Artlux

Smart Contract
Audit Report

SYSFIXED

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AUDITED DETAILS

Audited Project

Project name	Token ticker	Blockchain
Artlux	ATX	Binance Smart Chain

Addresses

Contract address	0xD90DAEf95154fc7777dE92d9521876a568808100
Contract deployer address	0x342CD9e636Bd8272801EDaE5058375F96582A0D3

Project Website

http://artlux.io/

Codebase

https://bscscan.com/address/0xD90DAEf95154fc7777dE92d9521876a568808100#code

SUMMARY

Artlux is an AI Powered NFT marketplace, NFT Aggregator and Lottery platform to create, sell and collect rare digital arts, high value real estate and virtual properties.

Contract Summary

Documentation Quality

Artlux 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 Artlux 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 105 and 126.
- SWC-101 | It is recommended to use vetted safe math libraries for arithmetic operations consistently on lines 117, 117, 249, 270, 270, 364, 365, 365, 366, 366, 376 and 377.
- SWC-103 | Pragma statements can be allowed to float when a contract is intended on lines 6.
- 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 365, 366 and 366.
- SWC-115 | tx.origin should not be used for authorization, use msg.sender instead on lines 298.
- SWC-120 | It is recommended to use external sources of randomness via oracles on lines 352.

CONCLUSION

We have audited the Artlux project released on February-2023 to discover issues and identify potential security vulnerabilities in Artlux 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 Artlux 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, weak sources of randomness, tx.origin as a part of authorization control 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

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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.	ISSUE FOUND
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.	ISSUE FOUND
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 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	Saturday Dec 17 2022 05:26:08 GMT+0000 (Coordinated Universal Time)
Finished	Sunday Dec 18 2022 19:48:53 GMT+0000 (Coordinated Universal Time)
Mode	Standard
Main Source File	Artlux.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-103	A FLOATING PRAGMA IS SET.	low	acknowledged
SWC-108	STATE VARIABLE VISIBILITY IS NOT SET.	low	acknowledged

SWC-108	STATE VARIABLE VISIBILITY IS NOT SET.	low	acknowledged
SWC-115	USE OF "TX.ORIGIN" AS A PART OF AUTHORIZATION CONTROL.	low	acknowledged
SWC-110	OUT OF BOUNDS ARRAY ACCESS	low	acknowledged
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SWC-110	OUT OF BOUNDS ARRAY ACCESS	low	acknowledged
SWC-120	POTENTIAL USE OF "BLOCK.NUMBER" AS SOURCE OF RANDOMNESS.	low	acknowledged

SWC-101 | ARITHMETIC OPERATION "*" DISCOVERED
LINE 117

low SEVERITY

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

Source File

- Artlux.sol

Locations

```
116    uint8 constant private _decimals = 18;
117    uint256 constant private _tTotal = startingSupply * 10**_decimals;
118
119    bool public taxesAreLocked;
120    IRouter02 public dexRouter;
121
```

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SWC-101 | ARITHMETIC OPERATION "**" DISCOVERED
LINE 117

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

Source File
- Artlux.sol

Locations

```
116    uint8 constant private _decimals = 18;
117    uint256 constant private _tTotal = startingSupply * 10**_decimals;
118
119    bool public taxesAreLocked;
120    IRouter02 public dexRouter;
121
```

SWC-101 | ARITHMETIC OPERATION "-=" DISCOVERED
LINE 249

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

Source File
- Artlux.sol

Locations

```
248    if (_allowances[sender][msg.sender] != type(uint256).max) {
249    _allowances[sender][msg.sender] -= amount;
250    }
251
252    return _transfer(sender, recipient, amount);
253
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED
LINE 270

low SEVERITY

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

Source File

- Artlux.sol

Locations

```
269    function getCirculatingSupply() public view returns (uint256) {
270    return (_tTotal - (balanceOf(DEAD) + balanceOf(address(0))));
271    }
272
273    function removeSniper(address account) external onlyOwner {
274
```

SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED
LINE 270

low SEVERITY

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

Source File

- Artlux.sol

Locations

```
269    function getCirculatingSupply() public view returns (uint256) {
270    return (_tTotal - (balanceOf(DEAD) + balanceOf(address(0))));
271    }
272
273    function removeSniper(address account) external onlyOwner {
274
```

SWC-101 | ARITHMETIC OPERATION "++" DISCOVERED
LINE 364

low SEVERITY

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

Source File

- Artlux.sol

Locations

```
363    require(accounts.length == amounts.length, "Lengths do not match.");
364    for (uint16 i = 0; i < accounts.length; i++) {
365    require(balanceOf(msg.sender) >= amounts[i]*10**_decimals, "Not enough tokens.");
366    finalizeTransfer(msg.sender, accounts[i], amounts[i]*10**_decimals, true);
367    }
368
```

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SWC-101 | ARITHMETIC OPERATION "*" DISCOVERED
LINE 365

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

Source File
- Artlux.sol

Locations

```
364    for (uint16 i = 0; i < accounts.length; i++) {
365    require(balanceOf(msg.sender) >= amounts[i]*10**_decimals, "Not enough tokens.");
366    finalizeTransfer(msg.sender, accounts[i], amounts[i]*10**_decimals, true);
367    }
368    }
369
```

SWC-101 | ARITHMETIC OPERATION "**" DISCOVERED
LINE 365

low SEVERITY

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

Source File

- Artlux.sol

Locations

```
364    for (uint16 i = 0; i < accounts.length; i++) {
365    require(balanceOf(msg.sender) >= amounts[i]*10**_decimals, "Not enough tokens.");
366    finalizeTransfer(msg.sender, accounts[i], amounts[i]*10**_decimals, true);
367    }
368    }
369
```

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SWC-101 | ARITHMETIC OPERATION "*" DISCOVERED
LINE 366

low SEVERITY

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

Source File

- Artlux.sol

Locations

```
365    require(balanceOf(msg.sender) >= amounts[i]*10**_decimals, "Not enough tokens.");
366    finalizeTransfer(msg.sender, accounts[i], amounts[i]*10**_decimals, true);
367    }
368    }
369
370
```

SWC-101 | ARITHMETIC OPERATION "**" DISCOVERED
LINE 366

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

Source File
- Artlux.sol

Locations

```
365   require(balanceOf(msg.sender) >= amounts[i]*10**_decimals, "Not enough tokens.");
366   finalizeTransfer(msg.sender, accounts[i], amounts[i]*10**_decimals, true);
367   }
368   }
369
370
```

SWC-101 | ARITHMETIC OPERATION "-=" DISCOVERED
LINE 376

low SEVERITY

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

Source File

- Artlux.sol

Locations

```
375    }
376    _tOwned[from] -= amount;
377    _tOwned[to] += amount;
378    emit Transfer(from, to, amount);
379    if (!_hasLiqBeenAdded) {
380
```

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SWC-101 | ARITHMETIC OPERATION "+=" DISCOVERED
LINE 377

low SEVERITY

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

Source File

- Artlux.sol

Locations

```
376    _tOwned[from] -= amount;
377    _tOwned[to] += amount;
378    emit Transfer(from, to, amount);
379    if (!_hasLiqBeenAdded) {
380    _checkLiquidityAdd(from, to);
381
```

SWC-103 | A FLOATING PRAGMA IS SET.
LINE 6

low SEVERITY

The current pragma Solidity directive is """>=0.6.0<0.9.0"". 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

- Artlux.sol

Locations

```
5    // SPDX-License-Identifier: MIT
6    pragma solidity >=0.6.0 <0.9.0;
7
8    interface IERC20 {
9    function totalSupply() external view returns (uint256);
10
```

SWC-108 | STATE VARIABLE VISIBILITY IS NOT SET.
LINE 105

low SEVERITY

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

Source File

- Artlux.sol

Locations

```
104    mapping (address => uint256) private _tOwned;
105    mapping (address => bool) lpPairs;
106    uint256 private timeSinceLastPair = 0;
107    mapping (address => mapping (address => uint256)) private _allowances;
108    mapping (address => bool) private _liquidityHolders;
109
```

SWC-108 | STATE VARIABLE VISIBILITY IS NOT SET.
LINE 126

low SEVERITY

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

Source File

- Artlux.sol

Locations

```
125    bool public _hasLiqBeenAdded = false;
126    Protections protections;
127
128    constructor () payable {
129    // Set the owner.
130
```

SWC-115 | USE OF "TX.ORIGIN" AS A PART OF AUTHORIZATION CONTROL.

LINE 298

low SEVERITY

The tx.origin environment variable has been found to influence a control flow decision. Note that using "tx.origin" as a security control might cause a situation where a user inadvertently authorizes a smart contract to perform an action on their behalf. It is recommended to use "msg.sender" instead.

Source File

- Artlux.sol

Locations

```
297    && to != _owner
298    && tx.origin != _owner
299    && !_liquidityHolders[to]
300    && !_liquidityHolders[from]
301    && to != DEAD
302
```

SWC-110 | OUT OF BOUNDS ARRAY ACCESS
LINE 365

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

Source File
- Artlux.sol

Locations

```
364    for (uint16 i = 0; i < accounts.length; i++) {
365    require(balanceOf(msg.sender) >= amounts[i]*10**_decimals, "Not enough tokens.");
366    finalizeTransfer(msg.sender, accounts[i], amounts[i]*10**_decimals, true);
367    }
368    }
369
```

SWC-110 | OUT OF BOUNDS ARRAY ACCESS
LINE 366

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

Source File
- Artlux.sol

Locations

```
365    require(balanceOf(msg.sender) >= amounts[i]*10**_decimals, "Not enough tokens.");
366    finalizeTransfer(msg.sender, accounts[i], amounts[i]*10**_decimals, true);
367    }
368    }
369
370
```

SWC-110 | OUT OF BOUNDS ARRAY ACCESS
LINE 366

low SEVERITY

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

Source File

- Artlux.sol

Locations

```
365    require(balanceOf(msg.sender) >= amounts[i]*10**_decimals, "Not enough tokens.");
366    finalizeTransfer(msg.sender, accounts[i], amounts[i]*10**_decimals, true);
367    }
368    }
369
370
```

SWC-120 | POTENTIAL USE OF "BLOCK.NUMBER" AS SOURCE OF RANDOMNESS.

LINE 352

low SEVERITY

The environment variable "block.number" looks like it might be used as a source of randomness. Note that the values of variables like coinbase, gaslimit, block number and timestamp are predictable and can be manipulated by a malicious miner. Also keep in mind that attackers know hashes of earlier blocks. Don't use any of those environment variables as sources of randomness and be aware that use of these variables introduces a certain level of trust into miners.

Source File

- Artlux.sol

Locations

```
351    }
352    try protections.setLaunch(lpPair, uint32(block.number), uint64(block.timestamp),
_decimals) {} catch {}
353    tradingEnabled = true;
354    allowedPresaleExclusion = false;
355    }
356
```

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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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