



Alon Mars

# Smart Contract Audit Report

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# AUDITED DETAILS

## Audited Project

Project name	Token ticker	Blockchain
Alon Mars	AlonMars	Binance Smart Chain

## Addresses

Contract address	0xa2214039C2CcB9B86D351000BA2f126f45cE44a4
Contract deployer address	0xf7c006148E74CCAbE6f42D0ddBC6Ef1fa3a35D30

## Project Website

<https://aionmars.finance/>

## Codebase

<https://bscscan.com/address/0xa2214039C2CcB9B86D351000BA2f126f45cE44a4#code>

# SUMMARY

Artificial Intelligence on Mars (AlonMars) is a decentralized virtual world that combines blockchain technology and artificial intelligence to create a unique and immersive experience. Explore the red planet, interact with AI-powered entities, and participate in a vibrant community.

## Contract Summary

### Documentation Quality

Alon Mars 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 Alon Mars 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 405.
- SWC-101 | It is recommended to use vetted safe math libraries for arithmetic operations consistently on lines 21, 31, 40, 41, 51, 408, 408, 427, 427, 504, 504, 504 and 504.
- SWC-103 | Pragma statements can be allowed to float when a contract is intended on lines 7.
- 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 589 and 590.

## CONCLUSION

We have audited the Alon Mars project released on February-2023 to discover issues and identify potential security vulnerabilities in Alon Mars 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 Alon Mars 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.	<b>ISSUE FOUND</b>
Integer Overflow and Underflow	SWC-101	If unchecked math is used, all math operations should be safe from overflows and underflows.	<b>ISSUE FOUND</b>
Outdated Compiler Version	SWC-102	It is recommended to use a recent version of the Solidity compiler.	<b>PASS</b>
Floating Pragma	SWC-103	Contracts should be deployed with the same compiler version and flags that they have been tested thoroughly.	<b>ISSUE FOUND</b>
Unchecked Call Return Value	SWC-104	The return value of a message call should be checked.	<b>PASS</b>
Unprotected Ether Withdrawal	SWC-105	Due to missing or insufficient access controls, malicious parties can withdraw from the contract.	<b>PASS</b>
SELFDESTRUCT Instruction	SWC-106	The contract should not be self-destructible while it has funds belonging to users.	<b>PASS</b>
Reentrancy	SWC-107	Check effect interaction pattern should be followed if the code performs recursive call.	<b>PASS</b>
Uninitialized Storage Pointer	SWC-109	Uninitialized local storage variables can point to unexpected storage locations in the contract.	<b>PASS</b>
Assert Violation	SWC-110 SWC-123	Properly functioning code should never reach a failing assert statement.	<b>ISSUE FOUND</b>
Deprecated Solidity Functions	SWC-111	Deprecated built-in functions should never be used.	<b>PASS</b>
Delegate call to Untrusted Callee	SWC-112	Delegatecalls should only be allowed to trusted addresses.	<b>PASS</b>

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	Friday Feb 03 2023 20:38:44 GMT+0000 (Coordinated Universal Time)
Finished	Saturday Feb 04 2023 09:29:24 GMT+0000 (Coordinated Universal Time)
Mode	Standard
Main Source File	AlonMars.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-103	A FLOATING PRAGMA IS SET.	low	acknowledged

SWC-108	STATE VARIABLE VISIBILITY IS NOT SET.	<b>low</b>	acknowledged
SWC-110	OUT OF BOUNDS ARRAY ACCESS	<b>low</b>	acknowledged
SWC-110	OUT OF BOUNDS ARRAY ACCESS	<b>low</b>	acknowledged

# SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 21

## low SEVERITY

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

## Source File

- AlonMars.sol

## Locations

```
20  function add(uint a, uint b) internal pure returns (uint) {  
21  uint c = a + b;  
22  require(c >= a, "SafeMath: addition overflow");  
23  
24  return c;  
25
```

# SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 31

## low SEVERITY

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

## Source File

- AlonMars.sol

## Locations

```
30  require(b <= a, errorMessage);
31  uint c = a - b;
32
33  return c;
34  }
35
```

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

LINE 40

## low SEVERITY

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

## Source File

- AlonMars.sol

## Locations

```
39
40  uint c = a * b;
41  require(c / a == b, "SafeMath: multiplication overflow");
42
43  return c;
44
```

# SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 41

## low SEVERITY

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

## Source File

- AlonMars.sol

## Locations

```
40  uint c = a * b;  
41  require(c / a == b, "SafeMath: multiplication overflow");  
42  
43  return c;  
44  }  
45
```

# SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 51

## low SEVERITY

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

## Source File

- AlonMars.sol

## Locations

```
50  require(b > 0, errorMessage);
51  uint c = a / b;
52
53  return c;
54  }
55
```

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

LINE 408

## low SEVERITY

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

## Source File

- AlonMars.sol

## Locations

```
407
408  uint256 public numTokensSellToFee = 100000 * 10**18;
409
410  event MinTokensBeforeSwapUpdated(uint256 minTokensBeforeSwap);
411  event SwapAndLiquifyEnabledUpdated(bool enabled);
412
```



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

LINE 408

## low SEVERITY

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

## Source File

- AlonMars.sol

## Locations

```
407
408  uint256 public numTokensSellToFee = 100000 * 10**18;
409
410  event MinTokensBeforeSwapUpdated(uint256 minTokensBeforeSwap);
411  event SwapAndLiquifyEnabledUpdated(bool enabled);
412
```

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

LINE 427

## low SEVERITY

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

## Source File

- AlonMars.sol

## Locations

```
426  _owner = msg.sender ;
427  _totalSupply = 27000000 * (10**18);
428
429  _balances[_owner] = _totalSupply;
430
431
```

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

LINE 427

## low SEVERITY

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

## Source File

- AlonMars.sol

## Locations

```
426  _owner = msg.sender ;
427  _totalSupply = 27000000 * (10**18);
428
429  _balances[_owner] = _totalSupply;
430
431
```

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

LINE 504

## low SEVERITY

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

## Source File

- AlonMars.sol

## Locations

```
503  {
504  require(_numTokensSellToFee >= 10000 * 10**18 && _numTokensSellToFee <= 10000000 *
10**18, "Threshold must be set within 10,000 to 10,000,000 tokens");
505  numTokensSellToFee = _numTokensSellToFee;
506  }
507
508
```

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

LINE 504

### low SEVERITY

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

### Source File

- AlonMars.sol

### Locations

```
503  {
504  require(_numTokensSellToFee >= 10000 * 10**18 && _numTokensSellToFee <= 10000000 *
10**18, "Threshold must be set within 10,000 to 10,000,000 tokens");
505  numTokensSellToFee = _numTokensSellToFee;
506  }
507
508
```

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

LINE 504

## low SEVERITY

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

## Source File

- AlonMars.sol

## Locations

```
503  {
504  require(_numTokensSellToFee >= 10000 * 10**18 && _numTokensSellToFee <= 10000000 *
10**18, "Threshold must be set within 10,000 to 10,000,000 tokens");
505  numTokensSellToFee = _numTokensSellToFee;
506  }
507
508
```

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

LINE 504

## low SEVERITY

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

## Source File

- AlonMars.sol

## Locations

```
503  {  
504  require(_numTokensSellToFee >= 10000 * 10**18 && _numTokensSellToFee <= 10000000 *  
10**18, "Threshold must be set within 10,000 to 10,000,000 tokens");  
505  numTokensSellToFee = _numTokensSellToFee;  
506  }  
507  
508
```

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

LINE 7

### low SEVERITY

The current pragma Solidity directive is `""^0.8.15""`. 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

- AlonMars.sol

### Locations

```
6
7  pragma solidity ^0.8.15;
8
9  interface IBEP20 {
10     function totalSupply() external view returns (uint);
11
```



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

LINE 405

### 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

- AlonMars.sol

### Locations

```
404
405  bool inSwapAndLiquify;
406  bool private swapAndLiquifyEnabled = true;
407
408  uint256 public numTokensSellToFee = 100000 * 10**18;
409
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 589

### low SEVERITY

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

### Source File

- AlonMars.sol

### Locations

```
588     address[] memory path = new address[](2);
589     path[0] = address(this);
590     path[1] = uniswapV2Router.WETH();
591
592     _approve(address(this), address(uniswapV2Router), tokenAmount);
593
```

## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 590

### low SEVERITY

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

### Source File

- AlonMars.sol

### Locations

```
589 path[0] = address(this);  
590 path[1] = uniswapV2Router.WETH();  
591  
592 _approve(address(this), address(uniswapV2Router), tokenAmount);  
593  
594
```

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