

# Ryukyu Smart Contract Audit Report



09 Dec 2022



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# AUDITED DETAILS

### Audited Project

Project name	Token ticker	Blockchain	
Ryukyu	RYU	Ethereum	

#### Addresses

Contract address	0xce81cf156dbd2d8f4e63edc6065740affdde66e9
Contract deployer address	0xb68e5D12da294EC4Ef9fdBaDAB4B1B015F946714

### Project Website

#### https://ryukyuerc.com/

### Codebase

https://etherscan.io/address/0xce81cf156dbd2d8f4e63edc6065740affdde66e9#code



# SUMMARY

\$RYU is a tough dog for a tough community, if you are willing to hold through the tough times, you will reap the real rewards for it. \$RYU is also loyal, that is the way we aim to be as a team towards our community. We are constantly building and developing \$RYU, with plans of making it the next blue chip dog coin. With open arms, we invite anybody and everybody to join the Ryukyu army. To those listening, if you have a creative mind and need a medium to express yourself, if you have connections in the space, if you are looking for something to build, if you are looking for people you can talk to and trust, join Ryukyu.

### Contract Summary

#### **Documentation Quality**

Ryukyu 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 Ryukyu 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 395, 414, 436, 469, 471, 492, 493, 518, 520, 616, 630, 645, 646, 659, 671, 686, 700, 714, 728, 744, 767, 790, 816, 1150, 1152, 1153, 1154, 1154, 1159, 1159, 1164, 1164, 1213, 1213, 1217, 1217, 1226, 1226, 1226, 1229, 1229, 1234, 1234, 1234, 1237, 1237, 1260, 1260, 1272, 1272, 1372, 1387, 1417, 1436, 1436, 1436, 1437, 1437, 1437, 1438, 1438, 1438, 1443, 1443, 1444, 1444, 1444, 1445, 1445, 1445, 1445, 1452, 1452, 1493, 1493, 1502, 1503, 1507, 1507, 1507, 1523, 1523 and 1592.
- SWC-103 | Pragma statements can be allowed to float when a contract is intended on lines 19.
- 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 1461 and 1462.
- SWC-115 | tx.origin should not be used for authorization, use msg.sender instead on lines 1354 and 1358.

• SWC-120 | It is recommended to use external sources of randomness via oracles on lines 1355 and 1358.







# CONCLUSION

We have audited the Ryukyu project released on December 2022 to discover issues and identify potential security vulnerabilities in Ryukyu 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 Ryukyu 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, 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.	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.	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



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	Thursday Dec 08 2022 11:58:25 GMT+0000 (Coordinated Universal Time)		
Finished	Friday Dec 09 2022 15:22:51 GMT+0000 (Coordinated Universal Time)		
Mode	Standard		
Main Source File	Ryukyu.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-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-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-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-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-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-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-115	USE OF "TX.ORIGIN" AS A PART OF AUTHORIZATION CONTROL.	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
SWC-110	OUT OF BOUNDS ARRAY ACCESS	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-101 | ARITHMETIC OPERATION "-" DISCOVERED

**LINE 395** 

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

```
394 unchecked {
395 _approve(sender, _msgSender(), currentAllowance - amount);
396 }
397
398 return true;
399
```



### SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

**LINE 414** 

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

```
413 function increaseAllowance(address spender, uint256 addedValue) public virtual
returns (bool) {
414 __approve(_msgSender(), spender, _allowances[_msgSender()][spender] + addedValue);
415 return true;
416 }
417
418
```



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

**LINE 436** 

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

```
435 unchecked {
436 _approve(_msgSender(), spender, currentAllowance - subtractedValue);
437 }
438
439 return true;
440
```



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

**LINE 469** 

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

```
468 unchecked {
469 _balances[sender] = senderBalance - amount;
470 }
471 _balances[recipient] += amount;
472
473
```



### SWC-101 | ARITHMETIC OPERATION "+=" DISCOVERED

**LINE 471** 

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

#### Locations

470 }
471 \_balances[recipient] += amount;
472
473 emit Transfer(sender, recipient, amount);
474
475



### SWC-101 | ARITHMETIC OPERATION "+=" DISCOVERED

LINE 492

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

#### Locations

491
492 \_totalSupply += amount;
493 \_balances[account] += amount;
494 emit Transfer(address(0), account, amount);
495
496



### SWC-101 | ARITHMETIC OPERATION "+=" DISCOVERED

**LINE 493** 

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

#### Locations

492 \_\_totalSupply += amount; 493 \_\_balances[account] += amount; 494 emit Transfer(address(0), account, amount); 495 496 \_\_afterTokenTransfer(address(0), account, amount); 497



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

LINE 518

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

```
517 unchecked {
518 _balances[account] = accountBalance - amount;
519 }
520 _totalSupply -= amount;
521
522
```



### SWC-101 | ARITHMETIC OPERATION "-=" DISCOVERED

**LINE 520** 

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

```
519 }
520 _totalSupply -= amount;
521
522 emit Transfer(account, address(0), amount);
523
524
```



### SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 616

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

```
615 unchecked {
616 uint256 c = a + b;
617 if (c < a) return (false, 0);
618 return (true, c);
619 }
620</pre>
```



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

**LINE 630** 

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

```
629 if (b > a) return (false, 0);
630 return (true, a - b);
631 }
632 }
633
634
```



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

**LINE 645** 

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

```
644 if (a == 0) return (true, 0);
645 uint256 c = a * b;
646 if (c / a != b) return (false, 0);
647 return (true, c);
648 }
649
```



### SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 646

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

```
645 uint256 c = a * b;
646 if (c / a != b) return (false, 0);
647 return (true, c);
648 }
649 }
650
```



### SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

**LINE 659** 

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

```
658 if (b == 0) return (false, 0);
659 return (true, a / b);
660 }
661 }
662
663
```



### SWC-101 | ARITHMETIC OPERATION "%" DISCOVERED

**LINE 671** 

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

```
670 if (b == 0) return (false, 0);
671 return (true, a % b);
672 }
673 }
674 
675
```



### SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

**LINE 686** 

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

```
685 function add(uint256 a, uint256 b) internal pure returns (uint256) {
686 return a + b;
687 }
688
689 /**
690
```



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

**LINE** 700

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

```
699 function sub(uint256 a, uint256 b) internal pure returns (uint256) {
700 return a - b;
701 }
702
703 /**
704
```



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

LINE 714

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

```
713 function mul(uint256 a, uint256 b) internal pure returns (uint256) {
714 return a * b;
715 }
716
717 /**
718
```



### SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

**LINE 728** 

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

```
727 function div(uint256 a, uint256 b) internal pure returns (uint256) {
728 return a / b;
729 }
730
731 /**
732
```



### SWC-101 | ARITHMETIC OPERATION "%" DISCOVERED

**LINE 744** 

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

```
743 function mod(uint256 a, uint256 b) internal pure returns (uint256) {
744 return a % b;
745 }
746
747 /**
748
```



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

LINE 767

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

```
766 require(b <= a, errorMessage);
767 return a - b;
768 }
769 }
770
771</pre>
```



### SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

**LINE 790** 

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

```
789 require(b > 0, errorMessage);
790 return a / b;
791 }
792 }
793
794
```


LINE 816

## **Iow SEVERITY**

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

## Source File

- Ryukyu.sol

```
815 require(b > 0, errorMessage);
816 return a % b;
817 }
818 }
819 }
820
```



LINE 1150

## **Iow SEVERITY**

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

## Source File

- Ryukyu.sol

#### Locations

1149
1150 uint256 totalSupply = 1\_000\_000\_000 \* 1e18;
1151
1152 maxTransactionAmount = 20\_000\_000 \* 1e18; // 2% from total supply
maxTransactionAmountTxn
1153 maxWallet = 20\_000\_000 \* 1e18; // 3% from total supply maxWallet
1154



LINE 1152

## **Iow SEVERITY**

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

## Source File

- Ryukyu.sol

```
1151
1152 maxTransactionAmount = 20_000_000 * 1e18; // 2% from total supply
maxTransactionAmountTxn
1153 maxWallet = 20_000_000 * 1e18; // 3% from total supply maxWallet
1154 swapTokensAtAmount = (totalSupply * 10) / 10000; // 0.1% swap wallet
1155
1156
```



LINE 1153

## **Iow SEVERITY**

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

## Source File

- Ryukyu.sol

```
1152 maxTransactionAmount = 20_000_000 * 1e18; // 2% from total supply
maxTransactionAmountTxn
1153 maxWallet = 20_000_000 * 1e18; // 3% from total supply maxWallet
1154 swapTokensAtAmount = (totalSupply * 10) / 10000; // 0.1% swap wallet
1155
1156 buyMarketingFee = _buyMarketingFee;
1157
```



LINE 1154

## **Iow SEVERITY**

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

## Source File

- Ryukyu.sol

```
1153 maxWallet = 20_000_000 * 1e18; // 3% from total supply maxWallet
1154 swapTokensAtAmount = (totalSupply * 10) / 10000; // 0.1% swap wallet
1155
1156 buyMarketingFee = _buyMarketingFee;
1157 buyLiquidityFee = _buyLiquidityFee;
1158
```



LINE 1154

## **Iow SEVERITY**

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

## Source File

- Ryukyu.sol

```
1153 maxWallet = 20_000_000 * le18; // 3% from total supply maxWallet
1154 swapTokensAtAmount = (totalSupply * 10) / 10000; // 0.1% swap wallet
1155
1156 buyMarketingFee = _buyMarketingFee;
1157 buyLiquidityFee = _buyLiquidityFee;
1158
```



LINE 1159

## **Iow SEVERITY**

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

## Source File

- Ryukyu.sol

```
1158 buyDevFee = _buyDevFee;
1159 buyTotalFees = buyMarketingFee + buyLiquidityFee + buyDevFee;
1160
1161 sellMarketingFee = _sellMarketingFee;
1162 sellLiquidityFee = _sellLiquidityFee;
1163
```



LINE 1159

## **Iow SEVERITY**

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

## Source File

- Ryukyu.sol

```
1158 buyDevFee = _buyDevFee;
1159 buyTotalFees = buyMarketingFee + buyLiquidityFee + buyDevFee;
1160
1161 sellMarketingFee = _sellMarketingFee;
1162 sellLiquidityFee = _sellLiquidityFee;
1163
```



LINE 1164

## **Iow SEVERITY**

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

## Source File

- Ryukyu.sol

```
1163 sellDevFee = _sellDevFee;
1164 sellTotalFees = sellMarketingFee + sellLiquidityFee + sellDevFee;
1165
1166 marketingWallet = address(0xb68e5D12da294EC4Ef9fdBaDAB4B1B015F946714); // set as
marketing wallet
1167 devWallet = address(0xb68e5D12da294EC4Ef9fdBaDAB4B1B015F946714); // set as dev
wallet
1168
```



LINE 1164

## **Iow SEVERITY**

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

## Source File

- Ryukyu.sol

```
1163 sellDevFee = _sellDevFee;
1164 sellTotalFees = sellMarketingFee + sellLiquidityFee + sellDevFee;
1165
1166 marketingWallet = address(0xb68e5D12da294EC4Ef9fdBaDAB4B1B015F946714); // set as
marketing wallet
1167 devWallet = address(0xb68e5D12da294EC4Ef9fdBaDAB4B1B015F946714); // set as dev
wallet
1168
```



LINE 1213

## **Iow SEVERITY**

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

## Source File

- Ryukyu.sol

### Locations

1212 require(
1213 newAmount >= (totalSupply() \* 1) / 100000,
1214 "Swap amount cannot be lower than 0.001% total supply."
1215 );
1216 require(
1217



LINE 1213

## **Iow SEVERITY**

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

## Source File

- Ryukyu.sol

### Locations

1212 require(
1213 newAmount >= (totalSupply() \* 1) / 100000,
1214 "Swap amount cannot be lower than 0.001% total supply."
1215 );
1216 require(
1217



LINE 1217

## **Iow SEVERITY**

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

## Source File

- Ryukyu.sol

## Locations

1216 require( 1217 newAmount <= (totalSupply() \* 5) / 1000, 1218 "Swap amount cannot be higher than 0.5% total supply." 1219 ); 1220 swapTokensAtAmount = newAmount; 1221



LINE 1217

## **Iow SEVERITY**

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

## Source File

- Ryukyu.sol

## Locations

1216 require( 1217 newAmount <= (totalSupply() \* 5) / 1000, 1218 "Swap amount cannot be higher than 0.5% total supply." 1219 ); 1220 swapTokensAtAmount = newAmount; 1221



LINE 1226

## **Iow SEVERITY**

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

## Source File

- Ryukyu.sol

```
1225 require(
1226 newNum >= ((totalSupply() * 1) / 1000) / 1e18,
1227 "Cannot set maxTransactionAmount lower than 0.1%"
1228 );
1229 maxTransactionAmount = newNum * (10**18);
1230
```



LINE 1226

## **Iow SEVERITY**

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

## Source File

- Ryukyu.sol

```
1225 require(
1226 newNum >= ((totalSupply() * 1) / 1000) / 1e18,
1227 "Cannot set maxTransactionAmount lower than 0.1%"
1228 );
1229 maxTransactionAmount = newNum * (10**18);
1230
```



LINE 1226

## **Iow SEVERITY**

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

## Source File

- Ryukyu.sol

```
1225 require(
1226 newNum >= ((totalSupply() * 1) / 1000) / 1e18,
1227 "Cannot set maxTransactionAmount lower than 0.1%"
1228 );
1229 maxTransactionAmount = newNum * (10**18);
1230
```



LINE 1229

## **Iow SEVERITY**

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

## Source File

- Ryukyu.sol

### Locations

1228 ); 1229 maxTransactionAmount = newNum \* (10\*\*18); 1230 } 1231 1232 function updateMaxWalletAmount(uint256 newNum) external onlyOwner { 1233



LINE 1229

## **Iow SEVERITY**

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

## Source File

- Ryukyu.sol

#### Locations

1228 ); 1229 maxTransactionAmount = newNum \* (10\*\*18); 1230 } 1231 1232 function updateMaxWalletAmount(uint256 newNum) external onlyOwner { 1233



LINE 1234

## **Iow SEVERITY**

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

## Source File

- Ryukyu.sol

```
1233 require(
1234 newNum >= ((totalSupply() * 1) / 1000) / 1e18,
1235 "Cannot set maxWallet lower than 0.1%"
1236 );
1237 maxWallet = newNum * (10**18);
1238
```



LINE 1234

## **Iow SEVERITY**

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

## Source File

- Ryukyu.sol

```
1233 require(
1234 newNum >= ((totalSupply() * 1) / 1000) / 1e18,
1235 "Cannot set maxWallet lower than 0.1%"
1236 );
1237 maxWallet = newNum * (10**18);
1238
```



LINE 1234

## **Iow SEVERITY**

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

## Source File

- Ryukyu.sol

```
1233 require(
1234 newNum >= ((totalSupply() * 1) / 1000) / 1e18,
1235 "Cannot set maxWallet lower than 0.1%"
1236 );
1237 maxWallet = newNum * (10**18);
1238
```



LINE 1237

## **Iow SEVERITY**

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

## Source File

- Ryukyu.sol

```
1236 );
1237 maxWallet = newNum * (10**18);
1238 }
1239
1240 function excludeFromMaxTransaction(address updAds, bool isEx)
1241
```



LINE 1237

## **Iow SEVERITY**

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

## Source File

- Ryukyu.sol

```
1236 );
1237 maxWallet = newNum * (10**18);
1238 }
1239
1240 function excludeFromMaxTransaction(address updAds, bool isEx)
1241
```



LINE 1260

## **Iow SEVERITY**

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

## Source File

- Ryukyu.sol

```
1259 buyDevFee = _devFee;
1260 buyTotalFees = buyMarketingFee + buyLiquidityFee + buyDevFee;
1261 require(buyTotalFees <= 40, "Must keep fees at 40% or less");
1262 }
1263
1264
```



LINE 1260

## **Iow SEVERITY**

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

## Source File

- Ryukyu.sol

```
1259 buyDevFee = _devFee;
1260 buyTotalFees = buyMarketingFee + buyLiquidityFee + buyDevFee;
1261 require(buyTotalFees <= 40, "Must keep fees at 40% or less");
1262 }
1263
1264
```



LINE 1272

## **Iow SEVERITY**

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

## Source File

- Ryukyu.sol

```
1271 sellDevFee = _devFee;
1272 sellTotalFees = sellMarketingFee + sellLiquidityFee + sellDevFee;
1273 require(sellTotalFees <= 40, "Must keep fees at 40% or less");
1274 }
1275
1276
```



LINE 1272

## **Iow SEVERITY**

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

## Source File

- Ryukyu.sol

```
1271 sellDevFee = _devFee;
1272 sellTotalFees = sellMarketingFee + sellLiquidityFee + sellDevFee;
1273 require(sellTotalFees <= 40, "Must keep fees at 40% or less");
1274 }
1275
1276
```



LINE 1372

## **Iow SEVERITY**

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

## Source File

- Ryukyu.sol

```
1371 require(
1372 amount + balanceOf(to) <= maxWallet,
1373 "Max wallet exceeded"
1374 );
1375 }
1376</pre>
```



## SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 1387

## **Iow SEVERITY**

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

## Source File

- Ryukyu.sol

```
1386 require(
1387 amount + balanceOf(to) <= maxWallet,
1388 "Max wallet exceeded"
1389 );
1390 }
1391
```



LINE 1417

## **Iow SEVERITY**

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

## Source File

- Ryukyu.sol

## Locations

1416 lpBurnEnabled &&
1417 block.timestamp >= lastLpBurnTime + lpBurnFrequency &&
1418 !\_isExcludedFromFees[from]
1419 ) {
1420 autoBurnLiquidityPairTokens();
1421



LINE 1436

## **Iow SEVERITY**

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

## Source File

- Ryukyu.sol

```
1435 fees = amount.mul(sellTotalFees).div(100);
1436 tokensForLiquidity += (fees * sellLiquidityFee) / sellTotalFees;
1437 tokensForDev += (fees * sellDevFee) / sellTotalFees;
1438 tokensForMarketing += (fees * sellMarketingFee) / sellTotalFees;
1439 }
1440
```



LINE 1436

## **Iow SEVERITY**

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

## Source File

- Ryukyu.sol

```
1435 fees = amount.mul(sellTotalFees).div(100);
1436 tokensForLiquidity += (fees * sellLiquidityFee) / sellTotalFees;
1437 tokensForDev += (fees * sellDevFee) / sellTotalFees;
1438 tokensForMarketing += (fees * sellMarketingFee) / sellTotalFees;
1439 }
1440
```



LINE 1436

## **Iow SEVERITY**

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

## Source File

- Ryukyu.sol

```
1435 fees = amount.mul(sellTotalFees).div(100);
1436 tokensForLiquidity += (fees * sellLiquidityFee) / sellTotalFees;
1437 tokensForDev += (fees * sellDevFee) / sellTotalFees;
1438 tokensForMarketing += (fees * sellMarketingFee) / sellTotalFees;
1439 }
1440
```



LINE 1437

## **Iow SEVERITY**

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

## Source File

- Ryukyu.sol

```
1436 tokensForLiquidity += (fees * sellLiquidityFee) / sellTotalFees;
1437 tokensForDev += (fees * sellDevFee) / sellTotalFees;
1438 tokensForMarketing += (fees * sellMarketingFee) / sellTotalFees;
1439 }
1440 // on buy
1441
```



LINE 1437

## **Iow SEVERITY**

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

## Source File

- Ryukyu.sol

```
1436 tokensForLiquidity += (fees * sellLiquidityFee) / sellTotalFees;
1437 tokensForDev += (fees * sellDevFee) / sellTotalFees;
1438 tokensForMarketing += (fees * sellMarketingFee) / sellTotalFees;
1439 }
1440 // on buy
1441
```


LINE 1437

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

```
1436 tokensForLiquidity += (fees * sellLiquidityFee) / sellTotalFees;
1437 tokensForDev += (fees * sellDevFee) / sellTotalFees;
1438 tokensForMarketing += (fees * sellMarketingFee) / sellTotalFees;
1439 }
1440 // on buy
1441
```



LINE 1438

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

```
1437 tokensForDev += (fees * sellDevFee) / sellTotalFees;
1438 tokensForMarketing += (fees * sellMarketingFee) / sellTotalFees;
1439 }
1440 // on buy
1441 else if (automatedMarketMakerPairs[from] && buyTotalFees > 0) {
1442
```



LINE 1438

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

```
1437 tokensForDev += (fees * sellDevFee) / sellTotalFees;
1438 tokensForMarketing += (fees * sellMarketingFee) / sellTotalFees;
1439 }
1440 // on buy
1441 else if (automatedMarketMakerPairs[from] && buyTotalFees > 0) {
1442
```



LINE 1438

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

```
1437 tokensForDev += (fees * sellDevFee) / sellTotalFees;
1438 tokensForMarketing += (fees * sellMarketingFee) / sellTotalFees;
1439 }
1440 // on buy
1441 else if (automatedMarketMakerPairs[from] && buyTotalFees > 0) {
1442
```



LINE 1443

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

```
1442 fees = amount.mul(buyTotalFees).div(100);
1443 tokensForLiquidity += (fees * buyLiquidityFee) / buyTotalFees;
1444 tokensForDev += (fees * buyDevFee) / buyTotalFees;
1445 tokensForMarketing += (fees * buyMarketingFee) / buyTotalFees;
1446 }
1447
```



LINE 1443

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

```
1442 fees = amount.mul(buyTotalFees).div(100);
1443 tokensForLiquidity += (fees * buyLiquidityFee) / buyTotalFees;
1444 tokensForDev += (fees * buyDevFee) / buyTotalFees;
1445 tokensForMarketing += (fees * buyMarketingFee) / buyTotalFees;
1446 }
1447
```



LINE 1443

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

#### Locations

1442 fees = amount.mul(buyTotalFees).div(100); 1443 tokensForLiquidity += (fees \* buyLiquidityFee) / buyTotalFees; 1444 tokensForDev += (fees \* buyDevFee) / buyTotalFees; 1445 tokensForMarketing += (fees \* buyMarketingFee) / buyTotalFees; 1446 } 1447



LINE 1444

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

```
1443 tokensForLiquidity += (fees * buyLiquidityFee) / buyTotalFees;
1444 tokensForDev += (fees * buyDevFee) / buyTotalFees;
1445 tokensForMarketing += (fees * buyMarketingFee) / buyTotalFees;
1446 }
1447 1448
```



LINE 1444

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

```
1443 tokensForLiquidity += (fees * buyLiquidityFee) / buyTotalFees;
1444 tokensForDev += (fees * buyDevFee) / buyTotalFees;
1445 tokensForMarketing += (fees * buyMarketingFee) / buyTotalFees;
1446 }
1447 1448
```



LINE 1444

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

```
1443 tokensForLiquidity += (fees * buyLiquidityFee) / buyTotalFees;
1444 tokensForDev += (fees * buyDevFee) / buyTotalFees;
1445 tokensForMarketing += (fees * buyMarketingFee) / buyTotalFees;
1446 }
1447
1448
```



LINE 1445

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

```
1444 tokensForDev += (fees * buyDevFee) / buyTotalFees;
1445 tokensForMarketing += (fees * buyMarketingFee) / buyTotalFees;
1446 }
1447 
1448 if (fees > 0) {
1449
```



LINE 1445

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

```
1444 tokensForDev += (fees * buyDevFee) / buyTotalFees;
1445 tokensForMarketing += (fees * buyMarketingFee) / buyTotalFees;
1446 }
1447 
1448 if (fees > 0) {
1449
```



LINE 1445

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

```
1444 tokensForDev += (fees * buyDevFee) / buyTotalFees;
1445 tokensForMarketing += (fees * buyMarketingFee) / buyTotalFees;
1446 }
1447 
1448 if (fees > 0) {
1449
```



## SWC-101 | ARITHMETIC OPERATION "-=" DISCOVERED

LINE 1452

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

#### Locations

1451
1452 amount -= fees;
1453 }
1454
1455 super.\_transfer(from, to, amount);
1456



LINE 1493

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

#### Locations

1492 uint256 contractBalance = balanceOf(address(this)); 1493 uint256 totalTokensToSwap = tokensForLiquidity + 1494 tokensForMarketing + 1495 tokensForDev; 1496 bool success; 1497



LINE 1493

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

#### Locations

1492 uint256 contractBalance = balanceOf(address(this)); 1493 uint256 totalTokensToSwap = tokensForLiquidity + 1494 tokensForMarketing + 1495 tokensForDev; 1496 bool success; 1497



LINE 1502

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

```
1501
1502 if (contractBalance > swapTokensAtAmount * 20) {
1503 contractBalance = swapTokensAtAmount * 20;
1504 }
1505
1506
```



LINE 1503

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

```
1502 if (contractBalance > swapTokensAtAmount * 20) {
1503 contractBalance = swapTokensAtAmount * 20;
1504 }
1505
1506 // Halve the amount of liquidity tokens
1507
```



LINE 1507

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

#### Locations

1506 // Halve the amount of liquidity tokens 1507 uint256 liquidityTokens = (contractBalance \* tokensForLiquidity) / 1508 totalTokensToSwap / 1509 2; 1510 uint256 amountToSwapForETH = contractBalance.sub(liquidityTokens); 1511



LINE 1507

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

#### Locations

1506 // Halve the amount of liquidity tokens 1507 uint256 liquidityTokens = (contractBalance \* tokensForLiquidity) / 1508 totalTokensToSwap / 1509 2; 1510 uint256 amountToSwapForETH = contractBalance.sub(liquidityTokens); 1511



LINE 1507

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

#### Locations

1506 // Halve the amount of liquidity tokens 1507 uint256 liquidityTokens = (contractBalance \* tokensForLiquidity) / 1508 totalTokensToSwap / 1509 2; 1510 uint256 amountToSwapForETH = contractBalance.sub(liquidityTokens); 1511



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

LINE 1523

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

```
1522
1523 uint256 ethForLiquidity = ethBalance - ethForMarketing - ethForDev;
1524
1525 tokensForLiquidity = 0;
1526 tokensForMarketing = 0;
1527
```



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

LINE 1523

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

```
1522
1523 uint256 ethForLiquidity = ethBalance - ethForMarketing - ethForDev;
1524
1525 tokensForLiquidity = 0;
1526 tokensForMarketing = 0;
1527
```



LINE 1592

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

#### Locations

1591 require(
1592 block.timestamp > lastManualLpBurnTime + manualBurnFrequency,
1593 "Must wait for cooldown to finish"
1594 );
1595 require(percent <= 1000, "May not nuke more than 10% of tokens in LP");
1596</pre>



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

LINE 19

#### **Iow SEVERITY**

The current pragma Solidity directive is ""=0.8.10>=0.8.10>=0.8.0<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

- Ryukyu.sol

```
18 // SPDX-License-Identifier: MIT
19 pragma solidity =0.8.10 >=0.8.10 >=0.8.0 <0.9.0;
20 pragma experimental ABIEncoderV2;
21
22 ///// lib/openzeppelin-contracts/contracts/utils/Context.sol
23
```



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

LINE 1354

#### **Iow 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

- Ryukyu.sol

#### Locations

1353 require( 1354 \_holderLastTransferTimestamp[tx.origin] < 1355 block.number, 1356 "\_transfer:: Transfer Delay enabled. Only one purchase per block allowed." 1357 ); 1358



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

LINE 1358

#### **Iow SEVERITY**

Using "tx.origin" as a security control can lead to authorization bypass vulnerabilities. Consider using "msg.sender" unless you really know what you are doing.

#### Source File

- Ryukyu.sol

#### Locations

1357 ); 1358 \_holderLastTransferTimestamp[tx.origin] = block.number; 1359 } 1360 } 1361 1362



## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 1461

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

```
1460 address[] memory path = new address[](2);
1461 path[0] = address(this);
1462 path[1] = uniswapV2Router.WETH();
1463
1464 _approve(address(this), address(uniswapV2Router), tokenAmount);
1465
```



## SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 1462

#### **Iow SEVERITY**

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

#### Source File

- Ryukyu.sol

```
1461 path[0] = address(this);
1462 path[1] = uniswapV2Router.WETH();
1463
1464 _approve(address(this), address(uniswapV2Router), tokenAmount);
1465
1466
```



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

LINE 1355

#### **Iow 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

- Ryukyu.sol

```
1354 _holderLastTransferTimestamp[tx.origin] <
1355 block.number,
1356 "_transfer:: Transfer Delay enabled. Only one purchase per block allowed."
1357 );
1358 _holderLastTransferTimestamp[tx.origin] = block.number;
1359</pre>
```





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

LINE 1358

#### **Iow 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

- Ryukyu.sol

```
1357 );
1358 _holderLastTransferTimestamp[tx.origin] = block.number;
1359 }
1360 }
1361
1362
```





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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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## 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.