Cyberscope

Audit Report

SoccerNBetMining

November 2022

SHA256 ab5cfe33864352ab279a1b80da5329f44771f99429b802b7116a64499989cdc1

Audited by © cyberscope

Table of Contents

Contract Review

Contract Name	SoccerNBetMining
Compiler Version	v0.8.14+commit.80d49f37
Explorer	https://testnet.bscscan.com/token/0x4Da19198FF076f3671B84Bec1211c380e6f7eff1
Domain	https://soccern.xyz

Audit Updates

Initial Audit	18th November 2022
Corrected	

Source Files

Filename	SHA256
@openzeppelin/contracts/access/AccessControl.sol	5af1771388b4fe634e0a566716e32c6d00a5372875099127b274d4cf8a94e9d2
@openzeppelin/contracts/access/IAccessControl.sol	d03c1257f2094da6c86efa7aa09c1c07ebd33dd31046480c5097bc2542140e45
@openzeppelin/contracts/access/Ownable.sol	9353af89436556f7ba8abb3f37a6677249aa4df6024fbfaa94f79ab2f44f3231
@openzeppelin/contracts/token/ERC20/IERC20.sol	94f23e4af51a18c2269b355b8c7cf4db8003d075c9c541019eb8dcf4122864d5
@openzeppelin/contracts/utils/Context.sol	1458c260d010a08e4c20a4a517882259a23a4baa0b5bd9add9fb6d6a1549814a
@openzeppelin/contracts/utils/introspection/ERC165.sol	8806a632d7b656cadb8133ff8f2acae4405b3a64d8709d93b0fa6a216a8a6154
@openzeppelin/contracts/utils/introspection/IERC165.sol	701e025d13ec6be09ae892eb029cd83b3064325801d73654847a5fb11c58b1e5
@openzeppelin/contracts/utils/math/SafeMath.sol	0dc33698a1661b22981abad8e5c6f5ebca0dfe5ec14916369a2935d888ff257a
@openzeppelin/contracts/utils/Strings.sol	34127ad0054df5963b0fd694c1b313d17e9114a2f426b85526d6d976210298ab
@openzeppelin/contracts/utils/structs/EnumerableSet.sol	778d5305652c4eb562b12880cb6cf023d67df24844c15783a0b80fac2e715585
contracts/SoccerNBetMining.sol	ab5cfe33864352ab279a1b80da5329f44

	771f99429b802b7116a64499989cdc1
contracts/SoccerNLib.sol	a3d9f32a8e3f63e2302af870a910c96b3f87896f5213b0eda20c72b884942aff

Introduction

The SoccerNBetMining contract implements a reward mechanism based on bets. The contract owner create “mines”. Each mine has a different combination of bet amount and rewards. Then the “soccerNBet” address has the authority to place bets for specific addresses, the “miner”. Finally the “miner” can claim the reward once the bet time has elapsed. The reward is based on the miner’s NFT tier.

Staking Funds

The contract owner is responsible for providing funds to cover the betting rewards. The contract does not keep reserves in relation to the mines and the betting amount. Hence, if the contract owner does not manually transfer the reward funds to the contract, the users will not be able to claim their rewards.

Roles

The contract has three roles. They consist of Owner, Default Admin and Admin.

Owner

The owner has the authority to

- Update soccerNBet address.
- Give or revoke Admin privileges.
- Change mine status.

Default Admin

The Default Admin doesn't have any authority over the contract.

Admin

The owner has the authority to create mines.

User

The User has the authority to

- Claim rewards.
- View mines.
- View active mines.
- View miner slip.

Contract Diagnostics

Critical Medium Minor / Informative

Severity	Code	Description	Status
●	STC	Succeeded Transfer Check	Unresolved
●	BLC	Business Logic Concern	Unresolved
●	MC	Missing Check	Unresolved
●	L04	Conformance to Solidity Naming Conventions	Unresolved
●	L14	Uninitialized Variables in Local Scope	Unresolved
●	L15	Local Scope Variable Shadowing	Unresolved

STC - Succeeded Transfer Check

Criticality	minor / informative
Location	contract.sol#L235
Status	Unresolved

Description

According to the ERC20 specification, the transfer methods should be checked if the result is successful. Otherwise, the contract may wrongly assume that the transfer has been established.

```
erc20Token.transfer(msg.sender, _mining.rewardAmount);
```

Recommendation

The contract should check if the result of the transfer methods is successful.

CO - Code Optimization

Criticality	minor / informative
Location	contract.sol#L101,152
Status	Unresolved

Description

There are code segments that could be optimized. A segment may be optimized so that it becomes a smaller size, consumes less memory, executes more rapidly, or performs fewer operations.

The `remove()` and `add()` methods of the Set library will remove or add an item only if it exists/not exist. Thus, an additional check is redundant.

```
if (status == Pool_Status_Closed) {
    if (_activePoolIds.contains(poolId)) {
        _activePoolIds.remove(poolId);
    }
} else {
    if (!_activePoolIds.contains(poolId)) {
        _activePoolIds.add(poolId);
    }
}
```

The `Mine.status` is not used by the contract, hence it could be removed.

```
mines[mineId].status = status;
```

Recommendation

The contract could directly call the `remove()` and `add()` methods since the Set structure implements the existence check internally.

The contract could remove the status since it is not used.

MC - Missing Check

Criticality	minor / informative
Location	contract.sol#L80.120
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 vulnerability issues.

```
constructor(IERC20 _erc20Token, ISoccerNFT _nft) Ownable() {
    address _owner = msg.sender;
    _setupRole(DEFAULT_ADMIN_ROLE, _owner);
    _setupRole(ADMIN_ROLE, _owner);
    erc20Token = _erc20Token;
    nft = _nft;
}

function _createMine(MineConfig calldata _config) private {
    _lastMineId++;
    Mine memory _mine;
    _mine.status = Mine_Status_Opened;
    _mine.id = _lastMineId;
    _mine.config = _config;
    mines[_lastMineId] = _mine;
    _activeMineIds.add(_mine.id);
    emit MineCreated(_lastMineId, _config.minBetAmount, _config.duration);
}
```

Recommendation

The contract should properly check the variables according to the required specifications.

- _erc20Token and _nft should not be set to zero address.
- _config.commonRewardRate should be greater than zero.

- _config.standardRewardRate should be greater than commonRewardRate.
- _config.premiumRewardRate should be greater than standardRewardRate.
- _config.duration should be greater than zero.
- _config.minBetAmount be greater than zero.
- mines[mineId].status should be either Mine_Status_Opened or Mine_Status_Closed.

L04 - Conformance to Solidity Naming Conventions

Criticality	minor / informative
Location	contracts/SoccerNBetMining.sol#L20,154,89,114,21
Status	Unresolved

Description

Solidity defines a naming convention that should be followed. Rule exceptions:

- Allow constant variable name/symbol/decimals to be lowercase.
- Allow _ at the beginning of the mixed_case match for private variables and unused parameters.

```
Mine_Status_Opened
_getMaxBetAmountMine
_soccerNBet
_configs
Mine_Status_Closed
```

Recommendation

Follow the Solidity naming convention.
https://docs.soliditylang.org/en/v0.4.25/style-guide.html#naming-conventions.

L14 - Uninitialized Variables in Local Scope

Criticality	minor / informative
Location	contracts/SoccerNBetMining.sol#L140,197,123,157
Status	Unresolved

Description

The are variables that are defined in the local scope and are not initialized.

```
_rewardRate
_mining
_mine
lastMine
```

Recommendation

All the local scoped variables should be initialized.

L15 - Local Scope Variable Shadowing

Criticality	minor / informative
Location	contracts/SoccerNBetMining.sol#L81
Status	Unresolved

Description

The are variables that are defined in the local scope containing the same name from an upper scope.

```
_owner
```

Recommendation

The local variables should have different names from the upper scoped variables.

Contract Functions

Contract	Type	Bases		
	Function Name	**Visibility**	**Mutability**	**Modifiers**
AccessControl	Implementation	Context, IAccessControl, ERC165		
	supportsInterface	Public		-
	hasRole	Public		-
	_checkRole	Internal		
	_checkRole	Internal		
	getRoleAdmin	Public		-
	grantRole	Public	✓	onlyRole
	revokeRole	Public	✓	onlyRole
	renounceRole	Public	✓	-
	_setupRole	Internal	✓	
	_setRoleAdmin	Internal	✓	
	_grantRole	Internal	✓	
	_revokeRole	Internal	✓	
IAccessControl	Interface			
	hasRole	External		-
	getRoleAdmin	External		-
	grantRole	External	✓	-
	revokeRole	External	✓	-
	renounceRole	External	✓	-
Ownable	Implementation	Context		
	<Constructor>	Public	✓	-
	owner	Public		-
	_checkOwner	Internal		
	renounceOwnership	Public	✓	onlyOwner

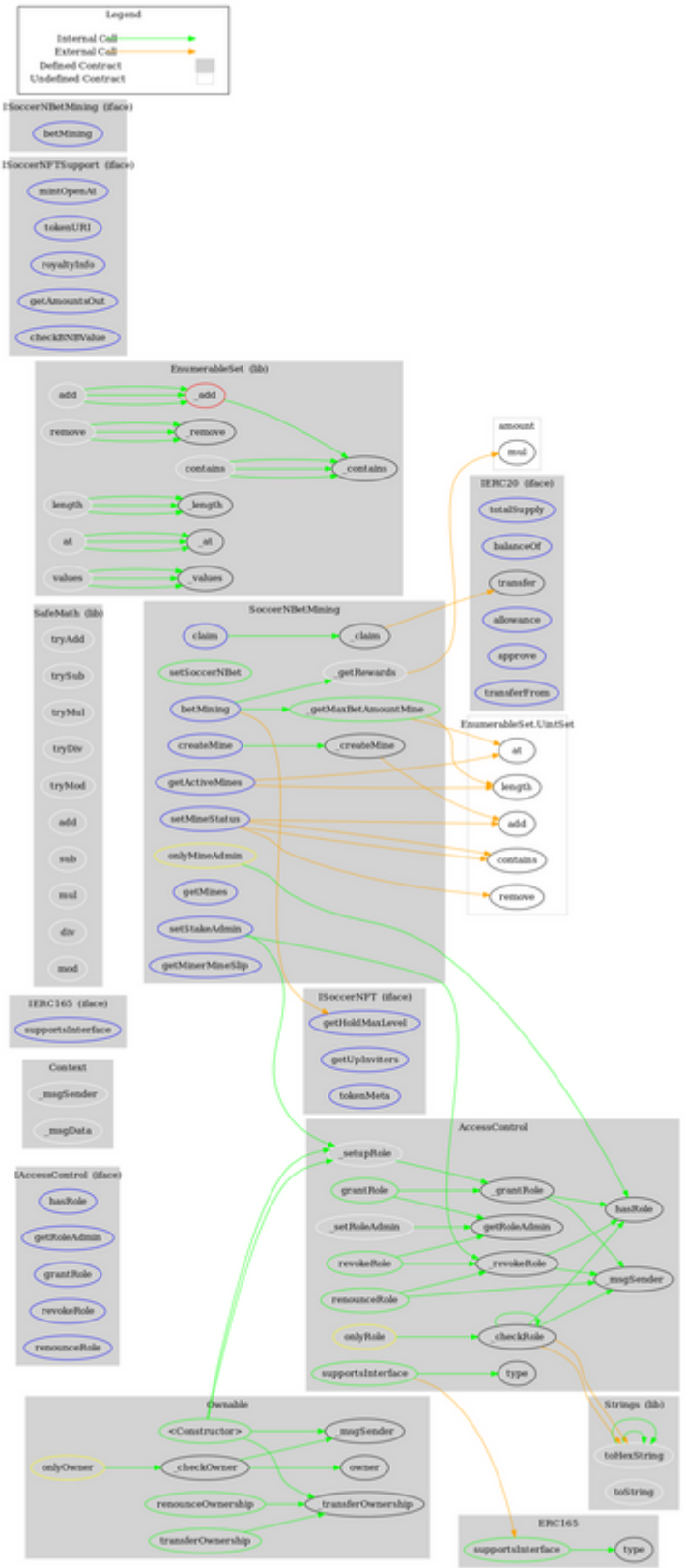
	transferOwnership	Public	✓	onlyOwner
	_transferOwnership	Internal	✓	
IERC20	Interface			
	totalSupply	External		-
	balanceOf	External		-
	transfer	External	✓	-
	allowance	External		-
	approve	External	✓	-
	transferFrom	External	✓	-
Context	Implementation			
	_msgSender	Internal		
	_msgData	Internal		
ERC165	Implementation	IERC165		
	supportsInterface	Public		-
IERC165	Interface			
	supportsInterface	External		-
SafeMath	Library			
	tryAdd	Internal		
	trySub	Internal		
	tryMul	Internal		
	tryDiv	Internal		
	tryMod	Internal		
	add	Internal		
	sub	Internal		
	mul	Internal		
	div	Internal		
	mod	Internal		
	sub	Internal		
	div	Internal		
	mod	Internal		

Strings	Library			
	toString	Internal		
	toHexString	Internal		
	toHexString	Internal		
	toHexString	Internal		
EnumerableSet	Library			
	_add	Private	✓	
	_remove	Private	✓	
	_contains	Private		
	_length	Private		
	_at	Private		
	_values	Private		
	add	Internal	✓	
	remove	Internal	✓	
	contains	Internal		
	length	Internal		
	at	Internal		
	values	Internal		
	add	Internal	✓	
	remove	Internal	✓	
	contains	Internal		
	length	Internal		
	at	Internal		
	values	Internal		
	add	Internal	✓	
	remove	Internal	✓	
	contains	Internal		
	length	Internal		
	at	Internal		
	values	Internal		

SoccerNBetMining	Implementation	ISoccerNBetMining, Ownable, AccessControl		
	<Constructor>	Public	✓	Ownable
	setSoccerNBet	Public	✓	onlyOwner
	setStakeAdmin	External	✓	onlyOwner
	setMineStatus	External	✓	onlyOwner
	createMine	External	✓	onlyMineAdmin
	_createMine	Private	✓	
	_getRewards	Internal		
	_getMaxBetAmountMine	Public		-
	betMining	External	✓	-
	claim	External	✓	-
	_claim	Private	✓	
	getMines	External		-
	getActiveMines	External		-
	getMinerMineSlip	External		-
SoccerNLib	Library			
ISoccerNFTSupport	Interface			
	mintOpenAt	External		-
	tokenURI	External		-
	royaltyInfo	External		-
	getAmountsOut	External		-
	checkBNBValue	External		-
ISoccerNFT	Interface			
	getUpInviters	External		-
	tokenMeta	External		-
	getHoldMaxLevel	External		-
ISoccerNBetM	Interface			

ining				
	betMining	External	✓	-

Contract Flow



Domain Info

Domain Name	soccern.xyz
Registry Domain ID	D333457734-CNIC
Creation Date	2022-11-15T06:18:12.0Z
Updated Date	2022-11-15T06:53:42.0Z
Registry Expiry Date	2023-11-15T23:59:59.0Z
Registrar WHOIS Server	whois.godaddy.com
Registrar URL	https://www.godaddy.com/
Registrar	Go Daddy, LLC
Registrar IANA ID	146

The domain was created 3 days before the creation of the audit. It will expire in 12 months.

There is no public billing information, the creator is protected by the privacy settings.

Summary

The SoccerNBetMinning contract operates as a . The Smart Contract analysis reported no compiler errors or critical issues. This audit focused on investigating possible security issues and potential improvements.

We state that admin privileges are necessary and required for proper protocol operations. Thus, we emphasize the contract owner to be extra careful with the credentials.

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The Cyberscope team

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