



# ProjectMars Token Smart Contract Audit Report

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# AUDITED DETAILS

## Audited Project

Project name	Token ticker	Blockchain
ProjectMars Token	MARS	Fantom

## Addresses

Contract address	0xbe41772587872a92184873d55b09c6bb6f59f895
Contract deployer address	0x0897Cf572C8dAc35126c8198B9Ba2f300ED61b51

## Project Website

<https://www.projectmars.finance/>

## Codebase

<https://ftmscan.com/address/0xbe41772587872a92184873d55b09c6bb6f59f895#code>

# SUMMARY

PROJECTMARS protocol is a combination of blackhole tokenomics and an auto-liquidity generating protocol. In addition to this, we are also building and developing a non-fungible token(NFT) platform.

## Contract Summary

### Documentation Quality

ProjectMars Token provides a very good documentation with standard of solidity base code.

- The technical description is provided clearly and structured and also don't have any high risk issue.

### Code Quality

The Overall quality of the basecode is standard.

- Standard solidity basecode and rules are already followed by ProjectMars Token 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 722.
- SWC-101 | It is recommended to use vetted safe math libraries for arithmetic operations consistently on lines 110, 142, 165, 166, 201, 237, 464, 705, 705, 705, 705, 706, 706, 725, 725, 725, 725, 726, 726, 726, 726, 858, 860, 887, 943, 962, 968 and 860.
- SWC-103 | Pragma statements can be allowed to float when a contract is intended on lines 11.
- 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 859, 860, 860, 944, 944, 945, 946, 1071 and 1072.

## CONCLUSION

We have audited the ProjectMars Token project released in May 2021 to discover issues and identify potential security vulnerabilities in ProjectMars Token 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 ProjectMars Token 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 floating pragma is set, 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.	ISSUE FOUND
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 grieving 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 abi.encodePacked() with multiple variable length arguments can, in certain situations, lead to a hash collision.	PASS
Hardcoded gas amount	SWC-134	The transfer() and send() 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	Sunday May 23 2021 06:17:10 GMT+0000 (Coordinated Universal Time)
Finished	Monday May 24 2021 06:47:28 GMT+0000 (Coordinated Universal Time)
Mode	Standard
Main Source File	MarsToken.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	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

[illegible]

# SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 110

## low SEVERITY

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

## Source File

- MarsToken.sol

## Locations

```
109     function add(uint256 a, uint256 b) internal pure returns (uint256) {  
110         uint256 c = a + b;  
111         require(c >= a, "SafeMath: addition overflow");  
112     }  
113     return c;  
114 }
```

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

LINE 142

### low SEVERITY

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

### Source File

- MarsToken.sol

### Locations

```
141   require(b <= a, errorMessage);
142   uint256 c = a - b;
143
144   return c;
145   }
146
```

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

LINE 165

### low SEVERITY

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

### Source File

- MarsToken.sol

### Locations

```
164
165  uint256 c = a * b;
166  require(c / a == b, "SafeMath: multiplication overflow");
167
168  return c;
169
```

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

LINE 166

### low SEVERITY

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

### Source File

- MarsToken.sol

### Locations

```
165     uint256 c = a * b;  
166     require(c / a == b, "SafeMath: multiplication overflow");  
167  
168     return c;  
169 }  
170
```

# SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 201

## low SEVERITY

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

## Source File

- MarsToken.sol

## Locations

```
200     require(b > 0, errorMessage);
201     uint256 c = a / b;
202     // assert(a == b * c + a % b); // There is no case in which this doesn't hold
203
204     return c;
205
```



# SWC-101 | ARITHMETIC OPERATION "%" DISCOVERED

LINE 237

## low SEVERITY

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

## Source File

- MarsToken.sol

## Locations

```
236     require(b != 0, errorMessage);
237     return a % b;
238 }
239 }
240
241
```

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

LINE 464

### low SEVERITY

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

### Source File

- MarsToken.sol

### Locations

```
463     _owner = address(0);  
464     _lockTime = now + time;  
465     emit OwnershipTransferred(_owner, address(0));  
466 }  
467  
468
```

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

LINE 705

## low SEVERITY

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

## Source File

- MarsToken.sol

## Locations

```
704 uint256 private constant MAX = ~uint256(0);
705 uint256 private _tTotal = 1000000000 * 10**6 * 10**9;
706 uint256 private _rTotal = (MAX - (MAX % _tTotal));
707 uint256 private _tFeeTotal;
708
709
```

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

LINE 705

## low SEVERITY

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

## Source File

- MarsToken.sol

## Locations

```
704 uint256 private constant MAX = ~uint256(0);
705 uint256 private _tTotal = 1000000000 * 10**6 * 10**9;
706 uint256 private _rTotal = (MAX - (MAX % _tTotal));
707 uint256 private _tFeeTotal;
708
709
```

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

LINE 705

### low SEVERITY

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

### Source File

- MarsToken.sol

### Locations

```
704 uint256 private constant MAX = ~uint256(0);
705 uint256 private _tTotal = 1000000000 * 10**6 * 10**9;
706 uint256 private _rTotal = (MAX - (MAX % _tTotal));
707 uint256 private _tFeeTotal;
708
709
```

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

LINE 705

## low SEVERITY

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

## Source File

- MarsToken.sol

## Locations

```
704 uint256 private constant MAX = ~uint256(0);
705 uint256 private _tTotal = 1000000000 * 10**6 * 10**9;
706 uint256 private _rTotal = (MAX - (MAX % _tTotal));
707 uint256 private _tFeeTotal;
708
709
```

# SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 706

## low SEVERITY

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

## Source File

- MarsToken.sol

## Locations

```
705  uint256 private _tTotal = 10000000000 * 10**6 * 10**9;  
706  uint256 private _rTotal = (MAX - (MAX % _tTotal));  
707  uint256 private _tFeeTotal;  
708  
709  string private _name = "ProjectMars Token";  
710
```

# SWC-101 | ARITHMETIC OPERATION "%" DISCOVERED

LINE 706

## low SEVERITY

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

## Source File

- MarsToken.sol

## Locations

```
705  uint256 private _tTotal = 10000000000 * 10**6 * 10**9;  
706  uint256 private _rTotal = (MAX - (MAX % _tTotal));  
707  uint256 private _tFeeTotal;  
708  
709  string private _name = "ProjectMars Token";  
710
```



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

LINE 725

## low SEVERITY

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

## Source File

- MarsToken.sol

## Locations

```
724
725  uint256 public _maxTxAmount = 5000000 * 10**6 * 10**9;
726  uint256 private numTokensSellToAddToLiquidity = 500000 * 10**6 * 10**9;
727
728  event MinTokensBeforeSwapUpdated(uint256 minTokensBeforeSwap);
729
```

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

LINE 725

## low SEVERITY

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

## Source File

- MarsToken.sol

## Locations

```
724
725  uint256 public _maxTxAmount = 5000000 * 10**6 * 10**9;
726  uint256 private numTokensSellToAddToLiquidity = 500000 * 10**6 * 10**9;
727
728  event MinTokensBeforeSwapUpdated(uint256 minTokensBeforeSwap);
729
```

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

LINE 725

## low SEVERITY

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

## Source File

- MarsToken.sol

## Locations

```
724
725  uint256 public _maxTxAmount = 5000000 * 10**6 * 10**9;
726  uint256 private numTokensSellToAddToLiquidity = 500000 * 10**6 * 10**9;
727
728  event MinTokensBeforeSwapUpdated(uint256 minTokensBeforeSwap);
729
```

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

LINE 725

## low SEVERITY

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

## Source File

- MarsToken.sol

## Locations

```
724
725  uint256 public _maxTxAmount = 5000000 * 10**6 * 10**9;
726  uint256 private numTokensSellToAddToLiquidity = 500000 * 10**6 * 10**9;
727
728  event MinTokensBeforeSwapUpdated(uint256 minTokensBeforeSwap);
729
```

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

LINE 726

## low SEVERITY

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

## Source File

- MarsToken.sol

## Locations

```
725 uint256 public _maxTxAmount = 5000000 * 10**6 * 10**9;  
726 uint256 private numTokensSellToAddToLiquidity = 500000 * 10**6 * 10**9;  
727  
728 event MinTokensBeforeSwapUpdated(uint256 minTokensBeforeSwap);  
729 event SwapAndLiquifyEnabledUpdated(bool enabled);  
730
```

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

LINE 726

## low SEVERITY

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

## Source File

- MarsToken.sol

## Locations

```
725 uint256 public _maxTxAmount = 5000000 * 10**6 * 10**9;  
726 uint256 private numTokensSellToAddToLiquidity = 500000 * 10**6 * 10**9;  
727  
728 event MinTokensBeforeSwapUpdated(uint256 minTokensBeforeSwap);  
729 event SwapAndLiquifyEnabledUpdated(bool enabled);  
730
```

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

LINE 726

## low SEVERITY

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

## Source File

- MarsToken.sol

## Locations

```
725 uint256 public _maxTxAmount = 5000000 * 10**6 * 10**9;  
726 uint256 private numTokensSellToAddToLiquidity = 500000 * 10**6 * 10**9;  
727  
728 event MinTokensBeforeSwapUpdated(uint256 minTokensBeforeSwap);  
729 event SwapAndLiquifyEnabledUpdated(bool enabled);  
730
```

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

LINE 726

## low SEVERITY

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

## Source File

- MarsToken.sol

## Locations

```
725  uint256 public _maxTxAmount = 5000000 * 10**6 * 10**9;  
726  uint256 private numTokensSellToAddToLiquidity = 500000 * 10**6 * 10**9;  
727  
728  event MinTokensBeforeSwapUpdated(uint256 minTokensBeforeSwap);  
729  event SwapAndLiquifyEnabledUpdated(bool enabled);  
730
```



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

LINE 858

## low SEVERITY

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

## Source File

- MarsToken.sol

## Locations

```
857     require(!_isExcluded[account], "Account is already excluded");
858     for (uint256 i = 0; i < _excluded.length; i++) {
859         if (_excluded[i] == account) {
860             _excluded[i] = _excluded[_excluded.length - 1];
861             _tOwned[account] = 0;
862         }
```

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

LINE 860

### low SEVERITY

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

### Source File

- MarsToken.sol

### Locations

```
859     if (_excluded[i] == account) {  
860         _excluded[i] = _excluded[_excluded.length - 1];  
861         _tOwned[account] = 0;  
862         _isExcluded[account] = false;  
863         _excluded.pop();  
864     }
```

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

LINE 887

### low SEVERITY

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

### Source File

- MarsToken.sol

### Locations

```
886     _maxTxAmount = _tTotal.mul(maxTxPercent).div(  
887     10**2  
888     );  
889 }  
890  
891
```

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

LINE 943

## low SEVERITY

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

## Source File

- MarsToken.sol

## Locations

```
942  uint256 tSupply = _tTotal;
943  for (uint256 i = 0; i < _excluded.length; i++) {
944    if (_rOwned[_excluded[i]] > rSupply || _tOwned[_excluded[i]] > tSupply) return
    (_rTotal, _tTotal);
945    rSupply = rSupply.sub(_rOwned[_excluded[i]]);
946    tSupply = tSupply.sub(_tOwned[_excluded[i]]);
947
```

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

LINE 962

### low SEVERITY

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

### Source File

- MarsToken.sol

### Locations

```
961     return _amount.mul(_taxFee).div(  
962         10**2  
963     );  
964 }  
965  
966
```

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

LINE 968

## low SEVERITY

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

## Source File

- MarsToken.sol

## Locations

```
967     return _amount.mul(_liquidityFee).div(  
968         10**2  
969     );  
970 }  
971  
972
```

# SWC-101 | COMPILER-REWRITABLE "<UINT> - 1" DISCOVERED

LINE 860

## low SEVERITY

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

## Source File

- MarsToken.sol

## Locations

```
859     if (_excluded[i] == account) {  
860         _excluded[i] = _excluded[_excluded.length - 1];  
861         _tOwned[account] = 0;  
862         _isExcluded[account] = false;  
863         _excluded.pop();  
864     }
```

## SWC-103 | A FLOATING PRAGMA IS SET.

LINE 11

### low SEVERITY

The current pragma Solidity directive is `""^0.6.12""`. It is recommended to specify a fixed compiler version to ensure that the bytecode produced does not vary between builds. This is especially important if you rely on bytecode-level verification of the code.

### Source File

- MarsToken.sol

### Locations

```
10
11  pragma solidity ^0.6.12;
12  // SPDX-License-Identifier: Unlicensed
13  interface IERC20 {
14
15
```



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

LINE 722

### 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

- MarsToken.sol

### Locations

```
721
722  bool inSwapAndLiquify;
723  bool public swapAndLiquifyEnabled = true;
724
725  uint256 public _maxTxAmount = 5000000 * 10**6 * 10**9;
726
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 859

### low SEVERITY

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

### Source File

- MarsToken.sol

### Locations

```
858   for (uint256 i = 0; i < _excluded.length; i++) {  
859     if (_excluded[i] == account) {  
860       _excluded[i] = _excluded[_excluded.length - 1];  
861       _tOwned[account] = 0;  
862       _isExcluded[account] = false;  
863     }
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 860

### low SEVERITY

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

### Source File

- MarsToken.sol

### Locations

```
859     if (_excluded[i] == account) {  
860         _excluded[i] = _excluded[_excluded.length - 1];  
861         _tOwned[account] = 0;  
862         _isExcluded[account] = false;  
863         _excluded.pop();  
864     }
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 860

### low SEVERITY

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

### Source File

- MarsToken.sol

### Locations

```
859     if (_excluded[i] == account) {  
860         _excluded[i] = _excluded[_excluded.length - 1];  
861         _tOwned[account] = 0;  
862         _isExcluded[account] = false;  
863         _excluded.pop();  
864     }
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 944

### low SEVERITY

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

### Source File

- MarsToken.sol

### Locations

```
943   for (uint256 i = 0; i < _excluded.length; i++) {  
944     if (_rOwned[_excluded[i]] > rSupply || _tOwned[_excluded[i]] > tSupply) return  
      (_rTotal, _tTotal);  
945     rSupply = rSupply.sub(_rOwned[_excluded[i]]);  
946     tSupply = tSupply.sub(_tOwned[_excluded[i]]);  
947   }  
948
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 944

### low SEVERITY

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

### Source File

- MarsToken.sol

### Locations

```
943   for (uint256 i = 0; i < _excluded.length; i++) {  
944     if (_rOwned[_excluded[i]] > rSupply || _tOwned[_excluded[i]] > tSupply) return  
      (_rTotal, _tTotal);  
945     rSupply = rSupply.sub(_rOwned[_excluded[i]]);  
946     tSupply = tSupply.sub(_tOwned[_excluded[i]]);  
947   }  
948
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 945

### low SEVERITY

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

### Source File

- MarsToken.sol

### Locations

```
944   if (_rOwned[_excluded[i]] > rSupply || _tOwned[_excluded[i]] > tSupply) return
      (_rTotal, _tTotal);
945   rSupply = rSupply.sub(_rOwned[_excluded[i]]);
946   tSupply = tSupply.sub(_tOwned[_excluded[i]]);
947   }
948   if (rSupply < _rTotal.div(_tTotal)) return (_rTotal, _tTotal);
949
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 946

### low SEVERITY

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

### Source File

- MarsToken.sol

### Locations

```
945   rSupply = rSupply.sub(_rOwned[_excluded[i]]);
946   tSupply = tSupply.sub(_tOwned[_excluded[i]]);
947   }
948   if (rSupply < _rTotal.div(_tTotal)) return (_rTotal, _tTotal);
949   return (rSupply, tSupply);
950
```



## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 1071

### low SEVERITY

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

### Source File

- MarsToken.sol

### Locations

```
1070     address[] memory path = new address[](2);
1071     path[0] = address(this);
1072     path[1] = uniswapV2Router.WETH();
1073
1074     _approve(address(this), address(uniswapV2Router), tokenAmount);
1075
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 1072

### low SEVERITY

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

### Source File

- MarsToken.sol

### Locations

```
1071 path[0] = address(this);
1072 path[1] = uniswapV2Router.WETH();
1073
1074 _approve(address(this), address(uniswapV2Router), tokenAmount);
1075
1076
```

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