



Cyberscope

Audit Report

Wakanda Launchpad

November 2022

Github <https://github.com/Blocceducare/WKDLaunchPad>

Commit [52fa9561cc75eb220a339ef24d1c9b418a5aedc2](https://github.com/Blocceducare/WKDLaunchPad/commit/52fa9561cc75eb220a339ef24d1c9b418a5aedc2)

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Contract Review

Contract Name	Launchpad
Compiler Version	v0.8.9+commit.e5eed63a
Github	https://github.com/Blocceducare/WKDLaunchPad
Commit	52fa9561cc75eb220a339ef24d1c9b418a5aedc2
Testing Deploy	https://testnet.bscscan.com/token/0x9B4DB7aC57022411De6A097293C0E1d5809e9C4C
Domain	https://wakandainu.com

Audit Updates

Initial Audit	8th November 2022 https://github.com/cyberscope-io/audits/blob/main/wkd/v1/launchpad.pdf
Corrected	14th November 2022

Source Files

Filename	SHA256
@openzeppelin/contracts/access/Ownable.sol	9353af89436556f7ba8abb3f37a6677249aa4df6024fbfaa94f79ab2f44f3231
@openzeppelin/contracts/utils/Address.sol	1e0922f6c0bf6b1b8b4d480dcabb691b1359195a297bde6dc5172e79f3a1f826
@openzeppelin/contracts/utils/Context.sol	1458c260d010a08e4c20a4a517882259a23a4baa0b5bd9add9fb6d6a1549814a
contracts/launchpad.sol	8ab933d65cad6e8b06c1ba32646a4b0ef7ceb670a2101ffcc5995765e9ed3a59
contracts/launchpadDeployer.sol	d504453c5c2ae4a83094309c3e27b953bf789fc02d91d24795cb194e65d19e35
contracts/utils/IBEP20.sol	dd74634844f948ee08aa6ff721d3cf2e8123d3b2206e78dd90d7c4f8ad4f024c
contracts/utils/SafeBEP20.sol	3ba408775d84a53acafaf05208ddc1c48e1a2c058a2bff7cb5dfa458bdd0dac5
contracts/WKDCommit.sol	f95726864298516035a709b6debab818b7218c8c605a7fe613974d037829868b

Introduction

The Wakanda ecosystem implements a launchpad mechanism. The launchpad mechanism consists of three contracts. The launchpad, launchpadDeployer, and the WLDcommit contract.

- The launchpad contract implements the core functionality of the launchpad mechanism.
- The LaunchpadDeployer contract implements a launchpad deployer mechanism.
- The WKDCommit contract implements a depositor contract. Where users can deposit and withdraw Wakanda tokens.

The launchpad has two user tiers for each launchpad contribution, Tier1, and Tie2. Each Tier offers a different percentage for claiming tokens. Tier percentages are initialized on contract creation.

Roles

Launchpad

The contract has an admin role. The admin has the authority to

- Recover any forgotten ERC20 tokens from the contract.
- Withdraw presale tokens.
- Finalize the presale procedure.

Users have the authority to

- Contribute to the presale during the presale period. The user's tier depends on the Wakanda tokens that he is holding.
- Claim the presale token once the presale period elapsed.

WKDCommit

The admin has the authority to recover any ERC20 tokens from the contract, except for the Wakanda token.

Users have the authority to deposit and withdraw Wakanda tokens.

LaunchpadDeployer

The contract has an owner role. The owner has the authority

- Create a new presale.
- Recover any forgotten ERC20 tokens from the contract.

Contract Diagnostics

● Critical ● Medium ● Minor / Informative

Severity	Code	Description	Status
●	STC	Succeeded Transfer Check	Unresolved
●	MC	Missing Check	Unresolved
●	L04	Conformance to Solidity Naming Conventions	Unresolved

STC - Succeeded Transfer Check

Criticality	minor / informative
Location	contract.sol/launchpad.sol#L189,195,205,217,298
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.

```
offeringToken.transfer(msg.sender, amount);  
  
offeringToken.transfer(msg.sender, _offeringAmount);  
  
offeringToken.transfer(msg.sender, offeringTokenAmount);  
  
IBEP20(_tokenAddress).transfer(msg.sender, _tokenAmount);
```

Recommendation

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

MC - Missing Check

Criticality	minor / informative
Location	contract.sol/launchpad.sol#L105 contract.sol/WKDcommit.sol#L32
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.

The constructor arguments have not been properly sanitized.

```
constructor(uint256 _tier1MaxBNB, uint256 _tier2MaxBNB) {  
    launchPadInfo.tier1MaxBNB = _tier1MaxBNB;  
    launchPadInfo.tier2MaxBNB = _tier2MaxBNB;  
}
```

The admin argument is not sanitized properly.

```
constructor(address _admin) {  
    admin = _admin;  
}
```

The variable `_tier2Percentage` is not properly sanitized.

```
function createLaunchpad(  
    //...  
    uint256 _tier2Percentage,  
)
```

Recommendation

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

- The variable `_tier1MaxBNB` should be greater than zero.
- The variable `_tier2MaxBNB` should be greater than `_tier1MaxBNB`.
- The variable `admin` should be set to zero address.
- The variable `_tier2Percentage` should be greater than zero.

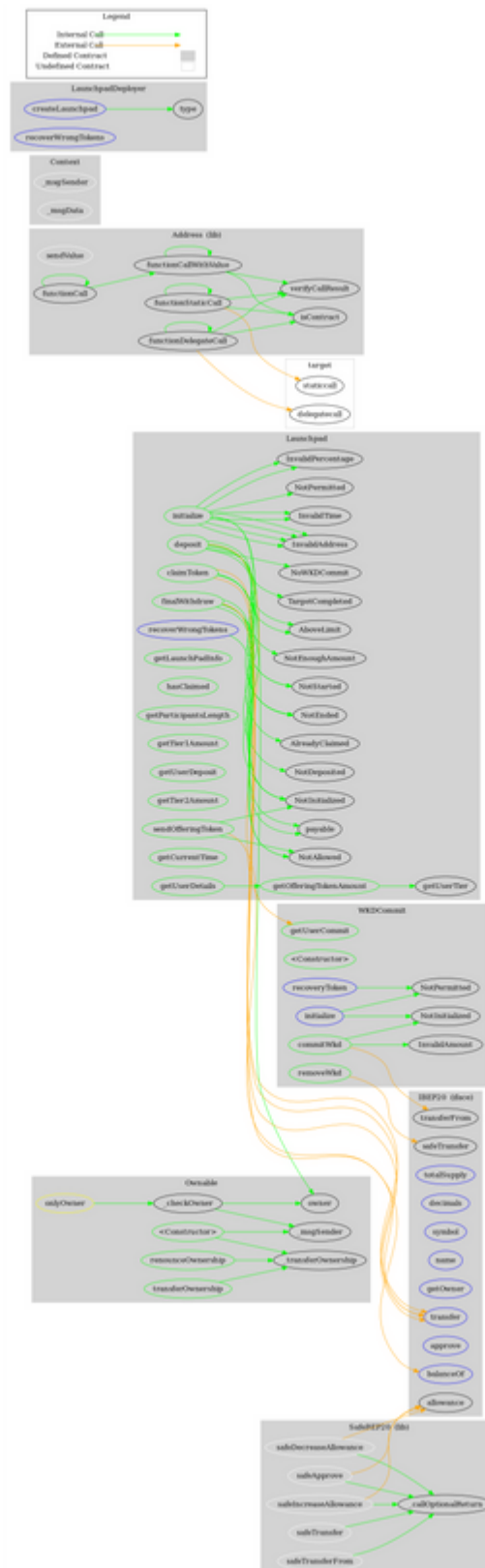
Contract Functions

Contract	Type	Bases		
	Function Name	Visibility	Mutability	Modifiers
Ownable	Implementation	Context		
	<Constructor>	Public	✓	-
	owner	Public		-
	_checkOwner	Internal		
	renounceOwnership	Public	✓	onlyOwner
	transferOwnership	Public	✓	onlyOwner
	_transferOwnership	Internal	✓	
Address	Library			
	isContract	Internal		
	sendValue	Internal	✓	
	functionCall	Internal	✓	
	functionCall	Internal	✓	
	functionCallWithValue	Internal	✓	
	functionCallWithValue	Internal	✓	
	functionStaticCall	Internal		
	functionStaticCall	Internal		
	functionDelegateCall	Internal	✓	
	functionDelegateCall	Internal	✓	
	verifyCallResult	Internal		
Context	Implementation			
	_msgSender	Internal		
	_msgData	Internal		
Launchpad	Implementation	Ownable		
	<Constructor>	Public	✓	-
	initialize	Public	✓	-

	deposit	Public	Payable	-
	claimToken	Public	✓	-
	sendOfferingToken	Public	✓	-
	finalWithdraw	Public	✓	-
	getLaunchPadInfo	Public		-
	getOfferingTokenAmount	Public		-
	hasClaimed	Public		-
	getParticipantsLength	Public		-
	getUserTier	Public		-
	getTier1Amount	Public		-
	getUserDeposit	Public		-
	getTier2Amount	Public		-
	getUserDetails	Public		-
	getCurrentTime	Public		-
	recoverWrongTokens	External	✓	-
LaunchpadDe ployer	Implementation	Ownable		
	createLaunchpad	External	✓	onlyOwner
	recoverWrongTokens	External	✓	onlyOwner
IBEP20	Interface			
	totalSupply	External		-
	decimals	External		-
	symbol	External		-
	name	External		-
	getOwner	External		-
	balanceOf	External		-
	transfer	External	✓	-
	allowance	External		-
	approve	External	✓	-
	transferFrom	External	✓	-
SafeBEP20	Library			
	safeTransfer	Internal	✓	

	safeTransferFrom	Internal	✓	
	safeApprove	Internal	✓	
	safeIncreaseAllowance	Internal	✓	
	safeDecreaseAllowance	Internal	✓	
	_callOptionalReturn	Private	✓	
WKDCommit	Implementation			
	<Constructor>	Public	✓	-
	initialize	External	✓	-
	commitWkd	Public	✓	-
	removeWkd	Public	✓	-
	getUserCommit	Public		-
	recoveryToken	External	✓	-

Contract Flow



Domain Info

Domain Name	https://wakandainu.com
Registry Domain ID	2650366346_DOMAIN_COM-VRSN
Creation Date	2021-10-26T11:48:53.00Z
Updated Date	2021-11-11T12:32:24.22Z
Registry Expiry Date	2026-10-26T11:48:53.00Z
Registrar WHOIS Server	whois.namecheap.com
Registrar URL	http://www.namecheap.com
Registrar	NAMECHEAP INC
Registrar IANA ID	1068

The domain was created about 1 year before the creation of the audit. It will expire in almost 4 years.

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

Summary

The Launchpad contract operates as a launchpad. 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.

Disclaimer

All the content provided in this document is for general information only and should not be used as financial advice or a reason to buy any investment.

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The Cyberscope team disclaims any liability for the resulting losses.

About Cyberscope

Coinscope audit and K.Y.C. service has been rebranded to Cyberscope.

Cyberscope is the leading early coin listing, voting and auditing authority firm. The audit process is analyzing and monitoring many aspects of the project. That way, it gives the community a good sense of security using an informative report and a generic score.

Cyberscope and Coinscope are aiming to make crypto discoverable and efficient globally. They provide all the essential tools to assist users draw their own conclusions.



The Cyberscope team

<https://www.cyberscope.io>