



Woonkly - NFT protocol

Smart Contract Security Audit

Prepared by: **Halborn**

Date of Engagement: **February 17th, 2022 – March 4th, 2022**

Visit: **Halborn.com**

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DOCUMENT REVISION HISTORY

VERSION	MODIFICATION	DATE	AUTHOR
0.1	Document Creation	02/17/2022	Roberto Reigada
0.2	Document Updates	03/04/2022	Roberto Reigada
0.3	Draft Review	03/11/2022	Gabi Urrutia
1.0	Remediation Plan	03/22/2022	Roberto Reigada
1.1	Remediation Plan Review	03/22/2022	Gabi Urrutia

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EXECUTIVE OVERVIEW

1.1 INTRODUCTION

Woonkly engaged Halborn to conduct a security audit on their staking smart contracts beginning on February 17th, 2022 and ending on March 4th, 2022. The security assessment was scoped to the smart contracts provided in the GitHub repository [Woonkly/nft-protocol-contracts](#).

1.2 AUDIT SUMMARY

The team at Halborn was provided three weeks for the engagement and assigned a full-time security engineer to audit the security of the smart contract. The security engineer is a blockchain and smart-contract security expert with advanced penetration testing, smart-contract hacking, and deep knowledge of multiple blockchain protocols.

The purpose of this audit is to:

- Ensure that smart contract functions operate as intended
- Identify potential security issues within the smart contracts

In summary, Halborn identified some security risks that should be addressed by [Woonkly team](#).

1.3 TEST APPROACH & METHODOLOGY

Halborn performed a combination of manual and automated security testing to balance efficiency, timeliness, practicality, and accuracy in regard to the scope of this audit. While manual testing is recommended to uncover flaws in logic, process, and implementation; automated testing techniques help enhance coverage of the bridge code and can quickly identify items that do not follow security best practices. The following phases and associated tools were used throughout the term of the audit:

- Research into architecture and purpose
- Smart contract manual code review and walkthrough
- Graphing out functionality and contract logic/connectivity/functions ([solgraph](#))
- Manual assessment of use and safety for the critical Solidity variables and functions in scope to identify any arithmetic related vulnerability classes
- Manual testing by custom scripts
- Scanning of solidity files for vulnerabilities, security hotspots or bugs. ([MythX](#))
- Static Analysis of security for scoped contract, and imported functions. ([Slither](#))
- Testnet deployment ([Brownie](#), [Remix IDE](#))

RISK METHODOLOGY:

Vulnerabilities or issues observed by Halborn are ranked based on the risk assessment methodology by measuring the **LIKELIHOOD** of a security incident and the **IMPACT** should an incident occur. This framework works for communicating the characteristics and impacts of technology vulnerabilities. The quantitative model ensures repeatable and accurate measurement while enabling users to see the underlying vulnerability characteristics that were used to generate the Risk scores. For every vulnerability, a risk level will be calculated on a scale of **5 to 1** with **5** being the highest likelihood or impact.

RISK SCALE - LIKELIHOOD

- 5 - Almost certain an incident will occur.
- 4 - High probability of an incident occurring.
- 3 - Potential of a security incident in the long term.
- 2 - Low probability of an incident occurring.
- 1 - Very unlikely issue will cause an incident.

RISK SCALE - IMPACT

- 5 - May cause devastating and unrecoverable impact or loss.
- 4 - May cause a significant level of impact or loss.

- 3 - May cause a partial impact or loss to many.
- 2 - May cause temporary impact or loss.
- 1 - May cause minimal or un-noticeable impact.

The risk level is then calculated using a sum of these two values, creating a value of **10** to **1** with **10** being the highest level of security risk.

CRITICAL	HIGH	MEDIUM	LOW	INFORMATIONAL
----------	------	--------	-----	---------------

- 10** - CRITICAL
- 9** - **8** - HIGH
- 7** - **6** - MEDIUM
- 5** - **4** - LOW
- 3** - **1** - VERY LOW AND INFORMATIONAL

1.4 SCOPE

IN-SCOPE:

The security assessment was scoped to the following smart contracts:

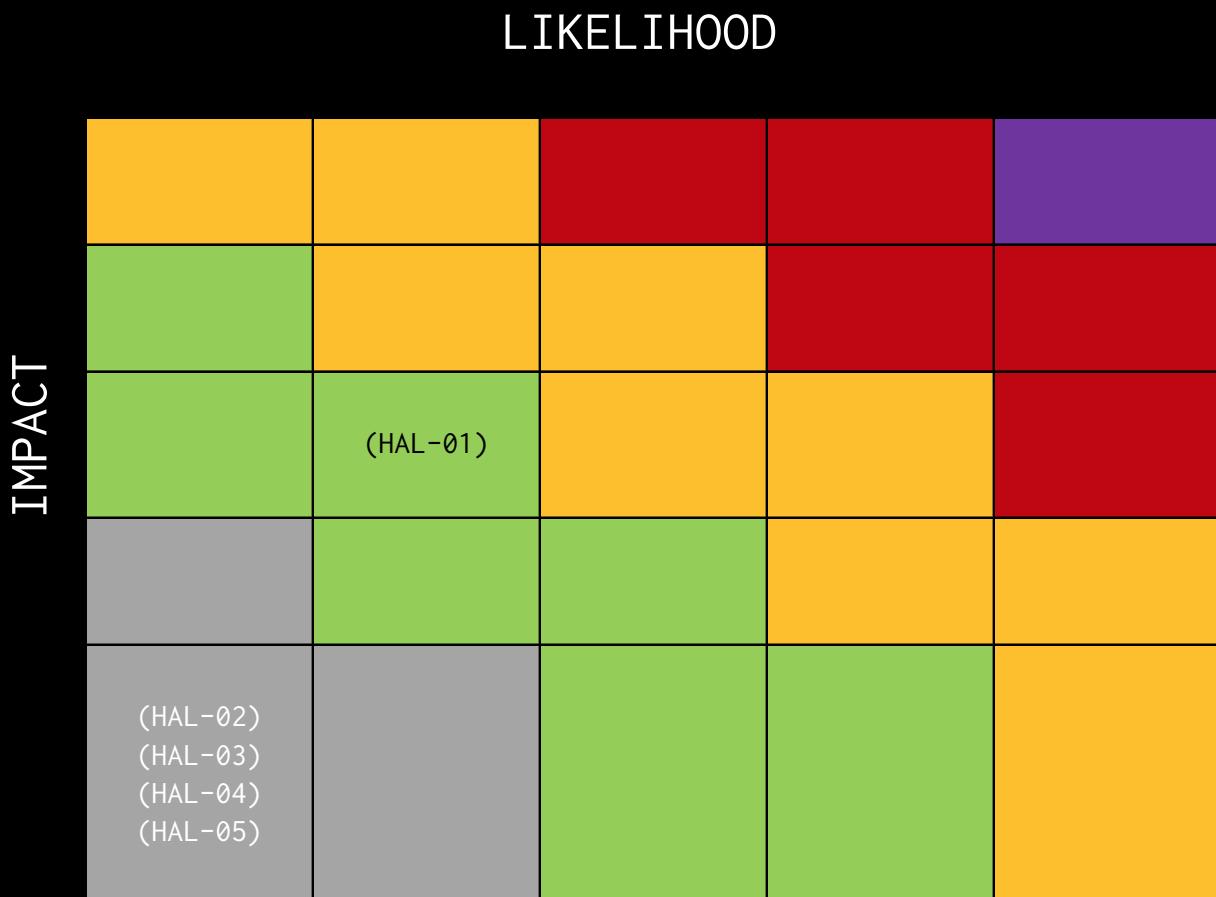
- ProxyAdmin.sol
- ExchangeV2.sol
- RoyaltiesRegistry.sol
- ERC721Rarible.sol
- ERC721RaribleMinimal.sol
- ERC721RaribleRevealWave.sol
- ERC721RaribleMinimalRevealWave.sol
- ERC721RaribleFactoryC2.sol
- ERC721RaribleRevealWaveFactoryC2.sol
- ERC721RaribleMinimalBeacon.sol
- ERC721RaribleBeacon.sol
- ERC1155Rarible.sol
- ERC1155RaribleRevealWave.sol
- ERC1155RaribleFactoryC2.sol
- ERC1155RaribleRevealWaveFactoryC2.sol
- ERC1155RaribleBeacon.sol
- ERC721LazyMintTransferProxy.sol
- ERC1155LazyMintTransferProxy.sol
- TransferProxy.sol
- ERC20TransferProxy.sol
- AssetMatcherCollection.sol

Commit ID: 5418fe74eafa63d8211b1689031ba2c4652af285

Fixed Commit ID: 494370ffa011530f1db0a84993a0f62eee77da4e

2. ASSESSMENT SUMMARY & FINDINGS OVERVIEW

CRITICAL	HIGH	MEDIUM	LOW	INFORMATIONAL
0	0	0	1	4



EXECUTIVE OVERVIEW

SECURITY ANALYSIS	RISK LEVEL	REMEDIATION DATE
HAL01 - FUNCTION ERC721RARIBLEREVEALWAVE.CHANGEHIDDEN MODIFIES THE WRONG STATE VARIABLE	Low	SOLVED - 03/22/2022
HAL02 - REVEALWAVE.REVEALDATE IS NOT USED	Informational	SOLVED - 03/22/2022
HAL03 - UNNEEDED INITIALIZATION OF UINT256 VARIABLES TO 0	Informational	SOLVED - 03/22/2022
HAL04 - USING ++I CONSUMES LESS GAS THAN I++ IN LOOPS	Informational	SOLVED - 03/22/2022
HAL05 - POSSIBLE MISUSE OF PUBLIC FUNCTIONS	Informational	ACKNOWLEDGED



FINDINGS & TECH DETAILS



3.1 (HAL-01) FUNCTION ERC721RARIBLEREVEALWAVE.CHANGEHIDDENBASEURI MODIFIES THE WRONG STATE VARIABLE - LOW

Description:

The contracts `ERC721RaribleRevealWave`, `ERC1155RaribleRevealWave` and `ERC721RaribleMinimalRevealWave` contain the function `changeHiddenBaseURI()`:

```
Listing 1: ERC721RaribleRevealWave.sol (Line 125)

119 function changeHiddenBaseURI(
120     uint _waveId,
121     string memory _baseURI
122 ) public onlyOwner {
123     require(bytes(_baseURI).length > 0, "Error: Input parameters
124     ↳ can not be empty (string)");
124     RevealWave storage revealWave = waves[_waveId];
125     revealWave.revealBaseURI = _baseURI;
126 }
```

As we can see in the code above, the function is modifying the `revealBaseURI` variable instead of the `hiddenBaseURI`. As the name of the function indicates, this is not correct.

Risk Level:

Likelihood - 2

Impact - 3

Recommendation:

It is recommended to modify the `changeHiddenBaseURI()` function, so it updates the `hiddenBaseURI` variable instead of the `revealBaseURI` in the contracts `ERC721RaribleRevealWave`, `ERC1155RaribleRevealWave` and `ERC721RaribleMinimalRevealWave`.

Remediation Plan:

SOLVED: The `Woonkly` team modified the `changeHiddenBaseURI()` function as suggested.

3.2 (HAL-02) REVEALWAVE.REVEALDATE IS NOT USED - INFORMATIONAL

Description:

The contracts `ERC721RaribleRevealWave`, `ERC1155RaribleRevealWave` and `'ERC721RaribleMinimalRevealWave'` contain the following struct:

Listing 2: ERC721RaribleRevealWave.sol (Line 21)

```
15     struct RevealWave {
16         bool isRevealed;
17         string name;
18         string hiddenBaseURI;
19         bool addTokenURIToHiddenBaseURI;
20         string revealBaseURI;
21         uint revealDate;
22     }
```

The `revealDate` parameter is not used anywhere in the code and provides no utility, for this reason, it can be removed from the struct. There is only a setter function that can also be removed:

Listing 3: ERC721RaribleRevealWave.sol (Line 152)

```
147 function changeRevealDate(
148     uint _waveId,
149     uint _revealDate
150 ) public onlyOwner {
151     RevealWave storage revealWave = waves[_waveId];
152     revealWave.revealDate = _revealDate;
153 }
```

Risk Level:

Likelihood - 1

Impact - 1

Recommendation:

It is recommended to remove the `revealDate` variable from the `RevealWave` struct.

It is also recommended to remove the setter function `changeRevealDate()` in the contracts `ERC721RaribleRevealWave`, `ERC1155RaribleRevealWave` and `ERC721RaribleMinimalRevealWave`.

Remediation Plan:

SOLVED: The `Woonkly team` removed the `revealDate` variable from the `RevealWave` struct. The setter function `changeRevealDate()` was also removed.

3.3 (HAL-03) UNNEEDED INITIALIZATION OF UINT256 VARIABLES TO 0 - INFORMATIONAL

Description:

As `i` is an `uint256`, it is already initialized to `0`. `uint256 i = 0` reassigned the `0` to `i` which wastes gas.

Code Location:

`ERC721LazyMinimal.sol`

- Line 59: `for (uint i = 0; i < data.creators.length; i++){{` - Line 85:for (uint i = 0; i < _creators.length; i++) {``

`RaribleTransferManager.sol`

- Line 165: `for (uint256 i = 0; i < fees.length; i++){{` - Line 184:for (uint256 i = 0; i < payouts.length - 1; i++) {- Line 206:for (uint256 i = 0; i < orderOriginFees.length; i++) {``

`ERC1155Lazy.sol`

- Line 70: `for (uint i = 0; i < data.creators.length; i++){{`
- Line 117: `for (uint i = 0; i < _creators.length; i++){{`

`ERC1155Base.sol`

- Line 31: `for (uint i = 0; i < ids.length; i++){{`

`ERC1155Upgradeable.sol`

- Line 119: `for (uint256 i = 0; i < accounts.length; ++i){`
- Line 200: `for (uint256 i = 0; i < ids.length; ++i){`
- Line 280: `for (uint i = 0; i < ids.length; i++){{`
- Line 327: `for (uint i = 0; i < ids.length; i++){{`

`RoyaltiesRegistry.sol`

- Line 99: `for (uint i = 0; i < royalties.length; i++){{`
- Line 225: `for (uint256 i = 0; i < values.length; i++){{`

ERC721Lazy.sol

- Line 63: `for (uint i = 0; i < data.creators.length; i++){`
- Line 99: `for (uint i = 0; i < _creators.length; i++){`

ERC721RaribleRevealWave.sol

- Line 47: `for (uint256 i = 0; i < operators.length; i++){`

Risk Level:

Likelihood - 1

Impact - 1

Recommendation:

It is recommended to not initialize uint256 variables to 0 to save some gas. For example, use instead:

`for (uint256 i; i < operators.length; ++i){.`

Remediation Plan:

SOLVED: The [Woonkly team](#) removed the initialization of uint256 variable to 0 in the for loops mentioned reducing the gas costs.

3.4 (HAL-04) USING `++I` CONSUMES LESS GAS THAN `I++` IN LOOPS – INFORMATIONAL

Description:

In the loop below, the variable `i` is incremented using `i++`. It is known that, in loops, using `++i` costs less gas per iteration than `i++`.

Code Location:

ERC721LazyMinimal.sol

```
- Line 59: for (uint i = 0; i < data.creators.length; i++)`` - Line  
85:for (uint i = 0; i < _creators.length; i++) {`
```

RaribleTransferManager.sol

```
- Line 165: for (uint256 i = 0; i < fees.length; i++){`` - Line 184:for  
(uint256 i = 0; i < payouts.length - 1; i++) {- Line 206:for (uint256 i  
= 0; i < orderOriginFees.length; i++) {`
```

ERC1155Lazy.sol

```
- Line 70: for (uint i = 0; i < data.creators.length; i++){  
- Line 117: for (uint i = 0; i < _creators.length; i++){
```

ERC1155Base.sol

- Line 31: for (uint i = 0; i < ids.length; i++){

ERC1155Upgradeable.sol

```
- Line 280: for (uint i = 0; i < ids.length; i++){  
- Line 327: for (uint i = 0; i < ids.length; i++){
```

RoyaltiesRegistry.sol

```
- Line 99: for (uint i = 0; i < royalties.length; i++){  
- Line 225: for (uint256 i = 0; i < values.length; i++){
```

ERC721Lazy.sol

- Line 63: `for (uint i = 0; i < data.creators.length; i++) {`
- Line 99: `for (uint i = 0; i < _creators.length; i++) {`

ERC721RaribleRevealWave.sol

- Line 47: `for (uint256 i = 0; i < operators.length; i++) {`

Risk Level:

Likelihood - 1

Impact - 1

Proof of Concept:

For example, based in the following test contract:

Listing 4: Test.sol

```
1 // SPDX-License-Identifier: MIT
2 pragma solidity 0.8.9;
3
4 contract test {
5     function postincrement(uint256 iterations) public {
6         for (uint256 i = 0; i < iterations; i++) {
7             }
8     }
9     function preincrement(uint256 iterations) public {
10        for (uint256 i = 0; i < iterations; ++i) {
11            }
12    }
13 }
```

We can see the difference in the gas costs:

```
>>> test_contract.postiincrement(1)
Transaction sent: 0xlecede6b109b707786d3685bd71dd9f22dc389957653036ca04c4cd2e72c5e0b
Gas price: 0.0 gwei  Gas limit: 6721975 Nonce: 44
test.postiincrement confirmed  Block: 13622335  Gas used: 21620 (0.32%)

<Transaction '0xlecede6b109b707786d3685bd71dd9f22dc389957653036ca04c4cd2e72c5e0b'>
>>> test_contract.preiincrement(1)
Transaction sent: 0x205f09a4d2268de4cla40f35bb2ec2847bf2ab8d584909b42c71a022b047614a
Gas price: 0.0 gwei  Gas limit: 6721975 Nonce: 45
test.preiincrement confirmed  Block: 13622336  Gas used: 21593 (0.32%)

<Transaction '0x205f09a4d2268de4cla40f35bb2ec2847bf2ab8d584909b42c71a022b047614a'>
>>> test_contract.postiincrement(10)
Transaction sent: 0x98c04430526a59balcf947cl14b62666a4417165947d31bf300cd6ae68328033
Gas price: 0.0 gwei  Gas limit: 6721975 Nonce: 46
test.postiincrement confirmed  Block: 13622337  Gas used: 22673 (0.34%)

<Transaction '0x98c04430526a59balcf947cl14b62666a4417165947d31bf300cd6ae68328033'>
>>> test_contract.preiincrement(10)
Transaction sent: 0xf060d04714eff8482a828342414d5a20be9958c822d42860e7992aba20elde05
Gas price: 0.0 gwei  Gas limit: 6721975 Nonce: 47
test.preiincrement confirmed  Block: 13622338  Gas used: 22601 (0.34%)

<Transaction '0xf060d04714eff8482a828342414d5a20be9958c822d42860e7992aba20elde05'>
```

Risk Level:

Likelihood - 1

Impact - 1

Recommendation:

It is recommended to use `++i` instead of `i++` to increment the value of an `uint` variable inside a loop. This does not only apply to the iterator variable. It also applies to increments done inside the loop code block.

Remediation Plan:

SOLVED: The `Woonkly team` uses now `++i` instead of `i++` to increment the iterator variable in for loops reducing the gas costs.

3.5 (HAL-05) POSSIBLE MISUSE OF PUBLIC FUNCTIONS - INFORMATIONAL

Description:

In the contracts below contracts, there are some functions marked as `public` that are never called directly within the contract itself or in any of their descendants:

ProxyAdmin.sol

- `getProxyImplementation()` (`ProxyAdmin.sol#19-31`)
- `getProxyAdmin()` (`ProxyAdmin.sol#37-49`)
- `changeProxyAdmin()` (`ProxyAdmin.sol#56-61`)
- `upgrade()` (`ProxyAdmin.sol#68-73`)
- `upgradeAndCall()` (`ProxyAdmin.sol#84-90`)

ERC721RaribleRevealWave.sol

- `setRevealWave()` (`ERC721RaribleRevealWave.sol#104-117`)
- `changeHiddenBaseURI()` (`ERC721RaribleRevealWave.sol#119-126`)
- `changeAddTokenURIToHiddenBaseURI()` (`ERC721RaribleRevealWave.sol#128-134`)
- `changeRevealBaseURI()` (`ERC721RaribleRevealWave.sol#136-145`)
- `changeRevealDate()` (`ERC721RaribleRevealWave.sol#147-153`)
- `resetIsRevealedAndRevealURI()` (`ERC721RaribleRevealWave.sol#155-161`)
- `changeName()` (`ERC721RaribleRevealWave.sol#164-171`)
- `mintAndTransferReveal()` (`ERC721RaribleRevealWave.sol#233-243`)

ERC721RaribleMinimalRevealWave.sol

- `setRevealWave()` (`ERC721RaribleMinimalRevealWave.sol#70-83`)
- `changeHiddenBaseURI()` (`ERC721RaribleMinimalRevealWave.sol#85-92`)
- `changeAddTokenURIToHiddenBaseURI()` (`ERC721RaribleMinimalRevealWave.sol#94-100`)
- `changeRevealBaseURI()` (`ERC721RaribleMinimalRevealWave.sol#102-111`)
- `changeRevealDate()` (`ERC721RaribleMinimalRevealWave.sol#113-119`)
- `resetIsRevealedAndRevealURI()` (`ERC721RaribleMinimalRevealWave.sol#121-127`)
- `changeName()` (`ERC721RaribleMinimalRevealWave.sol#130-137`)
- `mintAndTransferReveal()` (`ERC721RaribleMinimalRevealWave.sol#199-209`)

ERC721RaribleFactoryC2.sol

- `getAddress()` (ERC721RaribleFactoryC2.sol#61-73)
- `getAddress()` (ERC721RaribleFactoryC2.sol#80-92)

`ERC721RaribleRevealWaveFactoryC2.sol`

- `getAddress()` (ERC721RaribleRevealWaveFactoryC2.sol#64-76)
- `getAddress()` (ERC721RaribleRevealWaveFactoryC2.sol#83-95)

`ERC1155RaribleRevealWave.sol`

- `setRevealWave()` (ERC1155RaribleRevealWave.sol#72-85)
- `changeHiddenBaseURI()` (ERC1155RaribleRevealWave.sol#87-94)
- `changeAddTokenURIToHiddenBaseURI()` (ERC1155RaribleRevealWave.sol#96-102)
- `changeRevealBaseURI()` (ERC1155RaribleRevealWave.sol#104-113)
- `changeRevealDate()` (ERC1155RaribleRevealWave.sol#115-121)
- `resetIsRevealedAndRevealURI()` (ERC1155RaribleRevealWave.sol#123-129)
- `changeName()` (ERC1155RaribleRevealWave.sol#132-139)
- `assignRevealWaveIdToTokenId()` (ERC1155RaribleRevealWave.sol#142-145)

`ERC1155RaribleFactoryC2.sol`

- `getAddress()` (ERC1155RaribleFactoryC2.sol#63-75)
- `getAddress()` (ERC1155RaribleFactoryC2.sol#82-94)

`ERC1155RaribleRevealWaveFactoryC2.sol`

- `getAddress()` (ERC1155RaribleRevealWaveFactoryC2.sol#63-75)
- `getAddress()` (ERC1155RaribleRevealWaveFactoryC2.sol#82-94)

Risk Level:

Likelihood - 1

Impact - 1

Recommendation:

If the functions are not intended to be called internally or by their descendants, it is better to mark them as `external` to reduce gas costs.

FINDINGS & TECH DETAILS

Remediation Plan:

ACKNOWLEDGED: The Woonkly team acknowledges this issue.

AUTOMATED TESTING

4.1 STATIC ANALYSIS REPORT

Description:

Halborn used automated testing techniques to enhance the coverage of certain areas of the scoped contracts. Among the tools used was Slither, a Solidity static analysis framework. After Halborn verified all the contracts in the repository and was able to compile them correctly into their ABI and binary formats, Slither was run on the all-scoped contracts. This tool can statically verify mathematical relationships between Solidity variables to detect invalid or inconsistent usage of the contracts' APIs across the entire code-base.

Slither results:

ProxyAdmin.sol

```

AdminUpgradableProxy.constructor(address,address,bytes) _admin (contracts/deploy-proxy-admin/AdminUpgradableProxy.sol#25) shadows:
  - AdminUpgradableProxy(_proxy, _admin) (contracts/deploy-proxy-admin/AdminUpgradableProxy.sol#110-115) (function)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#local-variable-shadowing

UpgradableProxy.constructor(address,bytes)_logic (contracts/deploy-proxy-admin/UpgradableProxy.sol#23) lacks a zero-check on :
  - _logic (contracts/deploy-proxy-admin/UpgradableProxy.sol#110-115) (function)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#missing-zero-address-validation

AdminUpgradableProxy.upgradeAtCall(address,bytes)_newImplementation (contracts/deploy-proxy-admin/AdminUpgradableProxy.sol#101) lacks a zero-check on :
  - _success (contracts/deploy-proxy-admin/AdminUpgradableProxy.sol#103) (data)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#missing-zero-address-validation

Modifier AdminUpgradableProxy._admin() (contracts/deploy-proxy-admin/AdminUpgradableProxy.sol#50-56) does not always execute _; or revertReference: https://github.com/crytic/slither/wiki/Detector-Documentation#incorrect-modifier

Address.isContract(address) (contracts/deploy-proxy-admin/Address.sol#26-35) uses assembly
  - INLINE ASM (contracts/deploy-proxy-admin/Address.sol#3)
Address.verifyCallResult(bytes,string) (contracts/deploy-proxy-admin/Address.sol#171-188) uses assembly
  - _success (contracts/deploy-proxy-admin/Address.sol#180-188) (data)
AdminUpgradableProxy._admin() (contracts/deploy-proxy-admin/AdminUpgradableProxy.sol#110-115) uses assembly
  - INLINE ASM (contracts/deploy-proxy-admin/AdminUpgradableProxy.sol#112-126)
AdminUpgradableProxy._upgradeAtCall(address,bytes)_newImplementation (contracts/deploy-proxy-admin/AdminUpgradableProxy.sol#121-127) uses assembly
  - _success (contracts/deploy-proxy-admin/AdminUpgradableProxy.sol#120-128)
Proxy.delegate(address) (contracts/deploy-proxy-admin/Proxy.sol#40-59) uses assembly
  - _dest (contracts/deploy-proxy-admin/Proxy.sol#45-53)
UpgradableProxy._implementation() (contracts/deploy-proxy-admin/UpgradableProxy.sol#49-54) uses assembly
  - _impl (contracts/deploy-proxy-admin/UpgradableProxy.sol#51-53)
UpgradeAtCall._newImplementation() (contracts/deploy-proxy-admin/UpgradeAtCall.sol#69-77) uses assembly
  - _impl (contracts/deploy-proxy-admin/UpgradeAtCall.sol#74-76)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#assembly-usage

Different versions of Solidity is used:
  - Version used: ['>0.6.0<0.8.0', '>0.6.2<0.7.0', '>0.6.0<0.8.0']
  - >0.6.0 (contracts/deploy-proxy-admin/AdminUpgradableProxy.sol#3)
  - >=0.6.0<0.8.0 (contracts/deploy-proxy-admin/Context.sol#3)
  - >0.6.0 (contracts/deploy-proxy-admin/ProxyAdmin.sol#3)
  - >0.6.0 (contracts/deploy-proxy-admin/Proxy.sol#3)
  - >0.6.0 (contracts/deploy-proxy-admin/UpgradeAtCall.sol#3)
  - >0.6.0 (contracts/deploy-proxy-admin/UpgradableProxy.sol#3)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#different-pragma-directives-are-used

Address.verifyCallResult(bytes,string) (contracts/deploy-proxy-admin/Address.sol#171-188) is never used and should be removed
Address.functionCall(address,bytes) (contracts/deploy-proxy-admin/Address.sol#89-91) is never used and should be removed
Address.functionCallWithValue(address,bytes,uint256) (contracts/deploy-proxy-admin/Address.sol#104-106) is never used and should be removed
Address.functionDelegateCall(address,bytes) (contracts/deploy-proxy-admin/Address.sol#115-117) is never used and should be removed
Address.functionDelegateCall(address,bytes,string) (contracts/deploy-proxy-admin/Address.sol#143-149) is never used and should be removed
Address.functionStaticCall(address,bytes) (contracts/deploy-proxy-admin/Address.sol#153-155) is never used and should be removed
Address.functionStaticCall(address,bytes,string) (contracts/deploy-proxy-admin/Address.sol#159-161) is never used and should be removed
Address.sendValue(address,uint256) (contracts/deploy-proxy-admin/Address.sol#153-159) is never used and should be removed
Address.sendValue(address,uint256) (contracts/deploy-proxy-admin/Address.sol#159-161) is never used and should be removed
Proxy._implementation() (contracts/deploy-proxy-admin/Proxy.sol#2) is never used and should be removed
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#dead-code

ProxyAdmin.version() (contracts/deploy-proxy-admin/AdminUpgradableProxy.sol#10-12) is too complex
Prgm version>0.6.0 (contracts/deploy-proxy-admin/AdminUpgradableProxy.sol#3) allows old versions
Prgm version>0.6.0 (contracts/deploy-proxy-admin/AdminUpgradableProxy.sol#110-115) is too complex
Prgm version>0.6.0<0.9.0 (contracts/deploy-proxy-admin/Enable.sol#3) is too complex
Prgm version>0.6.0 (contracts/deploy-proxy-admin/ProxyAdmin.sol#3) allows old versions
Prgm version>0.6.0 (contracts/deploy-proxy-admin/ProxyAdmin.sol#46) allows old versions
Prgm version>0.6.0 (contracts/deploy-proxy-admin/UpgradableProxy.sol#3) allows old versions
solc-0.6.6 is not recommended for deployment
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#incorrect-versions-of-solidity

Low level call in Address.sendValue(address,uint256) (contracts/deploy-proxy-admin/Address.sol#53-59):
  - (success) = recipient.call.value(amount) (contracts/deploy-proxy-admin/Address.sol#57)
Low level call in AdminUpgradableProxy.upgradeAtCall(address,bytes) (contracts/deploy-proxy-admin/AdminUpgradableProxy.sol#114-121):
  - (success,returnData) = target.call.value(value)(data) (contracts/deploy-proxy-admin/AdminUpgradableProxy.sol#119)
Low level call in Admin.functionStaticCall(address,bytes,string) (contracts/deploy-proxy-admin/Admin.functionStaticCall.sol#139-145):
  - (success,returnData) = target.staticcall(data) (contracts/deploy-proxy-admin/Admin.functionStaticCall.sol#141)
Low level call in Admin.functionStaticCall(address,bytes) (contracts/deploy-proxy-admin/Admin.functionStaticCall.sol#163-169):
  - (success,returnData) = target.delegatecall(data) (contracts/deploy-proxy-admin/Admin.functionStaticCall.sol#171)
Low level call in AdminUpgradableProxy.upgradeAtCall(address,bytes) (contracts/deploy-proxy-admin/AdminUpgradableProxy.sol#101-105):
  - (success,returnData) = target.proxy.staticcall(data) (contracts/deploy-proxy-admin/AdminUpgradableProxy.sol#103)
Low level call in ProxyAdmin.getProxyImplementation(AdminUpgradableProxy) (contracts/deploy-proxy-admin/ProxyAdmin.sol#19-31):
  - (success,returnData) = address(proxy).staticcall(hex$5a4940) (contracts/deploy-proxy-admin/ProxyAdmin.sol#20-29)
Low level call in UpgradeAtCall._upgradeAtCall(address,bytes) (contracts/deploy-proxy-admin/UpgradeAtCall.sol#23-30):
  - (success,returnData) = address(proxy).staticcall(hex$5a4940) (contracts/deploy-proxy-admin/UpgradeAtCall.sol#27)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#low-level-calls

Redundant expression: "this" (contracts/deploy-proxy-admin/Context.sol#11) inContext (contracts/deploy-proxy-admin/Context.sol#15-24)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#redundant-statements

renounceOwnership() should be declared external:
  - Ownable.renounceOwnership() (contracts/deploy-proxy-admin/Ownable.sol#54-57)
transferOwnership(address) should be declared external:
  - Ownable.transferOwnership(address) (contracts/deploy-proxy-admin/Ownable.sol#64-67)
getProxyImplementation(AdminUpgradableProxy) should be declared external:
  - ProxyAdmin.getProxyImplementation(AdminUpgradableProxy) (contracts/deploy-proxy-admin/ProxyAdmin.sol#19-31)
getProxyImplementation(AdminUpgradableProxy) should be declared external:
  - ProxyAdmin.getProxyImplementation(AdminUpgradableProxy) (contracts/deploy-proxy-admin/ProxyAdmin.sol#37-49)
changeProxyAdmin(AdminUpgradableProxy,address) should be declared external:
  - ProxyAdmin.changeProxyAdmin(AdminUpgradableProxy,address) (contracts/deploy-proxy-admin/ProxyAdmin.sol#56-61)
upgrade(AdminUpgradableProxy,address,bytes) should be declared external:
  - ProxyAdmin.upgrade(AdminUpgradableProxy,address) (contracts/deploy-proxy-admin/ProxyAdmin.sol#66-73)
upgradeAndCall(AdminUpgradableProxy,address,bytes) should be declared external:
  - ProxyAdmin.upgradeAndCall(AdminUpgradableProxy,address,bytes) (contracts/deploy-proxy-admin/ProxyAdmin.sol#84-90)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#public-function-that-could-be-declared-external

```

ExchangeV2.sol

AUTOMATED TESTING

AUTOMATED TESTING

AUTOMATED TESTING

```

Variable ERC721DefaultSupplyMinimal, _gap (contracts/erc-721-minimal/ERC721BurnableUpgradeableMinimal.sol#4) is not in mixedCase
Variable ERC721DefaultSupplyMinimal, _gap (contracts/erc-721-minimal/ERC721LazyMinimal.sol#15) is not in mixedCase
Function ERC721LazyMinimal, _gap (uint unchained) (contracts/erc-721-minimal/ERC721LazyMinimal.sol#25-27) is not in mixedCase
Parameter ERC721LazyMinimal, updateAccount (uint256,address,address), _id (contracts/erc-721-minimal/ERC721LazyMinimal.sol#49) is not in mixedCase
Parameter ERC721LazyMinimal, updateAccount (uint256,address,address), _id (contracts/erc-721-minimal/ERC721LazyMinimal.sol#49) is not in mixedCase
Parameter ERC721LazyMinimal, updateAccount (uint256,address,address), _id (contracts/erc-721-minimal/ERC721LazyMinimal.sol#49) is not in mixedCase
Parameter ERC721LazyMinimal, getCreators (uint16), _id (contracts/erc-721-minimal/ERC721LazyMinimal.sol#10) is not in mixedCase
Function ERC721RaribleMinimal, _init(string,string,string,string,address,address) (contracts/erc-721-minimal/ERC721RaribleMinimal.sol#15-24) is not in mixedCase
Parameter ERC721RaribleMinimal, _init(string,string,string,string,address,address), _name (contracts/erc-721-minimal/ERC721RaribleMinimal.sol#15) is not in mixedCase
Parameter ERC721RaribleMinimal, _init(string,string,string,string,address,address), _symbol (contracts/erc-721-minimal/ERC721RaribleMinimal.sol#26-33) is not in mixedCase
Function ERC721RaribleMinimal, _init(string,string,string,string,address,address) (contracts/erc-721-minimal/ERC721RaribleMinimal.sol#26) is not in mixedCase
Parameter ERC721RaribleMinimal, _init(string,string,string,address), _name (contracts/erc-721-minimal/ERC721RaribleMinimal.sol#26) is not in mixedCase
Parameter ERC721RaribleMinimal, _init(string,string,string,address), _symbol (contracts/erc-721-minimal/ERC721RaribleMinimal.sol#33) is not in mixedCase
Parameter ERC721RaribleMinimal, _init(unchained,string,string,string,address,address), _name (contracts/erc-721-minimal/ERC721RaribleMinimal.sol#33) is not in mixedCase
Parameter ERC721RaribleMinimal, _init(unchained,string,string,string,address,address), _symbol (contracts/erc-721-minimal/ERC721RaribleMinimal.sol#33) is not in mixedCase
Variable ERC721URI, _gap (contracts/erc-721-minimal/ERC721URI.sol#92) is not in mixedCase
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#conformance-to-solidity-naming-conventions

Redundant expression "this" (node_modules/@openzeppelin/contracts-upgradeable/drafts/EIP710Upgradable.sol#25-121)
Redundant expression "this" (node_modules/@openzeppelin/contracts-upgradeable/utils/ContextUpgradeable.sol#28) inContextUpgradable (node_modules/@openzeppelin/contracts-upgradeable/utils/ContextUpgradeable.sol#16-30)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#redundant-statements

ERC1271_signerConstructsContractVariables (contracts/erc-1271/ERC1271.sol#20) uses literals with too many digits:
  - ERC1271_signerConstructsContractVariables (contracts/erc-1271/ERC1271.sol#20)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#too-many-digits

ERC1271 (contracts/_-27/ERC1271.sol#4-26) does not implement function:
  - ERC1271_lv1Sig (signatureByCode32,bytes) (contracts/erc-1271/ERC1271.sol#20)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#unimplemented-functions

LIBERC721LazyMint, INTERFACE ID MINT AND TRANSFER (node_modules/@rarible/lazy-mint/contracts/erc-721/LIBERC721LazyMint.sol#8) is never used in LIBERC721LazyMint (node_modules/@rarible/lazy-mint/contracts/erc-721/LIBERC721LazyMint.sol#17)
ERC721RaribleMinimal, _gap (contracts/erc-721-minimal/ERC721RaribleMinimal.sol#15) is never used in ERC721RaribleMinimal (contracts/erc-721-minimal/ERC721RaribleMinimal.sol#18-58)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#unused-state-variable

renounceOwnership() should be declared external;
  - OwnableUpgradeable.renounceOwnership() (node_modules/@openzeppelin/contracts-upgradeable/access/OwnableUpgradeable.sol#60-63)
transferOwnership() address should be declared external;
  - OwnableUpgradeable.transferOwnership(address) (node_modules/@openzeppelin/contracts-upgradeable/access/OwnableUpgradeable.sol#65-73)
balanceOf() address should be declared external;
  - ERC721UpgradeableMinimal.balanceOf(address) (node_modules/@rarible/tokens-minimal/contracts/erc-721/ERC721UpgradeableMinimal.sol#89-92)
name() should be declared external;
  - ERC721UpgradeableMinimal.name() (node_modules/@rarible/tokens-minimal/contracts/erc-721/ERC721UpgradeableMinimal.sol#106-109)
symbol() should be declared external;
  - ERC721UpgradeableMinimal.symbol() (node_modules/@rarible/tokens-minimal/contracts/erc-721/ERC721UpgradeableMinimal.sol#113-115)
approve() address should be declared external;
  - ERC721UpgradeableMinimal.approve(address,uint256) (node_modules/@rarible/tokens-minimal/contracts/erc-721/ERC721UpgradeableMinimal.sol#126-136)
transferFrom(addresses,address,uint256) should be declared external;
  - ERC721UpgradeableMinimal.transferFrom(addresses,address,uint256) (node_modules/@rarible/tokens-minimal/contracts/erc-721/ERC721UpgradeableMinimal.sol#167-176)
isApprovedForAll(signatureByCode32,bytes) should be declared external;
  - ERC1271_lv1Sig (signatureByCode32,bytes) (contracts/erc-1271/ERC1271.sol#20)
burn(uint256) should be declared external;
  - ERC721BurnableUpgradeableMinimal.burn(uint256) (contracts/erc-721-minimal/ERC721BurnableUpgradeableMinimal.sol#29-38)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#public-function-that-could-be-declared-external

```

[ERC721RaribleRevealWave.sol](#)

AUTOMATED TESTING

AUTOMATED TESTING

- Version used: ['0.7.6', '>=0.4.24<0.8.0', '>=0.6.0<0.8.0', '>=0.6.2<0.8.0', '^0.7.6']

AUTOMATED TESTING

ERC721RaribleFactoryC2.sol

```

Parameter ERC721RaribleMinimalRevealWave.tokenURI(uint256) , tokenID (contracts/erc-721-minimal/ERC721RaribleMinimalRevealWave.sol#183) is not in mixedCase
Parameter ERC721RaribleMinimalRevealWave.mintAndTransferReveal(LibERC721LazyMint.Mint72lData,address,uint256) , wavid (contracts/erc-721-minimal/ERC721RaribleMinimalRevealWave.sol#202) is not in mixedCase
Variable ERC721URI_ , pp (contracts/erc-721-minimal/ERC721RaribleMinimalRevealWave.sol#11) is not in mixedCase
Reference https://github.com/crytic/solidity/wiki/Detector-Documentation#redundant-statements
Reference https://github.com/crytic/solidity/wiki/Detector-Documentation#public-naming-conventions

Redundant expression "this (node_modules/@openzeppelin/contracts-upgradeable/drafts/EIP721Upgradable.sol#94)" in EIP721Upgradable (node_modules/@openzeppelin/contracts-upgradeable/drafts/EIP721Upgradable.sol#25-12)
Redundant expression "this (node_modules/@openzeppelin/contracts-upgradeable/utils/ContextUpgradeable.sol#10)" in ContextUpgradeable (node_modules/@openzeppelin/contracts-upgradeable/utils/ContextUpgradeable.sol#14-10)
Reference https://github.com/crytic/solidity/wiki/Detector-Documentation#foo-many-digits

ERC1271.silcherConstructorContractVariables() (contracts/erc-1271/ERC1271.sol#14-24) uses literals with too many digits:
- ERC1271.RETURN_INVALID_SIGNATURE = 0x00000000 (contracts/erc-1271/ERC1271.sol#9)
Reference https://github.com/crytic/solidity/wiki/Detector-Documentation#foo-many-digits

ERC1271.contracts(erc-1271/ERC1271.sol#5-26) does not implement functions:
- ERC1271.isValidSignature(bytes32,bytes) (contract/erc-1271/ERC1271.sol#2)
Reference https://github.com/crytic/solidity/wiki/Detector-Documentation#functions

LibERC721LazyMint.INTERFACE_ID_MINT_AND_TRANSFER (node_modules/erarible/lazy-mint/contracts/erc-721/LibERC721LazyMint.sol#8) is never used in LibERC721LazyMint (node_modules/@erarible/lazy-mint/contracts/erc-721/LibERC721LazyMint.sol#7-3)
Reference https://github.com/crytic/solidity/wiki/Detector-Documentation#unused-state-variable

RenounceOwnership() should be declared external:
- OwnableUpgradable.renounceOwnership() (node_modules/@openzeppelin/contracts-upgradeable/access/OwnableUpgradable.sol#60-63)
transferFromOwner(address) should be declared external:
- OwnableUpgradable.transferFromOwner(address) (node_modules/@openzeppelin/contracts-upgradeable/access/OwnableUpgradable.sol#69-73)
balanceOf(address) should be declared external:
- ERC721Upgradable.balanceOf(address) (node_modules/@erarible/tokens-minimal/contracts/erc-721/ERC721UpgradableMinimal.sol#89-92)
Name() should be declared external:
- ERC721Upgradable.name() (node_modules/@erarible/tokens-minimal/contracts/erc-721/ERC721UpgradableMinimal.sol#106-108)
symbol() should be declared external:
- ERC721Upgradable.symbol() (node_modules/@erarible/tokens-minimal/contracts/erc-721/ERC721UpgradableMinimal.sol#113-115)
approve(address,uint256) should be declared external:
- ERC721Upgradable.approve(address,uint256) (node_modules/@erarible/tokens-minimal/contracts/erc-721/ERC721UpgradableMinimal.sol#126-128)
transferFrom(address,to,address,uint256) should be declared external:
- ERC721Upgradable.transferFrom(address,to,address,uint256) (node_modules/@erarible/tokens-minimal/contracts/erc-721/ERC721UpgradableMinimal.sol#167-176)
isVaulted(guarantee(bytes32)) should be declared external:
- ERC721Upgradable.isVaulted(bytes32) (contracts/erc-1271/ERC1271.sol#20)
burnFrom(address,uint256) should be declared external:
- ERC721Upgradable.burnFrom(address,uint256) (contracts/erc-721-minimal/ERC721BurnableUpgradableMinimal.sol#29-39)
setRevealDate(uint256) (node_modules/@erarible/minimal_reveal/contracts/erc-721-minimal/ERC721BurnableUpgradableMinimal.sol#70-83)
ERC721RaribleMinimalRevealWave.setRevealWave(uint256,string,uint256,uint256) (contract/erc-721-minimal/ERC721RaribleMinimalRevealWave.sol#89-92)
changedAddress(bytes32,uint256,uint256) (node_modules/@erarible/minimal_reveal/contracts/erc-721-minimal/ERC721BurnableUpgradableMinimal.sol#93-95)
changedAddress(bytes32,uint256,uint256) (node_modules/@erarible/minimal_reveal/contracts/erc-721-minimal/ERC721BurnableUpgradableMinimal.sol#98-100)
changeRevealDate(uint256,uint256) (node_modules/@erarible/minimal_reveal/contracts/erc-721-minimal/ERC721BurnableUpgradableMinimal.sol#102-111)
changeRevealDate(uint256,uint256) (node_modules/@erarible/minimal_reveal/contracts/erc-721-minimal/ERC721BurnableUpgradableMinimal.sol#113-119)
resetRevealDate(uint256) (node_modules/@erarible/minimal_reveal/contracts/erc-721-minimal/ERC721BurnableUpgradableMinimal.sol#120-125)
- ERC721RaribleMinimalRevealWave.resetRevealAndRevealURI(uint256) (contracts/erc-721-minimal/ERC721RaribleMinimalRevealWave.sol#121-127)
changeName(uint256,string) should be declared external:
- ERC721RaribleMinimalRevealWave.changeName(uint256,string) (contracts/erc-721-minimal/ERC721RaribleMinimalRevealWave.sol#130-137)
mintAndTransferReveal(LibERC721LazyMint.Mint72lData,address,uint256) should be declared external:
- ERC721RaribleMinimalRevealWave.mintAndTransferReveal(LibERC721LazyMint.Mint72lData,address,uint256) (contracts/erc-721-minimal/ERC721RaribleMinimalRevealWave.sol#189-209)
Reference https://github.com/crytic/solidity/wiki/Detector-Documentation#public-function-that-could-be-declared-external

```

AUTOMATED TESTING

ERC721RaribleRevealWaveFactoryC2.sol

ERC721RaribleBeacon.sol

ERC1155Rarible.sol

AUTOMATED TESTING

ERC1155RarebleRevealWave.sol

AUTOMATED TESTING

ERC1155RarebleFactoryC2.sol

AUTOMATED TESTING

ERC1155RaribleRevealWaveFactoryC2.sol

AUTOMATED TESTING

AUTOMATED TESTING

AssetMatcherCollection.sol

```

Different versions of Solidity is used:
- Version used: '0.7.6', '>=0.6.2<0.8.0'
- 0.7.6: (node_modules/@openzeppelin/contracts/exchange-interface/contracts/IAssetMatcher.sol#3)
- >=0.6.2<0.8.0: (node_modules/@openzeppelin/contracts/exchange-interface/contracts/IAssetMatcher.sol#4)
- >=0.6.20<0.8.0: (node_modules/@rarible/lazy-mint/contracts/erc-1155/LibERC1155LazyMint.sol#3)
- >=0.6.20<0.8.1: (node_modules/@rarible/lazy-mint/contracts/erc-1155/LibERC1155LazyMint.sol#3)
- >=0.6.20<0.8.2: (node_modules/@rarible/lazy-mint/contracts/erc-1155/LibERC1155LazyMint.sol#3)
- >=0.6.20<0.8.5: (node_modules/@rarible/royalties/contracts/LibPart.sol#3)
- 0.7.6: (contracts/AssetMatcherCollection.sol#3)
- >=0.6.20<0.8.0: (contracts/AssetMatcherCollection.sol#3)

Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#different-pragma-directives-are-used

LibAsset.hash(LibAsset.Asset) (node_modules/@rarible/lib-asset/contracts/LibAsset.sol#39-45) is never used and should be removed
LibAsset.hash(LibAsset.AssetType) (node_modules/@rarible/lib-asset/contracts/LibAsset.sol#31-37) is never used and should be removed
LibERC1155LazyMint.hash(LibERC1155LazyMint.Mint1155Data) (node_modules/@rarible/lazy-mint/contracts/erc-1155/LibERC1155LazyMint.sol#22-39) is never used and should be removed
LibERC721LazyMint.hash(LibERC721LazyMint.Mint1155Data) (node_modules/@rarible/lazy-mint/contracts/erc-721/LibERC721LazyMint.sol#21-33) is never used and should be removed
LibPart.hash(LibPart.Part) (node_modules/@rarible/royalties/contracts/LibPart.sol#13-15) is never used and should be removed

Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#dead-code

Pragma version=>0.6.2<0.8.0: (node_modules/@rarible/lazy-mint/contracts/erc-1155/LibERC1155LazyMint.sol#3) is too complex
Pragma version=>0.6.20<0.8.0: (node_modules/@rarible/lazy-mint/contracts/erc-1155/LibERC1155LazyMint.sol#3) is too complex
Pragma version=>0.6.20<0.8.5: (node_modules/@rarible/royalties/contracts/LibPart.sol#3) is too complex
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#incorrect-versions-of-solidity

LIBERC1155LazyMint._INTERFACE_ID_MINT_AND_TRANSFER (node_modules/@rarible/lazy-mint/contracts/erc-1155/LIBERC1155LazyMint.sol#3) is never used in LIBERC1155LazyMint (node_modules/@rarible/lazy-mint/contracts/erc-1155/LIBERC1155LazyMint.sol#1-48)
LIBERC721LazyMint._INTERFACE_ID_MINT_AND_TRANSFER (node_modules/@rarible/lazy-mint/contracts/erc-721/LIBERC721LazyMint.sol#3) is never used in LIBERC721LazyMint (node_modules/@rarible/lazy-mint/contracts/erc-721/LIBERC721LazyMint.sol#1-3)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#unused-state-variable

matchAssets(LibAsset.AssetType,LibAsset.AssetType) should be declared external
    - AssetMatcherCollection.matchAssets(LibAsset.AssetType,LibAsset.AssetType) (contracts/AssetMatcherCollection.sol#17-32)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#public-function-that-could-be-declared-external

```

- No major issues found by Slither.

4.2 AUTOMATED SECURITY SCAN

Description:

Halborn used automated security scanners to assist with detection of well-known security issues, and to identify low-hanging fruits on the targets for this engagement. Among the tools used was MythX, a security analysis service for Ethereum smart contracts. MythX performed a scan on all the contracts and sent the compiled results to the analyzers to locate any vulnerabilities.

MythX results:

`ProxyAdmin.sol`

No issues found by MythX

`ExchangeV2.sol`

No issues found by MythX

`RoyaltiesRegistry.sol`

Report for contracts/royalties-registry/RoyaltiesRegistry.sol
<https://dashboard.mythx.io/#/console/analyses/23f23a4e-054d-4a5d-9152-381d51d0f5ed>

Line	SWC Title	Severity	Short Description
3	(SWC-103) Floating Pragma	Low	A floating pragma is set.
16	(SWC-123) Requirement Violation	Low	Requirement violation.
119	(SWC-123) Requirement Violation	Low	Requirement violation.
119	(SWC-104) Unchecked Call Return Value	Medium	Unchecked return value from external call.
125	(SWC-104) Unchecked Call Return Value	Medium	Unchecked return value from external call.
125	(SWC-113) DoS with Failed Call	Medium	Multiple calls are executed in the same transaction.
131	(SWC-104) Unchecked Call Return Value	Medium	Unchecked return value from external call.
243	(SWC-104) Unchecked Call Return Value	Medium	Unchecked return value from external call.

`ERC721Rarible.sol`

No issues found by MythX

`ERC721RaribleMinimal.sol`

Report for contracts/erc-721-minimal/ERC721RaribleMinimal.sol
<https://dashboard.mythx.io/#/console/analyses/1b6a58bd-ae4e-4437-9991-ac6c83e9a747>

Line	SWC Title	Severity	Short Description
10	(SWC-108) State Variable Default Visibility	Low	State variable visibility is not set.

ERC721RaribleRevealWave.sol

Report for contracts/erc-721/ERC721RaribleRevealWave.sol
<https://dashboard.mythx.io/#/console/analyses/0ef6f57d-b27e-4b23-b800-e560ca445729>

Line	SWC Title	Severity	Short Description
24	(SWC-108) State Variable Default Visibility	Low	State variable visibility is not set.

ERC721RaribleMinimalRevealWave.sol

Report for contracts/erc-721-minimal/ERC721RaribleMinimalRevealWave.sol
<https://dashboard.mythx.io/#/console/analyses/clacl5al-8aaf-43ff-a889-a469c72a05df>

Line	SWC Title	Severity	Short Description
24	(SWC-108) State Variable Default Visibility	Low	State variable visibility is not set.

ERC721RaribleFactoryC2.sol

Report for contracts/create-2/ERC721RaribleFactoryC2.sol
<https://dashboard.mythx.io/#/console/analyses/5151d07a-0090-48f7-a658-0190374e8fc4>

Line	SWC Title	Severity	Short Description
3	(SWC-103) FloatingPragma	Low	A floating pragma is set.
18	(SWC-108) State Variable Default Visibility	Low	State variable visibility is not set.
19	(SWC-108) State Variable Default Visibility	Low	State variable visibility is not set.

ERC721RaribleRevealWaveFactoryC2.sol

Report for contracts/create-2/ERC721RaribleRevealWaveFactoryC2.sol
<https://dashboard.mythx.io/#/console/analyses/35cd74a2-3a7c-4620-ba5f-6bcbe97ae48c>

Line	SWC Title	Severity	Short Description
3	(SWC-103) FloatingPragma	Low	A floating pragma is set.
19	(SWC-108) State Variable Default Visibility	Low	State variable visibility is not set.
20	(SWC-108) State Variable Default Visibility	Low	State variable visibility is not set.

ERC721RaribleMinimalBeacon.sol

Report for contracts/beacons/ERC721RaribleMinimalBeacon.sol
<https://dashboard.mythx.io/#/console/analyses/112f07b7-c7f7-4f93-8f60-ce78d36128b5>

Line	SWC Title	Severity	Short Description
3	(SWC-103) FloatingPragma	Low	A floating pragma is set.

ERC721RaribleBeacon.sol

Report for contracts/beacons/ERC721RaribleBeacon.sol
<https://dashboard.mythx.io/#/console/analyses/3c80de3e-71f4-430a-9359-47cf934ec3bd>

Line	SWC Title	Severity	Short Description
3	(SWC-103) FloatingPragma	Low	A floating pragma is set.

ERC1155Rarible.sol

Report for contracts/erc-1155/ERC1155Rarible.sol
<https://dashboard.mythx.io/#/console/analyses/e145b6ea-2278-419e-a414-310d024cee87>
<https://dashboard.mythx.io/#/console/analyses/9flc4c10-5143-467d-b9d4-0b62fce02622>

Line	SWC Title	Severity	Short Description
8	(SWC-123) Requirement Violation	Low	Requirement violation.
10	(SWC-108) State Variable Default Visibility	Low	State variable visibility is not set.

ERC1155RaribleRevealWave.sol

Report for contracts/erc-1155/ERC1155RaribleRevealWave.sol
<https://dashboard.mythx.io/#/console/analyses/4e2a810a-06be-4dbb-9alc-369806a48762>

Line	SWC Title	Severity	Short Description
24	(SWC-108) State Variable Default Visibility	Low	State variable visibility is not set.

ERC1155RaribleFactoryC2.sol

Report for contracts/create-2/ERC1155RaribleFactoryC2.sol
<https://dashboard.mythx.io/#/console/analyses/9f1c4c10-5143-467d-b9d4-0b62fce02622>

Line	SWC Title	Severity	Short Description
3	(SWC-103) FloatingPragma	Low	A floating pragma is set.
18	(SWC-108) State Variable Default Visibility	Low	State variable visibility is not set.
19	(SWC-108) State Variable Default Visibility	Low	State variable visibility is not set.

ERC1155RaribleRevealWaveFactoryC2.sol

Report for contracts/create-2/ERC1155RaribleRevealWaveFactoryC2.sol
<https://dashboard.mythx.io/#/console/analyses/856778f9-b096-4a62-af99-368b219lc444>

Line	SWC Title	Severity	Short Description
3	(SWC-103) FloatingPragma	Low	A floating pragma is set.
18	(SWC-108) State Variable Default Visibility	Low	State variable visibility is not set.
19	(SWC-108) State Variable Default Visibility	Low	State variable visibility is not set.

ERC1155RaribleBeacon.sol

Report for contracts/beacons/ERC1155RaribleBeacon.sol
<https://dashboard.mythx.io/#/console/analyses/52b7286e-dde4-4117-b54e-ea00dad5163c>

Line	SWC Title	Severity	Short Description
3	(SWC-103) FloatingPragma	Low	A floating pragma is set.

ERC721LazyMintTransferProxy.sol

Report for contracts/transfer-proxy/lazy-mint/erc721/ERC721LazyMintTransferProxy.sol
<https://dashboard.mythx.io/#/console/analyses/b42da0fc-c578-4a7b-ad1d-d04a84163be2>
<https://dashboard.mythx.io/#/console/analyses/27e8464c-9a85-4f1c-8719-8a255f82b79c>

Line	SWC Title	Severity	Short Description
3	(SWC-103) FloatingPragma	Low	A floating pragma is set.

ERC1155LazyMintTransferProxy.sol

Report for contracts/transfer-proxy/lazy-mint/erc1155/ERC1155LazyMintTransferProxy.sol
<https://dashboard.mythx.io/#/console/analyses/8f3b311c-d71a-4d77-9825-d31cab4fe80b>

Line	SWC Title	Severity	Short Description
3	(SWC-103) FloatingPragma	Low	A floating pragma is set.

TransferProxy.sol

Report for contracts/transfer-proxy/proxy/TransferProxy.sol
<https://dashboard.mythx.io/#/console/analyses/5ec0337e-cb53-47d3-a2f8-b109d3b07090>

Line	SWC Title	Severity	Short Description
3	(SWC-103) FloatingPragma	Low	A floating pragma is set.
15	(SWC-107) Reentrancy	Low	A call to a user-supplied address is executed.
19	(SWC-107) Reentrancy	Low	A call to a user-supplied address is executed.

ERC20TransferProxy.sol

Report for contracts/transfer-proxy/proxy/ERC20TransferProxy.sol
<https://dashboard.mythx.io/#/console/analyses/ebcf96a2-b83c-4d63-b901-a638bc1540ed>

Line	SWC Title	Severity	Short Description
3	(SWC-103) Floating Pragma	Low	A floating pragma is set.
8	(SWC-123) Requirement Violation	Low	Requirement violation.
15	(SWC-123) Requirement Violation	Low	Requirement violation.
15	(SWC-107) Reentrancy	Low	A call to a user-supplied address is executed.

AssetMatcherCollection.sol

No issues found by MythX

- The Integer Overflows and Underflows flagged by MythX were checked individually and were determined to be mathematically impossible.
- Assert violations are false positives.

THANK YOU FOR CHOOSING
 HALBORN