Cyberscope

Audit Report

0xpad

January 2023

Type	BEP20
Network	BSC
Address	0x0693F4676FD114E649Ca9AAaA819898DF4d25129
Audited by	© cyberscope

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Review

Contract Name	ZeroXPad
Compiler Version	v0.8.9+commit.e5eed63a
Optimization	200 runs
Explorer	https://bscscan.com/address/0x0693f4676fd114e649ca9aaaa819898df4d25129
Address	0x0693f4676fd114e649ca9aaaa819898df4d25129
Network	BSC
Symbol	ZXP
Decimals	9
Total Supply	10,000,000

Audit Updates

Initial Audit	19 Jan 2023 https://github.com/cyberscope-io/audits/blob/main/zxp/v1/audit.pdf
Corrected Phase 2	23 Jan 2023

Source Files

Filename	SHA256
ZeroXPad.sol	be36e1f6e2525764bad3cdff33c683e2006bddcd68c0582e0d62dca56692e896

Analysis

● Critical ● Medium ● Minor / Informative ● Pass

Severity	Code	Description	Status
●	ST	Stops Transactions	Passed
●	OCTD	Transfers Contract's Tokens	Passed
●	OTUT	Transfers User's Tokens	Passed
●	ELFM	Exceeds Fees Limit	Passed
●	ULTW	Transfers Liquidity to Team Wallet	Passed
●	MT	Mints Tokens	Passed
●	BT	Burns Tokens	Passed
●	BC	Blacklists Addresses	Passed

Diagnostics

Critical Medium Minor / Informative

Severity	Code	Description	Status
Medium	BLC	Business Logic Concern	Unresolved
Minor / Informative	L04	Conformance to Solidity Naming Conventions	Unresolved
Minor / Informative	L18	Multiple Pragma Directives	Unresolved
Minor / Informative	L19	Stable Compiler Version	Unresolved

BLC - Business Logic Concern

Criticality	Medium
Location	ZeroXPad.sol#L1209,1217
Status	Unresolved

Description

The implementation may not follow the expected behavior. The contract excludes and includes the variable `msg.sender` from the fees. As a result, the only excluded or included address would be the owner and not the `holder` variable.

```
function excludeFromFees(address holder) public onlyOwner {
    require(
        holder != address(0),
        "0xPad: holder can not be a null address"
    );
    isExcludedFromFees_[msg.sender] = true;
}

function includeInFees(address holder) public onlyOwner {
    require(
        holder != address(0),
        "0xPad: holder can not be a null address"
    );
    isExcludedFromFees_[msg.sender] = false;
}
```

Recommendation

The team is advised to carefully check if the implementation follows the expected business logic. One solution could be to replace the use of `msg.sender` with the `holder` variable.

L04 - Conformance to Solidity Naming Conventions

Criticality	Minor / Informative
Location	ZeroXPad.sol#L8
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.

```
function WETH() external pure returns (address);
```

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/v0.8.17/style-guide.html#naming-convention.

L18 - Multiple Pragma Directives

Criticality	Minor / Informative
Location	ZeroXPad.sol#L4,102,148,171,401,428,513,598,628,1019,1060,1097
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.

```
pragma solidity >=0.6.2;
pragma solidity >=0.5.0;
pragma solidity ^0.8.0;
pragma solidity 0.8.9;
```

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	ZeroXPad.sol#L171,401,428,513,598,628,1019,1060
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.

```
pragma solidity ^0.8.0;
```

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**
IUniswapV2Router01	Interface			
	factory	External		-
	WETH	External		-
	addLiquidity	External	✓	-
	addLiquidityETH	External	Payable	-
	removeLiquidity	External	✓	-
	removeLiquidityETH	External	✓	-
	removeLiquidityWithPermit	External	✓	-
	removeLiquidityETHWithPermit	External	✓	-
	swapExactTokensForTokens	External	✓	-
	swapTokensForExactTokens	External	✓	-
	swapExactETHForTokens	External	Payable	-
	swapTokensForExactETH	External	✓	-
	swapExactTokensForETH	External	✓	-
	swapETHForExactTokens	External	Payable	-
	quote	External		-
	getAmountOut	External		-
	getAmountIn	External		-
	getAmountsOut	External		-
	getAmountsIn	External		-
IUniswapV2Router02	Interface	IUniswapV2Router01		
	removeLiquidityETHSupportingFeeOnTransferTokens	External	✓	-

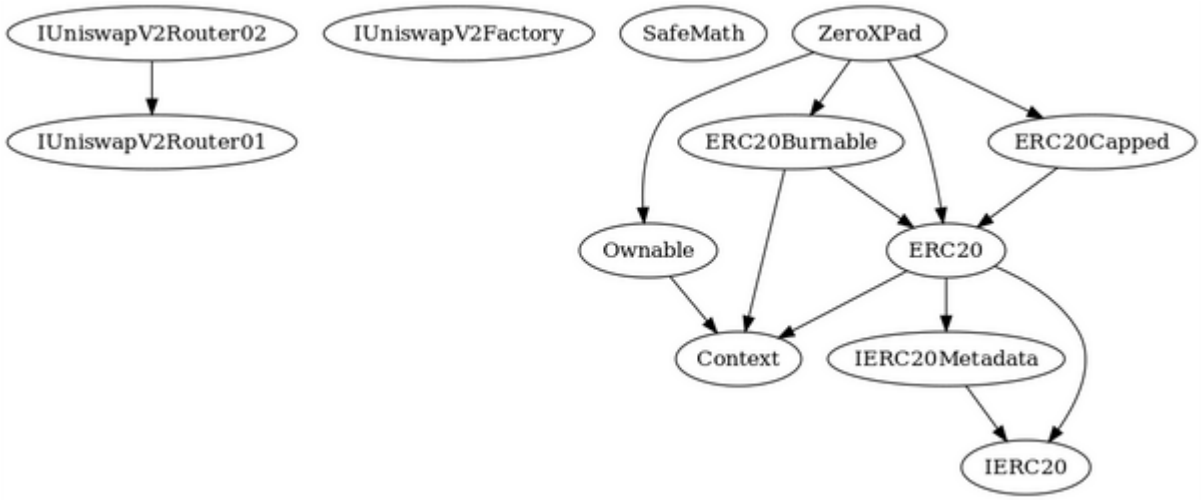
	removeLiquidityETHWithPermitSupportingFeeOnTransferTokens	External	✓	-
	swapExactTokensForTokensSupportingFeeOnTransferTokens	External	✓	-
	swapExactETHForTokensSupportingFeeOnTransferTokens	External	Payable	-
	swapExactTokensForETHSupportingFeeOnTransferTokens	External	✓	-
IUniswapV2Factory	Interface			
	feeTo	External		-
	feeToSetter	External		-
	getPair	External		-
	allPairs	External		-
	allPairsLength	External		-
	createPair	External	✓	-
	setFeeTo	External	✓	-
	setFeeToSetter	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		
Context	Implementation			
	_msgSender	Internal		
	_msgData	Internal		
Ownable	Implementation	Context		
		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	✓	-
IERC20Metadata	Interface	IERC20		
	name	External		-
	symbol	External		-
	decimals	External		-
ERC20	Implementation	Context, IERC20, IERC20Metadata		

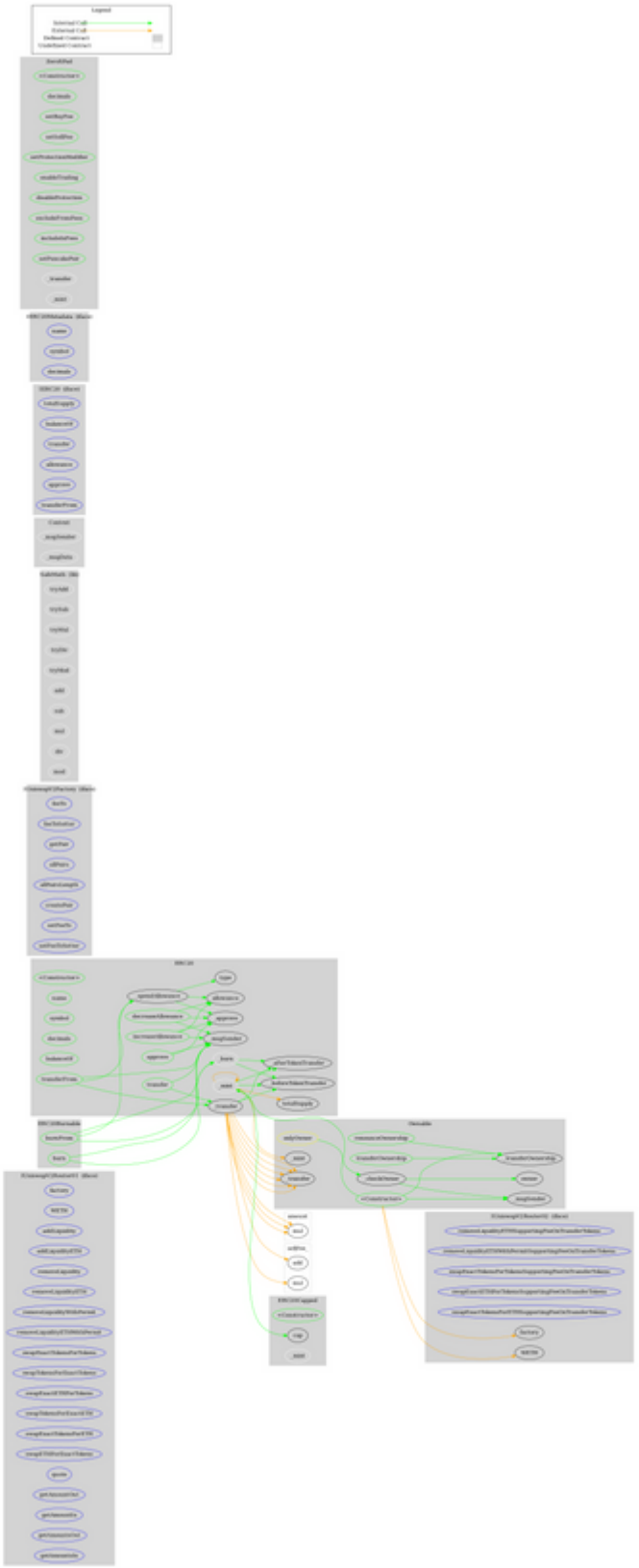
		Public	✓	-
	name	Public		-
	symbol	Public		-
	decimals	Public		-
	totalSupply	Public		-
	balanceOf	Public		-
	transfer	Public	✓	-
	allowance	Public		-
	approve	Public	✓	-
	transferFrom	Public	✓	-
	increaseAllowance	Public	✓	-
	decreaseAllowance	Public	✓	-
	_transfer	Internal	✓	
	_mint	Internal	✓	
	_burn	Internal	✓	
	_approve	Internal	✓	
	_spendAllowance	Internal	✓	
	_beforeTokenTransfer	Internal	✓	
	_afterTokenTransfer	Internal	✓	
ERC20Burnable	Implementation	Context, ERC20		
	burn	Public	✓	-
	burnFrom	Public	✓	-
ERC20Capped	Implementation	ERC20		
		Public	✓	-
	cap	Public		-
	_mint	Internal	✓	

ZeroXPad	Implementation	ERC20, ERC20Capped, ERC20Burnable, Ownable		
		Public	✓	ERC20Capped ERC20
	decimals	Public		-
	setBuyFee	Public	✓	onlyOwner
	setSellFee	Public	✓	onlyOwner
	setProtectionModifier	Public	✓	onlyOwner
	enableTrading	Public	✓	onlyOwner
	disableProtection	Public	✓	onlyOwner
	excludeFromFees	Public	✓	onlyOwner
	includeInFees	Public	✓	onlyOwner
	setPancakePair	Public	✓	onlyOwner
	_transfer	Internal	✓	
	_mint	Internal	✓	

Inheritance Graph



Flow Graph



Summary

0xpad is an interesting project that has a friendly and growing community. The Smart Contract analysis reported no compiler errors or critical issues. The Contract Owner can access some admin functions that can not be used in a malicious way to disturb the users' transactions. The contract includes a protection fee, causing the fees to be set at 21% until the owner disables the protection. There is also a limit of max 3% fee.

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Cyberscope is one of the leading smart contract audit firms in the crypto space and has built a high-profile network of clients and partners.

The Cyberscope team

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