Oceanland

Smart Contract Audit Report

SYSFIXED

16 Feb 2022

TABLE OF CONTENTS

AUDITED DETAILS

Audited Project

Project name	Token ticker	Blockchain
Oceanland	OLAND	Binance Smart Chain

Addresses

Contract address	0xb0461d7e8212d311b842a58e9989ede849ac6816
Contract deployer address	0xE5c5010F53e260d33A1E662A7a7CE80716Eb3A70

Project Website

https://oceanland.io/

Codebase

https://bscscan.com/address/0xb0461d7e8212d311b842a58e9989ede849ac6816#code

SUMMARY

Oceanland is an NFT blockchain based game created by a highly experienced team of academicians, designers, engineers, developers and game enthusiasts. You will not only enjoy the natural beauties of the island, but also have a thrilling adventure while trying to survive and solve the mysteries hidden within the island.

Contract Summary

Documentation Quality

Oceanland 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 Oceanland 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 1037.
- SWC-103 | Pragma statements can be allowed to float when a contract is intended on lines 12, 40, 71, 141, 232, 259, 484, 569, 599, 984 and 1026.
- SWC-116 | It is recommended to use oracles for block values as a proxy for time on lines 1059, 1059 and 1046.

CONCLUSION

We have audited the Oceanland project released on February 2022 to discover issues and identify potential security vulnerabilities in Oceanland 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 satisfactory results with low-risk issues.

The issues found in the Oceanland 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 arithmetic operation issues, a floating pragma is set, a state variable visibility is not set, and a control flow decision is made based on The block.timestamp environment variable.

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.	PASS
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.	PASS
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.	ISSUE FOUND
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 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	Tuesday Feb 15 2022 14:24:09 GMT+0000 (Coordinated Universal Time)
Finished	Wednesday Feb 16 2022 03:27:15 GMT+0000 (Coordinated Universal Time)
Mode	Standard
Main Source File	OLANDToken.sol

Detected Issues

ID	Title	Severity	Status
SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged
SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged
SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged
SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged
SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged
SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged
SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged
SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged
SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged
SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged
SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged
SWC-108	STATE VARIABLE VISIBILITY IS NOT SET.	low	acknowledged
SWC-116	A CONTROL FLOW DECISION IS MADE BASED ON THE BLOCK.TIMESTAMP ENVIRONMENT VARIABLE.	low	acknowledged

SWC-116	A CONTROL FLOW DECISION IS MADE BASED ON THE BLOCK.TIMESTAMP ENVIRONMENT VARIABLE.	low	acknowledged
SWC-116	A CONTROL FLOW DECISION IS MADE BASED ON THE BLOCK.TIMESTAMP ENVIRONMENT VARIABLE.	low	acknowledged

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 12

low SEVERITY

The current pragma Solidity directive is ""^0.8.0"". 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

- OLANDToken.sol

Locations

```
11
12   pragma solidity ^0.8.0;
13
14   /**
15   * @dev Interface of the ERC165 standard, as defined in the
16
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 40

low SEVERITY

The current pragma Solidity directive is ""^0.8.0"". 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

- OLANDToken.sol

Locations

```
39
40    pragma solidity ^0.8.0;
41
42
43    /**
44
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 71

low SEVERITY

The current pragma Solidity directive is ""^0.8.0"". 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

- OLANDToken.sol

Locations

```
70
71   pragma solidity ^0.8.0;
72
73   /**
74   * @dev String operations.
75
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 141

low SEVERITY

The current pragma Solidity directive is ""^0.8.0"". 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

- OLANDToken.sol

Locations

```
140
141   pragma solidity ^0.8.0;
142
143   /**
144   * @dev External interface of AccessControl declared to support ERC165 detection.
145
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 232

low SEVERITY

The current pragma Solidity directive is ""^0.8.0"". 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

- OLANDToken.sol

Locations

```
231
232   pragma solidity ^0.8.0;
233
234   /**
235   * @dev Provides information about the current execution context, including the
236
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 259

low SEVERITY

The current pragma Solidity directive is ""^0.8.0"". 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

- OLANDToken.sol

Locations

```
258
259   pragma solidity ^0.8.0;
260
261
262
263
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 484

low SEVERITY

The current pragma Solidity directive is ""^0.8.0"". 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

- OLANDToken.sol

Locations

```
483
484   pragma solidity ^0.8.0;
485
486   /**
487   * @dev Interface of the ERC20 standard as defined in the EIP.
488
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 569

low SEVERITY

The current pragma Solidity directive is ""^0.8.0"". 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

- OLANDToken.sol

Locations

```
568
569   pragma solidity ^0.8.0;
570
571
572   /**
573
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 599

low SEVERITY

The current pragma Solidity directive is ""^0.8.0"". 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

- OLANDToken.sol

Locations

```
598
599   pragma solidity ^0.8.0;
600
601
602
603
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 984

low SEVERITY

The current pragma Solidity directive is ""^0.8.0"". 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

- OLANDToken.sol

Locations

```
983
984   pragma solidity ^0.8.0;
985
986
987
988
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 1026

low SEVERITY

The current pragma Solidity directive is ""^0.8.2"". 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

- OLANDToken.sol

Locations

```
1025
1026   pragma solidity ^0.8.2;
1027
1028
1029
1030
```

SWC-108 | STATE VARIABLE VISIBILITY IS NOT SET.

LINE 1037

low SEVERITY

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

Source File

- OLANDToken.sol

Locations

```
1036   }
1037   mapping(address => LockInfo) investorUnlockTime;
1038
1039   constructor() ERC20("Oceanland", "OLAND") {
1040   _grantRole(DEFAULT_ADMIN_ROLE, msg.sender);
1041
```

SWC-116 | A CONTROL FLOW DECISION IS MADE BASED ON THE BLOCK.TIMESTAMP ENVIRONMENT VARIABLE.

LINE 1059

low SEVERITY

The block.timestamp environment variable is used to determine a control flow decision. 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

- OLANDToken.sol

Locations

```
1058   uint256 remaining = balanceOf(from) - amount;
1059   require(investorUnlockTime[from].unlockTime < block.timestamp ||
investorUnlockTime[from].amount <= remaining, "OLANDToken: Wait for the investing
period");
1060   }
1061   }
1062   }
1063
```

SWC-116 | A CONTROL FLOW DECISION IS MADE BASED ON THE BLOCK.TIMESTAMP ENVIRONMENT VARIABLE.

LINE 1059

low SEVERITY

The block.timestamp environment variable is used to determine a control flow decision. 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

- OLANDToken.sol

Locations

```
1058   uint256 remaining = balanceOf(from) - amount;
1059   require(investorUnlockTime[from].unlockTime < block.timestamp ||
investorUnlockTime[from].amount <= remaining, "OLANDToken: Wait for the investing
period");
1060   }
1061   }
1062   }
1063
```

SWC-116 | A CONTROL FLOW DECISION IS MADE BASED ON THE BLOCK.TIMESTAMP ENVIRONMENT VARIABLE.

LINE 1046

low SEVERITY

The block.timestamp environment variable is used to determine a control flow decision. 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

- OLANDToken.sol

Locations

```
1045   require(investorUnlockTime[investor].unlockTime == 0, "OLANDToken: Already locked balance on this account");
1046   require(unlockTime > block.timestamp, "OLANDToken: unlockTime > block.timestamp");
1047   require(amount > 0, "OLANDToken: Amount > 0");
1048   _transfer(_msgSender(), investor, amount);
1049   investorUnlockTime[investor] = LockInfo(unlockTime, amount);
1050
```

DISCLAIMER

This report is subject to the terms and conditions (including without limitation, description of services, confidentiality, disclaimer and limitation of liability) set forth in the Services Agreement, or the scope of services, and terms and conditions provided to you ("Customer" or the "Company") in connection with the Agreement. This report provided in connection with the Services set forth in the Agreement shall be used by the Company only to the extent permitted under the terms and conditions set forth in the Agreement. This report may not be transmitted, disclosed, referred to, or relied upon by any person for any purposes, nor may copies be delivered to any other person other than the Company, without Sysfixed's prior written consent in each instance.

This report is not, nor should be considered, an "endorsement" or "disapproval" of any particular project or team. This report is not, nor should be considered, an indication of the economics or value of any "product" or "asset" created by any team or project that contracts Sysfixed to perform a security assessment. This report does not provide any warranty or guarantee regarding the absolute bug-free nature of the technology analyzed, nor do they provide any indication of the technologies proprietors, business, business model, or legal compliance.

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.

This report should not be used in any way to make decisions around investment or involvement with any particular project. This report in no way provides investment advice, nor should be leveraged as investment advice of any sort. This report represents an extensive assessing process intending to help our customers increase the quality of their code while reducing the high level of risk presented by cryptographic tokens and blockchain technology.

This report is provided for information purposes only and on a non-reliance basis and does not constitute investment advice. No one shall have any right to rely on the report or its contents, and Sysfixed and its affiliates (including holding companies, shareholders, subsidiaries, employees, directors, officers, and other representatives) (Sysfixed) owe no duty of care.

ABOUT US

Sysfixed is a blockchain security certification organization established in 2021 with the objective to provide smart contract security services and verify their correctness in blockchain-based protocols. Sysfixed automatically scans for security vulnerabilities in Ethereum and other EVM-based blockchain smart contracts. Sysfixed a comprehensive range of analysis techniques—including static analysis, dynamic analysis, and symbolic execution—can accurately detect security vulnerabilities to provide an in-depth analysis report. With a vibrant ecosystem of world-class integration partners that amplify developer productivity, Sysfixed can be utilized in all phases of your project's lifecycle. Our team of security experts is dedicated to the research and improvement of our tools and techniques used to fortify your code.