Polyroll Token

Smart Contract Audit Report

17 Jun 2021

TABLE OF CONTENTS

AUDITED DETAILS

Audited Project

Project name	Token ticker	Blockchain
Polyroll Token	ROLL	Polygon Matic

Addresses

Contract address	0xc68e83a305b0fad69e264a1769a0a070f190d2d6
Contract deployer address	0x7a2B82B7427e587Ca75c7962679d001Fb737ffA4

Project Website

https://twitter.com/PolyrollOrg

Codebase

https://polygonscan.com/address/0xc68e83a305b0fad69e264a1769a0a070f190d2d6#code

SUMMARY

Polyroll is a decentralized casino built on Polygon Network and Chainlink. Unlike traditional casinos that operate in black boxes, Polyroll runs on smart contracts that are fair, transparent, and immutable. Polyroll is conducting a proper launch of its native token, ROLL, through yield farming.

Contract Summary

Documentation Quality

Polyroll Token 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 Polyroll Token with the discovery of several low issues.

Test Coverage

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

Audit Findings Summary

- SWC-103 | Pragma statements can be allowed to float when a contract is intended on lines 10, 36, 180, 342, 422 and 733.
- SWC-116 | It is recommended to use oracles for block values as a proxy for time on lines 930.
- SWC-120 | It is recommended to use external sources of randomness via oracles on lines 960, 1033 and 960.

CONCLUSION

We have audited the Polyroll Token project released on June 2021 to discover issues and identify potential security vulnerabilities in Polyroll 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 Polyroll 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 floating pragma is set, control flow decision is made based on The block.timestamp environment variable, and potential use of "block.number" as a source of randomness. 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. The block.timestamp environment variable determines 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 using these variables introduces a certain level of trust in miners.

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.	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.	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	Wednesday Jun 16 2021 04:41:17 GMT+0000 (Coordinated Universal Time)
Finished	Thursday Jun 17 2021 20:58:26 GMT+0000 (Coordinated Universal Time)
Mode	Standard
Main Source File	RollToken.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
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SWC-116	A CONTROL FLOW DECISION IS MADE BASED ON THE BLOCK.TIMESTAMP ENVIRONMENT VARIABLE.	low	acknowledged
SWC-120	POTENTIAL USE OF "BLOCK.NUMBER" AS SOURCE OF RANDOMNESS.	low	acknowledged
SWC-120	POTENTIAL USE OF "BLOCK.NUMBER" AS SOURCE OF RANDOMNESS.	low	acknowledged
SWC-120	A CONTROL FLOW DECISION IS MADE BASED ON THE BLOCK.NUMBER ENVIRONMENT VARIABLE.	low	acknowledged

SWC-103 | A FLOATING PRAGMA IS SET.
LINE 10

low SEVERITY

The current pragma Solidity directive is ""^0.6.0"". 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

- RollToken.sol

Locations

```
9
10    pragma solidity ^0.6.0;
11
12    /*
13    * @dev Provides information about the current execution context, including the
14
```

SWC-103 | A FLOATING PRAGMA IS SET.
LINE 36

low SEVERITY

The current pragma Solidity directive is ""^0.6.2"". 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

- RollToken.sol

Locations

```
35
36    pragma solidity ^0.6.2;
37
38    /**
39     * @dev Collection of functions related to the address type
40
```

SWC-103 | A FLOATING PRAGMA IS SET.
LINE 180

low SEVERITY

The current pragma Solidity directive is ""^0.6.0"". 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

- RollToken.sol

Locations

```
179
180   pragma solidity ^0.6.0;
181
182   /**
183    * @dev Wrappers over Solidity's arithmetic operations with added overflow
184
```

SWC-103 | A FLOATING PRAGMA IS SET.
LINE 342

low SEVERITY

The current pragma Solidity directive is ""^0.6.0"". 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

- RollToken.sol

Locations

```
341
342   pragma solidity ^0.6.0;
343
344   /**
345   * @dev Interface of the ERC20 standard as defined in the EIP.
346
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 422

low SEVERITY

The current pragma Solidity directive is ""^0.6.0"". 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

- RollToken.sol

Locations

```
421
422    pragma solidity ^0.6.0;
423
424
425
426
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 733

low SEVERITY

The current pragma Solidity directive is ""^0.6.0"". 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

- RollToken.sol

Locations

```
732
733    pragma solidity ^0.6.0;
734
735    /**
736    * @dev Contract module which provides a basic access control mechanism, where
737
```

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

LINE 930

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

- RollToken.sol

Locations

```
929    require(nonce == nonces[signatory]++, "EGG::delegateBySig: invalid nonce");
930    require(now <= expiry, "EGG::delegateBySig: signature expired");
931    return _delegate(signatory, delegatee);
932    }
933
934
```

SYSFIXED

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

LINE 960

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

- RollToken.sol

Locations

```
959    {
960    require(blockNumber < block.number, "EGG::getPriorVotes: not yet determined");
961
962    uint32 nCheckpoints = numCheckpoints[account];
963    if (nCheckpoints == 0) {
964
```

SYSFIXED

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

LINE 1033

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

- RollToken.sol

Locations

```
1032   {
1033   uint32 blockNumber = safe32(block.number, "EGG::_writeCheckpoint: block number
exceeds 32 bits");
1034
1035   if (nCheckpoints > 0 && checkpoints[delegatee][nCheckpoints - 1].fromBlock ==
blockNumber) {
1036   checkpoints[delegatee][nCheckpoints - 1].votes = newVotes;
1037
```

SYSFIXED

SWC-120 | A CONTROL FLOW DECISION IS MADE BASED ON THE BLOCK.NUMBER ENVIRONMENT VARIABLE.

LINE 960

low SEVERITY

The block.number 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.

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