Cyberscope

A TAC Security Company

Audit Report

MYEX

October 2025

Network BSC TESTNET

Addresses 0x1c2BD294EFb01270682EeF36e103a0098315b6F5
0xF65f7987a29528220c0E8b3F96bd46Ca06993187
0x2cd295CbA1A9AA33954b4E87CBACd425bf176aCa
0x947EE73fBBe087ef960582E465965ba4c59cf1E5

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Table of Contents

Risk Classification

The criticality of findings in Cyberscope's smart contract audits is determined by evaluating multiple variables. The two primary variables are:

1. **Likelihood of Exploitation**: This considers how easily an attack can be executed, including the economic feasibility for an attacker.
2. **Impact of Exploitation**: This assesses the potential consequences of an attack, particularly in terms of the loss of funds or disruption to the contract's functionality.

Based on these variables, findings are categorized into the following severity levels:

1. **Critical**: Indicates a vulnerability that is both highly likely to be exploited and can result in significant fund loss or severe disruption. Immediate action is required to address these issues.
2. **Medium**: Refers to vulnerabilities that are either less likely to be exploited or would have a moderate impact if exploited. These issues should be addressed in due course to ensure overall contract security.
3. **Minor**: Involves vulnerabilities that are unlikely to be exploited and would have a minor impact. These findings should still be considered for resolution to maintain best practices in security.
4. **Informative**: Points out potential improvements or informational notes that do not pose an immediate risk. Addressing these can enhance the overall quality and robustness of the contract.

Severity	Likelihood / Impact of Exploitation
Critical	Highly Likely / High Impact
Medium	Less Likely / High Impact or Highly Likely/ Lower Impact
Minor / Informative	Unlikely / Low to no Impact

Review

Explorer	https://testnet.bscscan.com/address/0x1c2BD294EFb01270682EeF36e103a0098315b6F5 https://testnet.bscscan.com/address/0xF65f7987a29528220c0E8b3F96bd46Ca06993187 https://testnet.bscscan.com/address/0x2cd295CbA1A9AA33954b4E87CBACd425bf176aCa https://testnet.bscscan.com/address/0x947EE73fBBe087ef960582E465965ba4c59cf1E5

Audit Updates

Initial Audit	24 Oct 2025

Source Files

Filename	SHA256
MIYIVesting.sol	1e21d51d1c801f07eadfaa233f308b36905e689b72df2037c53cc1cac4f0602b
MIYIToken.sol	f136d74deb89cb8faa3a10abb293031e752f8a44237f35e98a99491732a03096
MIYINFTVestingPool.sol	a589e411a67f24ecd03d9a8aa5bfcd4d54eb3643b430d71dae673b6c49fe9c88
MIYINFT.sol	a5f1330120b5bf38ab968960ea987819ffbb33cf186287df8a38736940d664eb

Overview

MIYIToken Contract

The `MIYIToken` contract implements the core functionalities of an ERC20 token with additional features for pausing and ownership management. It defines a fixed total supply of **21 billion MIYI tokens**, minted entirely at deployment and assigned to the contract owner. The token integrates transfer control and burn capabilities, ensuring both flexibility and long-term stability within the ecosystem.

Core Features

The contract leverages OpenZeppelin standards (`ERC20` , `ERC20Burnable` , `Pausable` , `Ownable`) to provide secure and auditable token operations. Token transfers can be paused and resumed by the owner to safeguard the system against potential threats or emergency conditions. Holders can burn tokens to reduce supply, while ownership privileges ensure that administrative controls remain centralized and protected.

MIYINFT Contract

The `MIYINFT` contract implements a non-fungible token (NFT) system representing unique digital assets under the MIYI ecosystem. Each token is minted according to strict supply limits. The contract allows flexible minting while maintaining long-term integrity through its locking mechanism.

Minting Functionality

The contract supports both single and batch minting, enabling efficient creation and distribution of NFTs. Only the owner can mint, ensuring that supply issuance remains fully controlled. Minting operations automatically enforce the maximum supply limit, preventing over-minting and maintaining the designed scarcity.

Mint Locking Mechanism

The contract allows the owner to permanently disable minting through the `lockMinting` function. Once locked, no new NFTs can be created, ensuring that the total NFT supply remains capped for the lifetime of the collection.

Metadata Management

The owner can update the metadata base URI via the `setBaseURI` function. The current total supply and minted count can be retrieved using the `totalMinted` function, ensuring traceability.

MIYIVesting Contract

The `MIYIVesting` contract governs the structured distribution of `MIYIToken` across multiple stakeholders through time-based vesting schedules. It ensures controlled, transparent token emission aligned with project development and ecosystem growth objectives. Each vesting schedule defines parameters such as start time, duration, and beneficiary allocation.

Initialization and Distribution

Upon initialization, the contract receives the full token supply and distributes it into multiple vesting schedules, each assigned to a specific allocation category. It creates unique schedules for ecosystem contributors, staking, team members, marketing, grants, and other strategic areas. A portion of tokens is sent directly to the NFT Vesting Pool to reward NFT holders.

Vesting Schedule Models

The contract supports several vesting models:

- **Linear Vesting:** Tokens are released gradually over the full vesting duration.
- **Platform Vesting:** Includes a short cliff followed by a two-year linear release.
- **Cliff Vesting:** Tokens are fully released after a set cliff period.
  This variety allows tailored distribution strategies across project stakeholders.

Token Release Process

Beneficiaries can claim vested tokens through the `release` function. The amount available for release is calculated based on elapsed time and the schedule's parameters. This function ensures that tokens are only released proportionally and securely through direct ERC20 transfers.

Allocation Structure

The total supply is divided into categories based on predefined percentages: Ecosystem (20%), Staking (20%), Team (13%), Platform (13%), Marketing (9%), Reserve (4%), Grants (6%), Fundraising (10%), and Cornerstone (5%, allocated to NFT Vesting Pool). This structure ensures a balanced token economy aligned with long-term project goals.

Security and Ownership

Initialization can only occur once and requires the contract to hold the total token supply. All administrative functions are restricted to the contract owner, ensuring full control over the vesting setup and preventing unauthorized modification of schedules.

MIYINFTVestingPool Contract

The `MIYINFTVestingPool` contract links NFT ownership with token vesting, allowing NFT holders to gradually claim `MIYIToken` rewards. Each NFT represents a unique allocation share from a dedicated pool of **1.05 billion MIYI tokens**, distributed linearly over a three-year period. This mechanism integrates token rewards directly into NFT ownership, promoting long-term engagement.

Allocation Management

The contract owner can assign token allocations to specific NFTs using single or batch methods. Each allocation determines how many tokens an NFT will earn over the vesting duration. Once finalized, allocations cannot be modified, ensuring a fair and immutable distribution framework.

Vesting Logic

Tokens vest linearly from the defined start time across **1,095 days (3 years)**. The amount vested for each NFT depends on how much time has passed since vesting began. When the full duration is reached, the entire allocated amount becomes claimable by the NFT holder.

Claiming Mechanism

NFT holders can claim their vested tokens once claiming is enabled by the contract owner. The `claim` function checks NFT ownership and calculates the releasable token amount. Tokens are then securely transferred to the NFT holder's address, with all claims tracked to prevent duplication.

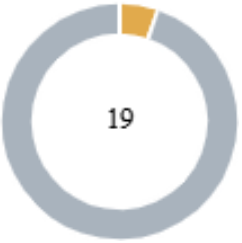
Administrative Controls

The owner maintains control over the vesting system by toggling claim availability, setting allocations, and finalizing distribution parameters. The contract enforces strict limits to prevent total allocations from exceeding the defined pool size, ensuring complete alignment between token reserves and NFT-based vesting rights.

Transparency and Monitoring

Beneficiaries can query vested, claimable, and total allocated amounts through public view functions. These tools allow real-time monitoring of vesting progress and promote transparency across all NFT holders participating in the MIYI reward system.

Findings Breakdown



Critical	0
Medium	1
Minor / Informative	18

Severity	Unresolved	Acknowledged	Resolved	Other
Critical	0	0	0	0
Medium	1	0	0	0
Minor / Informative	18	0	0	0

Diagnostics

Critical Medium Minor / Informative

Severity	Code	Description	Status
Medium	PIVF	Possible Incorrect View Functionality	Unresolved
Minor	CBAF	Claim Before Allocation Finalization	Unresolved
Minor	CR	Code Repetition	Unresolved
Minor	CCR	Contract Centralization Risk	Unresolved
Minor	MUA	Metadata Update Authority	Unresolved
Minor	MT	Mints Tokens	Unresolved
Minor	MMN	Misleading Method Naming	Unresolved
Minor	MC	Missing Check	Unresolved
Minor	PSU	Potential Subtraction Underflow	Unresolved
Minor	PTAI	Potential Transfer Amount Inconsistency	Unresolved
Minor	PUA	Potential Unauthorized Actions	Unresolved
Minor	RISP	Redundant Individual Struct Property	Unresolved
Minor	ST	Stops Transactions	Unresolved
Minor	TSI	Tokens Sufficiency Insurance	Unresolved

●	ZD	Zero Division	Unresolved
●	L04	Conformance to Solidity Naming Conventions	Unresolved
●	L13	Divide before Multiply Operation	Unresolved
●	L18	Multiple Pragma Directives	Unresolved
●	L19	Stable Compiler Version	Unresolved

PIVF - Possible Incorrect View Functionality

Criticality	Medium
Location	MIYINFTVestingPool.sol#L536
Status	Unresolved

Description

The function `debugDays` returns the `elapsedDays` , `vested` tokens that can be released and `already` released tokens. However the function does not check if the elapsed time is greater than the end time of vesting. This can result in incorrect returned results for the `vested` amount.

```
Shell
function debugDays(uint256 tokenId) external view returns
(uint256 elapsedDays, uint256 vested, uint256 already){
    uint256 timestamp = block.timestamp;
    elapsedDays = (timestamp - startTime) / 1 days;
    uint256 allocation = nftAllocation[tokenId];
    vested = (allocation * elapsedDays) / (VEST_DURATION /
1 days);
    already = claims[tokenId].released;
}
```

Recommendation

The function should ensure that if elapsed time is greater than end time of vesting it will return the total allocation for the token instead of calculating the amount.

CBAF - Claim Before Allocation Finalization

Criticality	Minor / Informative
Location	MIYINFTVestingPool.sol#L510
Status	Unresolved

Description

The `MIYINFTVestingPool` contract allows token owners to claim their vested tokens only when claiming is enabled. However, the `claimEnabled` flag can be set to true before the allocation process is finalized. This creates a potential inconsistency: allocations may change while claiming is active. If an allocation is increased, a token owner could immediately claim a larger amount of tokens than intended. Conversely, if an allocation is decreased, a token owner who has already claimed tokens may end up having received more than their revised entitlement, resulting in the revert of the `claim` until significant time passes or incorrect token distributions. Moreover, if the vesting period ends and the allocation increases the token holder will be able to receive all the new tokens allocated immediately.

```shell
function claim(uint256 tokenId) external {
    require(claimEnabled, "claim not enabled");
    ...
    uint256 vested = vestedOf(tokenId,
uint64(block.timestamp));
    uint256 already = claims[tokenId].released;
    require(vested > already, "nothing to claim");
    uint256 claimable = vested - already;
    claims[tokenId].released = vested;
    ...
}
```

Recommendation

To prevent inconsistencies in token distribution, the `claimEnabled` flag should only be set to true after all allocations have been finalized and locked. Additionally, the contract should restrict any further modification of allocations once claiming is enabled. Implementing a clear separation between the allocation finalization phase and the claiming phase ensures that token owners can only claim from stable, verified data, preventing both over- and under-claiming scenarios.

CR - Code Repetition

Criticality	Minor / Informative
Location	MIYIVesting.sol#L312,363,381,399
Status	Unresolved

Description

The contract contains repetitive code segments. There are potential issues that can arise when using code segments in Solidity. Some of them can lead to issues like gas efficiency, complexity, readability, security, and maintainability of the source code. It is generally a good idea to try to minimize code repetition where possible.

```
Shell
 _createLinearSchedule(beneficiaries[0], amounts[0],
startTime, 4 * 365 days);
_createLinearSchedule(beneficiaries[1], amounts[1],
startTime, 4 * 365 days);
_createLinearSchedule(beneficiaries[2], amounts[2],
startTime, 4 * 365 days);
_createPlatformSchedule(beneficiaries[3], amounts[3],
startTime);
_createLinearSchedule(beneficiaries[4], amounts[4],
startTime, 4 * 365 days);
_createCliffSchedule(beneficiaries[5], amounts[5],
startTime, 2 * 365 days);
_createLinearSchedule(beneficiaries[6], amounts[6],
startTime, 4 * 365 days);
_createLinearSchedule(beneficiaries[7], amounts[7],
startTime, 2 * 365 days
...);
function _createLinearSchedule(address beneficiary,
uint256 amount, uint64 start, uint64 duration) internal
function _createCliffSchedule(address beneficiary, uint256
amount, uint64 start, uint64 cliffDuration) internal
```

```
function _createPlatformSchedule(address beneficiary,
uint256 amount, uint64 start) internal
```

Recommendation

The team is advised to avoid repeating the same code in multiple places, which can make the contract easier to read and maintain. The authors could try to reuse code wherever possible, as this can help reduce the complexity and size of the contract. For instance, the contract could reuse the common code segments in an internal function in order to avoid repeating the same code in multiple places.

CCR - Contract Centralization Risk

Criticality	Minor / Informative
Location	MIYIToken.sol#L891,892 MIYINFT.sol#L3644,3655,3662,3675,3680 MIYIVesting.sol#L274,289,418 MIYINFTVestingPool.sol#L426,440,456,480,485
Status	Unresolved

Description

The contract's functionality and behavior are heavily dependent on external parameters or configurations. While external configuration can offer flexibility, it also poses several centralization risks that warrant attention. Centralization risks arising from the dependence on external configuration include Single Point of Control, Vulnerability to Attacks, Operational Delays, Trust Dependencies, and Decentralization Erosion.

```shell
function pause() external onlyOwner
function unpause() external onlyOwner
```

```shell
constructor(string memory baseURI_, uint256 maxSupply_,
address initialOwner)
function mint(address to) external onlyOwner
function batchMint(address[] calldata toList) external
onlyOwner
function setBaseURI(string calldata newURI) external
onlyOwner
```

```
function lockMinting() external onlyOwner
```

Shell

```
constructor(address token_, address[8] memory alloc,
uint64 startTime_, address initialOwner)
Ownable(initialOwner)
function initDistribution(address nftVestingPool) external
onlyOwner
function release(uint256 id) external {
    ...
    require(msg.sender == s.beneficiary || msg.sender ==
owner(), "unauthorized");
    ...
}
```

Shell

```
constructor(address token_, address nft_, uint64
startTime_, address initialOwner) Ownable(initialOwner)
function setAllocation(uint256 tokenId, uint256 amount)
external onlyOwner
function setAllocationsBatch(uint256[] calldata tokenIds,
uint256[] calldata amounts) external onlyOwner
function finalizeAllocations() external onlyOwner

function setClaimEnabled(bool enabled) external onlyOwner
```

Recommendation

To address this finding and mitigate centralization risks, it is recommended to evaluate the feasibility of migrating critical configurations and functionality into the contract's codebase itself. This approach would reduce external dependencies and enhance the contract's self-sufficiency. It is essential to carefully weigh the trade-offs between external configuration flexibility and the risks associated with centralization.

MUA - Metadata Update Authority

Criticality	Minor / Informative
Location	MIYINFT.sol#L3675
Status	Unresolved

Description

The contract owner has the authority to change the metadata of the tokens. The owner may execute this by calling the `setBaseURI` function.

Shell

```
function setBaseURI(string calldata newURI) external
onlyOwner {
    _baseTokenURI = newURI;
    emit BaseURIChanged(newURI);
}
```

Recommendation

The team should carefully manage the private keys of the owner's account. We strongly recommend a powerful security mechanism that will prevent a single user from accessing the contract admin functions.

Temporary Solutions:

These measurements do not decrease the severity of the finding

- Introduce a time-locker mechanism with a reasonable delay.
- Introduce a multi-signature wallet so that many addresses will confirm the action.
- Introduce a governance model where users will vote about the actions.

Permanent Solution:

- Renouncing the ownership, which will eliminate the threats but it is non-reversible.

MT - Mints Tokens

Criticality	Minor / Informative
Location	MIYINFT.sol#L3655,3662
Status	Unresolved

Description

The contract owner has the authority to mint tokens up to a `MAX_SUPPLY`. The owner may take advantage of it by calling the `mint` and `batchMint` functions. As a result, the contract tokens will be inflated.

```shell
function mint(address to) external onlyOwner {
    require(!mintLocked, "minting locked");
    require(_tokenIdCounter.current() < MAX_SUPPLY, "max
supply reached");
    _tokenIdCounter.increment();
    _safeMint(to, _tokenIdCounter.current());
}

function batchMint(address[] calldata toList) external
onlyOwner {
    require(!mintLocked, "minting locked");
    for (uint256 i = 0; i < toList.length; i++) {
        require(_tokenIdCounter.current() < MAX_SUPPLY,
"max supply reached");
        _tokenIdCounter.increment();
        _safeMint(toList[i], _tokenIdCounter.current());
    }
}
```

Recommendation

The team should carefully manage the private keys of the owner's account. We strongly recommend a powerful security mechanism that will prevent a single user from accessing the contract admin functions.

Temporary Solutions:

These measurements do not decrease the severity of the finding

- Introduce a time-locker mechanism with a reasonable delay.
- Introduce a multi-signature wallet so that many addresses will confirm the action.
- Introduce a governance model where users will vote about the actions.

Permanent Solution:

- Renouncing the ownership, which will eliminate the threats but it is non-reversible.

MMN - Misleading Method Naming

Criticality	Minor / Informative
Location	MIYIVesting.sol#L381
Status	Unresolved

Description

Methods can have misleading names if their names do not accurately reflect the functionality they contain or the purpose they serve. The contract uses some method names that are too generic or do not clearly convey the underneath functionality. Misleading method names can lead to confusion, making the code more difficult to read and understand. Methods can have misleading names if their names do not accurately reflect the functionality they contain or the purpose they serve. The contract uses some method names that are too generic or do not clearly convey the underneath functionality. Misleading method names can lead to confusion, making the code more difficult to read and understand.

Specifically, the `_createCliffSchedule` has a misleading name and also a misleading argument, `cliffDuration`. In standard vesting logic, a cliff prevents users from claiming any tokens until the cliff period has elapsed, after which tokens vest linearly over time. In this implementation, however, once the `cliffDuration` has passed, users can claim the entire amount immediately, making the behavior more akin to a delayed release rather than a true cliff vesting schedule.

```
Shell
function _createCliffSchedule(address beneficiary, uint256
amount, uint64 start, uint64 cliffDuration
) internal {
    uint256 id = ++scheduleCount;
    schedules[id] = Schedule({totalAmount: amount,
released: 0, start: start + cliffDuration, duration: 1,
beneficiary: beneficiary, exists: true
```

```
    });
    emit ScheduleCreated(id, beneficiary, amount, start +
cliffDuration, 1);

}
```

Recommendation

It's always a good practice for the contract to contain method names that are specific and descriptive. The team is advised to keep in mind the readability of the code.

MC - Missing Check

Criticality	Minor / Informative
Location	MIYINFT.sol#L3651 MIYIVesting.sol#L282 MIYINFTVestingPool.sol#L437
Status	Unresolved

Description

The contract is processing variables that have not been properly sanitized and checked that they form the proper shape. These variables may produce vulnerabilities.

Specifically, `maxSupply_` in the constructor of `MIYINFT` is missing a check to ensure that it is a reasonable non-zero amount.

```
Shell
MAX_SUPPLY = maxSupply_;
```

Additionally, in the constructor of `MIYIVesting` and `MIYINFTVestingPool` checks are missing to ensure that `startTime_` is at least equal to the current timestamp.

```shell
startTime = startTime_;
```

Recommendation

The team is advised to properly check the variables according to the required specifications.

PSU - Potential Subtraction Underflow

Criticality	Minor / Informative
Location	MIYIVesting.sol#L448 MIYINFTVestingPool.sol#L546
Status	Unresolved

Description

The contract subtracts two values, the second value may be greater than the first value if the contract owner misuses the configuration. As a result, the subtraction may underflow and cause the execution to revert.

Specifically, in the `MIYIVesting` the `start` time of a `Schedule` could be greater than the `timestamp` passed as input to the function.

```
Shell
uint256 elapsedDays = (timestamp - s.start) / 1 days;
```

The case is similar for the calculation of `elapsedDays` in the `MIYINFTVestingPool` contract.

```shell
uint256 elapsedDays = (uint256(timestamp) -
uint256(startTime)) / 1 days;
...
elapsedDays = (timestamp - startTime) / 1 days;
```

Recommendation

The team is advised to properly handle the code to avoid underflow subtractions and ensure the reliability and safety of the contract. The contract should ensure that the first value is always greater than the second value. It should add a sanity check in the setters of the variable or not allow executing the corresponding section if the condition is violated.

PTAI - Potential Transfer Amount Inconsistency

Criticality	Minor / Informative
Location	MIYINFTVestingPool.sol#L404 MIYIVesting.sol#L248,357
Status	Unresolved

Description

The `transfer()` and `transferFrom()` functions are used to transfer a specified amount of tokens to an address. The fee or tax is an amount that is charged to the sender of an ERC20 token when tokens are transferred to another address. According to the specification, the transferred amount could potentially be less than the expected amount. This may produce inconsistency between the expected and the actual behavior.

Specifically, the contracts do not ensure that the amounts added as `TOTAL_ALLOCATION` and `TOTAL_SUPPLY` will be equal to the amounts of tokens transferred to the contracts.

The following example depicts the diversion between the expected and actual amount.

Tax	Amount	Expected	Actual
No Tax	100	100	100
10% Tax	100	100	90

```
Shell
uint256 public constant TOTAL_ALLOCATION = 1_050_000_000 *
1e18;
```

```shell
uint256 public constant TOTAL_SUPPLY = 21_000_000_000
ether;
...
require(token.transfer(nftVestingPool, amounts[8]),
"transfer to NFTVestingPool failed");
```

Recommendation

The team is advised to take into consideration the actual amount that has been transferred instead of the expected.

It is important to note that an ERC20 transfer tax is not a standard feature of the ERC20 specification, and it is not universally implemented by all ERC20 contracts. Therefore, the contract could produce the actual amount by calculating the difference between the transfer call.

`Actual Transferred Amount = Balance After Transfer - Balance Before Transfer`

PUA - Potential Unauthorized Actions

Criticality	Minor / Informative
Location	MIYINFT.sol#L3331
Status	Unresolved

Description

The contract makes an external call during the execution of the `_safeMint` method. The recipient could be a malicious contract that has an untrusted code in its fallback function. This could be used by a malicious user to perform unauthorized actions.

```
Shell
function _safeMint(address to, uint256 tokenId, bytes
memory data) internal virtual {
    _mint(to, tokenId);
    ERC721Utils.checkOnERC721Received(_msgSender(),
address(0), to, tokenId, data);
}
```

Recommendation

The team should ensure that external interaction cannot harm the protocol by using Checks-Effects-Interactions and reentrancy protection. Additionally, all state changes, supply/accounting, and access checks should be finalized before `_safeMint` runs.

RISP - Redundant Individual Struct Property

Criticality	Minor / Informative
Location	MIYINFTVestingPool.sol#L397
Status	Unresolved

Description

The contract features a struct declaration which is composed solely of a single variable. This structure has been implemented with the intent of encapsulating individual data members. However, this practice contributes additional complexity to the codebase without enhancing its functionality or clarity. The presence of only one member within the struct suggests that the same purpose could be achieved more efficiently by directly declaring the variable, thereby avoiding the struct usage.

```
Shell
struct ClaimInfo {
    uint256 released;
}
```

Recommendation

Given that the struct declaration introduces superfluous complexity and overhead to the contract, it is recommended to eliminate such redundancies. Removing these redundant structs and directly declaring the members can streamline the codebase, enhance code readability, and lower execution costs by avoiding unnecessary struct instantiations. This adjustment not only simplifies the development and maintenance process but also optimizes performance.

ST - Stops Transactions

Criticality	Minor / Informative
Location	MIYIToken.sol#L809
Status	Unresolved

Description

The contract owner has the authority to stop the sales for all users excluding the owner. The owner may take advantage of it by using the `pause` function. As a result, the contract may operate as a honeypot.

```shell
function _update(address from, address to, uint256 value)
    internal
    virtual
    override(ERC20)
{
    require(!paused(), "token paused");
    super._update(from, to, value);
}
```

Recommendation

The team should carefully manage the private keys of the owner’s account. We strongly recommend a powerful security mechanism that will prevent a single user from accessing the contract admin functions.

Temporary Solutions:

These measurements do not decrease the severity of the finding

- Introduce a time-locker mechanism with a reasonable delay.
- Introduce a multi-signature wallet so that many addresses will confirm the action.
- Introduce a governance model where users will vote about the actions.

Permanent Solution:

- Renouncing the ownership, which will eliminate the threats but it is non-reversible.

TSI - Tokens Sufficiency Insurance

Criticality	Minor / Informative
Location	MIYINFTVestingPool.sol#L521
Status	Unresolved

Description

The tokens are not held within the contract itself. Instead, the contract is designed to provide the tokens from an external administrator. While external administration can provide flexibility, it introduces a dependency on the administrator's actions, which can lead to various issues and centralization risks.

```shell
require(token.transfer(msg.sender, claimable), "transfer failed");
```

Recommendation

It is recommended to consider implementing a more decentralized and automated approach for handling the contract tokens. One possible solution is to hold the tokens within the contract itself. If the contract guarantees the process it can enhance its reliability, security, and participant trust, ultimately leading to a more successful and efficient process.

ZD - Zero Division

Criticality	Minor / Informative
Location	MIYIVesting.sol#L450
Status	Unresolved

Description

The contract is using variables that may be set to zero as denominators. This can lead to unpredictable and potentially harmful results, such as a transaction revert.

Specifically the `totalDays` is calculated by dividing `s.duration` by `1 days`. If `s.duration` is smaller the returned result will be zero which will cause a revert during the calculation of the releasable amount.

```
Shell
uint256 totalDays = s.duration / 1 days;
return (s.totalAmount * elapsedDays) / totalDays;
```

Recommendation

It is important to handle division by zero appropriately in the code to avoid unintended behavior and to ensure the reliability and safety of the contract. The contract should ensure that the divisor is always non-zero before performing a division operation. It should prevent the variables to be set to zero, or should not allow the execution of the corresponding statements.

L04 - Conformance to Solidity Naming Conventions

Criticality	Minor / Informative
Location	MIYINFT.sol#L3637
Status	Unresolved

Description

The Solidity style guide is a set of guidelines for writing clean and consistent Solidity code. Adhering to a style guide can help improve the readability and maintainability of the Solidity code, making it easier for others to understand and work with.

The followings are a few key points from the Solidity style guide:

1. Use camelCase for function and variable names, with the first letter in lowercase (e.g., myVariable, updateCounter).
2. Use PascalCase for contract, struct, and enum names, with the first letter in uppercase (e.g., MyContract, UserStruct, ErrorEnum).
3. Use uppercase for constant variables and enums (e.g., MAX_VALUE, ERROR_CODE).
4. Use indentation to improve readability and structure.
5. Use spaces between operators and after commas.
6. Use comments to explain the purpose and behavior of the code.
7. Keep lines short (around 120 characters) to improve readability.

```shell
uint256 public immutable MAX_SUPPLY;
```

Recommendation

By following the Solidity naming convention guidelines, the codebase increased the readability, maintainability, and makes it easier to work with.
Find more information on the Solidity documentation
https://docs.soliditylang.org/en/stable/style-guide.html#naming-conventions.

L13 - Divide before Multiply Operation

Criticality	Minor / Informative
Location	MIYINFTVestingPool.sol#L504,507,546,548
Status	Unresolved

Description

It is important to be aware of the order of operations when performing arithmetic calculations. This is especially important when working with large numbers, as the order of operations can affect the final result of the calculation. Performing divisions before multiplications may cause loss of prediction.

```
Shell
nt256 elapsedDays = (timestamp - s.start) / 1 days;
uint256 totalDays = uint256(VEST_DURATION) / 1 days;
return (allocation * elapsedDays) / totalDays;

elapsedDays = (timestamp - startTime) / 1 days;

vested = (allocation * elapsedDays) / (VEST_DURATION / 1
days);
```

Recommendation

To avoid this issue, it is recommended to carefully consider the order of operations when performing arithmetic calculations in Solidity. It's generally a good idea to use parentheses to specify the order of operations. The basic rule is that the multiplications should be prior to the divisions.

L18 - Multiple Pragma Directives

Criticality	Minor / Informative
Location	MIYIVesting.sol#L10,92,123,223 MIYIToken.sol#L10,92,120,150,315,622,663,770,870 MIYINFTVestingPool.sol#L10,92,123,225,253,388 MIYINFT.sol#L10,38,175,204,234,399,451,482,543,1707,2458,2528,3020,3047,3479,3581,3625
Status	Unresolved

Description

If the contract includes multiple conflicting pragma directives, it may produce unexpected errors. To avoid this, it's important to include the correct pragma directive at the top of the contract and to ensure that it is the only pragma directive included in the contract.

```shell
pragma solidity >=0.4.16;
pragma solidity ^0.8.20;
pragma solidity ^0.8.30;

...
```

Recommendation

It is important to include only one pragma directive at the top of the contract and to ensure that it accurately reflects the version of Solidity that the contract is written in.

By including all required compiler options and flags in a single pragma directive, the potential conflicts could be avoided and ensure that the contract can be compiled correctly.

L19 - Stable Compiler Version

Criticality	Minor / Informative
Location	MIYIVesting.sol#L223 MIYIToken.sol#L870 MIYINFTVestingPool.sol#L338 MIYINFT.sol#L3625
Status	Unresolved

Description

The `^` symbol indicates that any version of Solidity that is compatible with the specified version (i.e., any version that is a higher minor or patch version) can be used to compile the contract. The version lock is a mechanism that allows the author to specify a minimum version of the Solidity compiler that must be used to compile the contract code. This is useful because it ensures that the contract will be compiled using a version of the compiler that is known to be compatible with the code.

```shell
pragma solidity ^0.8.30;
```

Recommendation

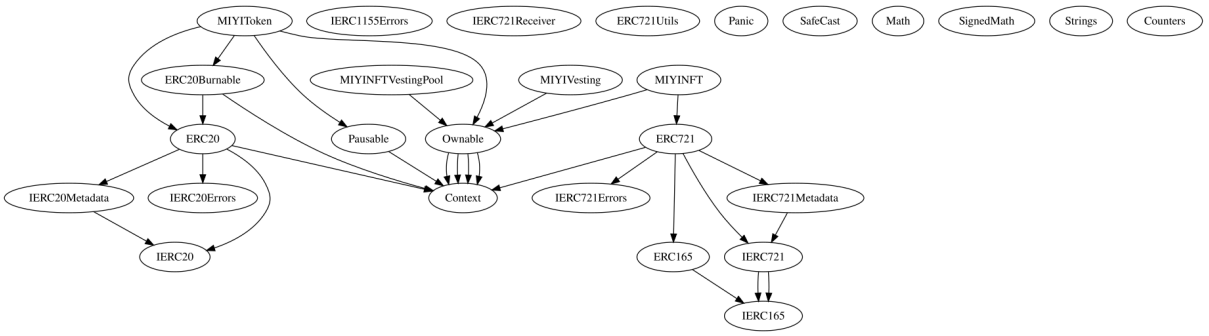
The team is advised to lock the pragma to ensure the stability of the codebase. The locked pragma version ensures that the contract will not be deployed with an unexpected version. An unexpected version may produce vulnerabilities and undiscovered bugs. The compiler should be configured to the lowest version that provides all the required functionality for the codebase. As a result, the project will be compiled in a well-tested LTS (Long Term Support) environment.

Functions Analysis

Contract	Type	Bases		
	Function Name	**Visibility**	**Mutability**	**Modifiers**
MIYIVesting	Implementation	Ownable		
		Public	✓	Ownable
	initDistribution	External	✓	onlyOwner
	_createLinearSchedule	Internal	✓	
	_createCliffSchedule	Internal	✓	
	_createPlatformSchedule	Internal	✓	
	release	External	✓	-
	vestedAmount	Public		-
	_amountFromBP	Internal		
MIYIToken	Implementation	ERC20, ERC20Burnable, Pausable, Ownable		
		Public	✓	ERC20 Ownable
	pause	External	✓	onlyOwner
	unpause	External	✓	onlyOwner
	_update	Internal	✓	
MIYINFTVestingPool	Implementation	Ownable		

		Public	✓	Ownable
	setAllocation	External	✓	onlyOwner
	setAllocationsBatch	External	✓	onlyOwner
	finalizeAllocations	External	✓	onlyOwner
	setClaimEnabled	External	✓	onlyOwner
	vestedOf	Public		-
	claim	External	✓	-
	allocationOf	Public		-
	claimableOf	External		-
	debugDays	External		-
MIYINFT	Implementation	ERC721, Ownable		
		Public	✓	ERC721 Ownable
	mint	External	✓	onlyOwner
	batchMint	External	✓	onlyOwner
	_baseURI	Internal		
	setBaseURI	External	✓	onlyOwner
	lockMinting	External	✓	onlyOwner
	totalMinted	External		-

Inheritance Graph



Flow Graph

The flow graph for MYEX contracts can be found here:

myex_flow_graph.png

Summary

MYEX contract implements a token, nft and vesting mechanism. This audit investigates security issues, business logic concerns and potential improvements.

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