d5640515685b9d5acec14952dd289cbe4b4c
Contract deployer address	0x297b7C939BfCa21c3376728f0114fE89377A2AdE

## Project Website

<https://t.me/+Q7atGXiKkQJjNWZi>

## Codebase

<https://etherscan.io/address/0x8b42d5640515685b9d5acec14952dd289cbe4b4c#code>

# SUMMARY

Our main goal is to launch a full functional market website and application where people can buy sell and exchange items using cryptocurrencies, much like amazon eBay and AliExpress. Our vision is to make cryptocurrencies as much as usable as fiat currencies

## Contract Summary

### **Documentation Quality**

Octopus Market provides a very good documentation with standard of solidity base code.

- The technical description is provided clearly and structured and also dont have any high risk issue.

### **Code Quality**

The Overall quality of the basecode is standard.

- Standard solidity basecode and rules are already followed by Octopus Market with the discovery of several low issues.

### **Test Coverage**

Test coverage of the project is 100% ( Through Codebase )

## Audit Findings Summary

- SWC-100 SWC-108 | Explicitly define visibility for all state variables on lines 715.
- SWC-101 | It is recommended to use vetted safe math libraries for arithmetic operations consistently on lines 103, 135, 158, 159, 194, 230, 456, 691, 691, 692, 692, 718, 718 and 886.
- SWC-110 SWC-123 | It is recommended to use of revert(), assert(), and require() in Solidity, and the new REVERT opcode in the EVM on lines 887, 887, 888, 889, 990 and 991.

## CONCLUSION

We have audited the Octopus Market project released on April 2022 to discover issues and identify potential security vulnerabilities in Octopus Market Project. This process is used to find technical issues and security loopholes which might be found in the smart contract.

The security audit report provides a satisfactory result with some low-risk issues.

The issues found in the Octopus Market smart contract code do not pose a considerable risk. The writing of the contract is close to the standard of writing contracts in general. The low-risk issues found are some arithmetic operation issues, a state variable visibility is not set and out of bounds array access which the index access expression can cause an exception in case of the use of an invalid array index value.

# AUDIT RESULT

Article	Category	Description	Result
Default Visibility	SWC-100 SWC-108	Functions and state variables visibility should be set explicitly. Visibility levels should be specified consciously.	ISSUE FOUND
Integer Overflow and Underflow	SWC-101	If unchecked math is used, all math operations should be safe from overflows and underflows.	ISSUE FOUND
Outdated Compiler Version	SWC-102	It is recommended to use a recent version of the Solidity compiler.	PASS
Floating Pragma	SWC-103	Contracts should be deployed with the same compiler version and flags that they have been tested thoroughly.	PASS
Unchecked Call Return Value	SWC-104	The return value of a message call should be checked.	PASS
Unprotected Ether Withdrawal	SWC-105	Due to missing or insufficient access controls, malicious parties can withdraw from the contract.	PASS
SELFDESTRUCT Instruction	SWC-106	The contract should not be self-destructible while it has funds belonging to users.	PASS
Reentrancy	SWC-107	Check effect interaction pattern should be followed if the code performs recursive call.	PASS
Uninitialized Storage Pointer	SWC-109	Uninitialized local storage variables can point to unexpected storage locations in the contract.	PASS
Assert Violation	SWC-110 SWC-123	Properly functioning code should never reach a failing assert statement.	ISSUE FOUND
Deprecated Solidity Functions	SWC-111	Deprecated built-in functions should never be used.	PASS
Delegate call to Untrusted Callee	SWC-112	Delegatecalls should only be allowed to trusted addresses.	PASS

DoS (Denial of Service)	SWC-113 SWC-128	Execution of the code should never be blocked by a specific contract state unless required.	PASS
Race Conditions	SWC-114	Race Conditions and Transactions Order Dependency should not be possible.	PASS
Authorization through tx.origin	SWC-115	tx.origin should not be used for authorization.	PASS
Block values as a proxy for time	SWC-116	Block numbers should not be used for time calculations.	PASS
Signature Unique ID	SWC-117 SWC-121 SWC-122	Signed messages should always have a unique id. A transaction hash should not be used as a unique id.	PASS
Incorrect Constructor Name	SWC-118	Constructors are special functions that are called only once during the contract creation.	PASS
Shadowing State Variable	SWC-119	State variables should not be shadowed.	PASS
Weak Sources of Randomness	SWC-120	Random values should never be generated from Chain Attributes or be predictable.	PASS
Write to Arbitrary Storage Location	SWC-124	The contract is responsible for ensuring that only authorized user or contract accounts may write to sensitive storage locations.	PASS
Incorrect Inheritance Order	SWC-125	When inheriting multiple contracts, especially if they have identical functions, a developer should carefully specify inheritance in the correct order. The rule of thumb is to inherit contracts from more /general/ to more /specific/.	PASS
Insufficient Gas Griefing	SWC-126	Insufficient gas griefing attacks can be performed on contracts which accept data and use it in a sub-call on another contract.	PASS
Arbitrary Jump Function	SWC-127	As Solidity doesnt support pointer arithmetics, it is impossible to change such variable to an arbitrary value.	PASS

Typographical Error	SWC-129	A typographical error can occur for example when the intent of a defined operation is to sum a number to a variable.	PASS
Override control character	SWC-130	Malicious actors can use the Right-To-Left-Override unicode character to force RTL text rendering and confuse users as to the real intent of a contract.	PASS
Unused variables	SWC-131 SWC-135	Unused variables are allowed in Solidity and they do not pose a direct security issue.	PASS
Unexpected Ether balance	SWC-132	Contracts can behave erroneously when they strictly assume a specific Ether balance.	PASS
Hash Collisions Variable	SWC-133	Using <code>abi.encodePacked()</code> with multiple variable length arguments can, in certain situations, lead to a hash collision.	PASS
Hardcoded gas amount	SWC-134	The <code>transfer()</code> and <code>send()</code> functions forward a fixed amount of 2300 gas.	PASS
Unencrypted Private Data	SWC-136	It is a common misconception that private type variables cannot be read.	PASS



# SMART CONTRACT ANALYSIS

Started	Wednesday Apr 06 2022 17:02:46 GMT+0000 (Coordinated Universal Time)
Finished	Thursday Apr 07 2022 21:00:55 GMT+0000 (Coordinated Universal Time)
Mode	Standard
Main Source File	OTP.sol

## Detected Issues

ID	Title	Severity	Status
SWC-101	ARITHMETIC OPERATION "+" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "*" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "/" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "/" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "%" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "+" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "*" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "**" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "%" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "*" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "**" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "++" DISCOVERED	low	acknowledged



# SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 103

## low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

## Source File

- OTP.sol

## Locations

```
102 function add(uint256 a, uint256 b) internal pure returns (uint256) {
103     uint256 c = a + b;
104     require(c >= a, "SafeMath: addition overflow");
105
106     return c;
107 }
```

# SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 135

## low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

## Source File

- OTP.sol

## Locations

```
134   require(b <= a, errorMessage);
135   uint256 c = a - b;
136
137   return c;
138   }
139
```

# SWC-101 | ARITHMETIC OPERATION "\*" DISCOVERED

LINE 158

## low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

## Source File

- OTP.sol

## Locations

```
157
158  uint256 c = a * b;
159  require(c / a == b, "SafeMath: multiplication overflow");
160
161  return c;
162
```

# SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 159

## low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

## Source File

- OTP.sol

## Locations

```
158 uint256 c = a * b;
159 require(c / a == b, "SafeMath: multiplication overflow");
160
161 return c;
162 }
163
```

# SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 194

## low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

## Source File

- OTP.sol

## Locations

```
193   require(b > 0, errorMessage);
194   uint256 c = a / b;
195   // assert(a == b * c + a % b); // There is no case in which this doesn't hold
196
197   return c;
198
```

# SWC-101 | ARITHMETIC OPERATION "%" DISCOVERED

LINE 230

## low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

## Source File

- OTP.sol

## Locations

```
229     require(b != 0, errorMessage);
230     return a % b;
231 }
232 }
233
234
```



# SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 456

## low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

## Source File

- OTP.sol

## Locations

```
455  _owner = address(0);  
456  _lockTime = block.timestamp + time;  
457  emit OwnershipTransferred(_owner, address(0));  
458  }  
459  
460
```

# SWC-101 | ARITHMETIC OPERATION "\*" DISCOVERED

LINE 691

## low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

## Source File

- OTP.sol

## Locations

```
690 uint256 private constant MAX = ~uint256(0);
691 uint256 private _tTotal = 100000000000 * 10**18; // 100 Billion totaltoken supply
692 uint256 private _rTotal = (MAX - (MAX % _tTotal));
693 uint256 private _tFeeTotal;
694
695
```

# SWC-101 | ARITHMETIC OPERATION "\*\*" DISCOVERED

LINE 691

## low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

## Source File

- OTP.sol

## Locations

```
690 uint256 private constant MAX = ~uint256(0);
691 uint256 private _tTotal = 100000000000 * 10**18; // 100 Billion totaltoken supply
692 uint256 private _rTotal = (MAX - (MAX % _tTotal));
693 uint256 private _tFeeTotal;
694
695
```

# SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 692

## low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

## Source File

- OTP.sol

## Locations

```
691 uint256 private _tTotal = 100000000000 * 10**18; // 100 Billion totaltoken supply
692 uint256 private _rTotal = (MAX - (MAX % _tTotal));
693 uint256 private _tFeeTotal;
694
695 string private _name = "Octopus Market";
696
```

# SWC-101 | ARITHMETIC OPERATION "%" DISCOVERED

LINE 692

## low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

## Source File

- OTP.sol

## Locations

```
691 uint256 private _tTotal = 100000000000 * 10**18; // 100 Billion totaltoken supply
692 uint256 private _rTotal = (MAX - (MAX % _tTotal));
693 uint256 private _tFeeTotal;
694
695 string private _name = "Octopus Market";
696
```

# SWC-101 | ARITHMETIC OPERATION "\*" DISCOVERED

LINE 718

## low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

## Source File

- OTP.sol

## Locations

```
717
718  uint256 private numTokensSellToAddToLiquidity = 80000 * 10**18;
719
720  event MinTokensBeforeSwapUpdated(uint256 minTokensBeforeSwap);
721  event SwapAndLiquifyEnabledUpdated(bool enabled);
722
```

# SWC-101 | ARITHMETIC OPERATION "\*\*" DISCOVERED

LINE 718

## low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

## Source File

- OTP.sol

## Locations

```
717
718     uint256 private numTokensSellToAddToLiquidity = 80000 * 10**18;
719
720     event MinTokensBeforeSwapUpdated(uint256 minTokensBeforeSwap);
721     event SwapAndLiquifyEnabledUpdated(bool enabled);
722
```

# SWC-101 | ARITHMETIC OPERATION "++" DISCOVERED

LINE 886

## low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

## Source File

- OTP.sol

## Locations

```
885  uint256 tSupply = _tTotal;
886  for (uint256 i = 0; i < _excluded.length; i++) {
887    if (_rOwned[_excluded[i]] > rSupply || _tOwned[_excluded[i]] > tSupply) return
      (_rTotal, _tTotal);
888    rSupply = rSupply.sub(_rOwned[_excluded[i]]);
889    tSupply = tSupply.sub(_tOwned[_excluded[i]]);
890
```



## SWC-108 | STATE VARIABLE VISIBILITY IS NOT SET.

LINE 715

### low SEVERITY

It is best practice to set the visibility of state variables explicitly. The default visibility for "inSwapAndLiquify" is internal. Other possible visibility settings are public and private.

### Source File

- OTP.sol

### Locations

```
714
715  bool inSwapAndLiquify;
716  bool public swapAndLiquifyEnabled = true;
717
718  uint256 private numTokensSellToAddToLiquidity = 80000 * 10**18;
719
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 887

### low SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

### Source File

- OTP.sol

### Locations

```
886   for (uint256 i = 0; i < _excluded.length; i++) {
887     if (_rOwned[_excluded[i]] > rSupply || _tOwned[_excluded[i]] > tSupply) return
      (_rTotal, _tTotal);
888     rSupply = rSupply.sub(_rOwned[_excluded[i]]);
889     tSupply = tSupply.sub(_tOwned[_excluded[i]]);
890   }
891
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 887

### low SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

### Source File

- OTP.sol

### Locations

```
886   for (uint256 i = 0; i < _excluded.length; i++) {
887     if (_rOwned[_excluded[i]] > rSupply || _tOwned[_excluded[i]] > tSupply) return
      (_rTotal, _tTotal);
888     rSupply = rSupply.sub(_rOwned[_excluded[i]]);
889     tSupply = tSupply.sub(_tOwned[_excluded[i]]);
890   }
891
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 888

### low SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

### Source File

- OTP.sol

### Locations

```
887   if (_rOwned[_excluded[i]] > rSupply || _tOwned[_excluded[i]] > tSupply) return
      (_rTotal, _tTotal);
888   rSupply = rSupply.sub(_rOwned[_excluded[i]]);
889   tSupply = tSupply.sub(_tOwned[_excluded[i]]);
890   }
891   if (rSupply < _rTotal.div(_tTotal)) return (_rTotal, _tTotal);
892
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 889

### low SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

### Source File

- OTP.sol

### Locations

```
888   rSupply = rSupply.sub(_rOwned[_excluded[i]]);
889   tSupply = tSupply.sub(_tOwned[_excluded[i]]);
890   }
891   if (rSupply < _rTotal.div(_tTotal)) return (_rTotal, _tTotal);
892   return (rSupply, tSupply);
893
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 990

### low SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

### Source File

- OTP.sol

### Locations

```
989 address[] memory path = new address[](2);
990 path[0] = address(this);
991 path[1] = uniswapV2Router.WETH();
992
993 _approve(address(this), address(uniswapV2Router), tokenAmount);
994
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 991

### low SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

### Source File

- OTP.sol

### Locations

```
990 path[0] = address(this);
991 path[1] = uniswapV2Router.WETH();
992
993 _approve(address(this), address(uniswapV2Router), tokenAmount);
994
995
```

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This is a limited report on our findings based on our analysis, in accordance with good industry practice as of 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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