LUNA

Smart Contract Audit Report

SYSFIXED

13 Oct 2021

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AUDITED DETAILS

Audited Project

Project name	Token ticker	Blockchain
LUNA	LUNA	Binance Smart Chain

Addresses

Contract address	0x156ab3346823b651294766e23e6cf87254d68962
Contract deployer address	0xB6F6D86a8f9879A9c87f643768d9efc38c1Da6E7

Project Website

https://www.portalbridge.com/#/transfer

Codebase

https://bscscan.com/address/0x156ab3346823b651294766e23e6cf87254d68962#code

SUMMARY

Luna is the Terra protocol's native staking token. Luna is used for governance and in mining. Users stake Luna to validators who record and verify transactions on the blockchain in exchange for rewards from transaction fees.

Contract Summary

Documentation Quality

LUNA 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 LUNA with the discovery of several low issues.

Test Coverage

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

Audit Findings Summary

- SWC-101 | It is recommended to use vetted safe math libraries for arithmetic operations consistently on lines 647 and 647.
- SWC-103 | Pragma statements can be allowed to float when a contract is intended on lines 10, 97, 317, 406, 425, 621 and 685.

CONCLUSION

We have audited the LUNA project released on October 2021 to discover issues and identify potential security vulnerabilities in LUNA 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 LUNA 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 issue found is a floating pragma is set. The current pragma Solidity directive is ""^0.8.0"". Specifying a fixed compiler version is recommended 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.

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.	PASS
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.	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.	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 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 Oct 12 2021 17:58:29 GMT+0000 (Coordinated Universal Time)
Finished	Wednesday Oct 13 2021 15:23:45 GMT+0000 (Coordinated Universal Time)
Mode	Standard
Main Source File	BridgeToken.sol

Detected Issues

ID	Title	Severity	Status
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	COMPILER-REWRITABLE "<UINT> - 1" DISCOVERED	low	acknowledged
SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged
SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged
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SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 647

low SEVERITY

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

Source File

- BridgeToken.sol

Locations

```
646   constructor(address beacon, bytes memory data) payable {
647   assert(_BEACON_SLOT == bytes32(uint256(keccak256("eip1967.proxy.beacon")) - 1));
648   _upgradeBeaconToAndCall(beacon, data, false);
649   }
650
651
```

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

LINE 647

low SEVERITY

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

Source File

- BridgeToken.sol

Locations

```
646   constructor(address beacon, bytes memory data) payable {
647   assert(_BEACON_SLOT == bytes32(uint256(keccak256("eip1967.proxy.beacon")) - 1));
648   _upgradeBeaconToAndCall(beacon, data, false);
649   }
650
651
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 10

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

- BridgeToken.sol

Locations

```
9
10   pragma solidity ^0.8.0;
11
12   /**
13   * @dev Library for reading and writing primitive types to specific storage slots.
14
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 97

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

- BridgeToken.sol

Locations

```
96
97   pragma solidity ^0.8.0;
98
99   /**
100   * @dev Collection of functions related to the address type
101
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 317

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

- BridgeToken.sol

Locations

```
316
317   pragma solidity ^0.8.0;
318
319   /**
320   * @dev This abstract contract provides a fallback function that delegates all calls
to another contract using the EVM
321
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 406

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

- BridgeToken.sol

Locations

```
405
406   pragma solidity ^0.8.0;
407
408   /**
409   * @dev This is the interface that {BeaconProxy} expects of its beacon.
410
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 425

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

- BridgeToken.sol

Locations

```
424
425   pragma solidity ^0.8.2;
426
427
428
429
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 621

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

- BridgeToken.sol

Locations

```
620
621   pragma solidity ^0.8.0;
622
623
624
625
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 685

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

- BridgeToken.sol

Locations

```
684
685   pragma solidity ^0.8.0;
686
687
688   contract BridgeToken is BeaconProxy {
689
```

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