Cyberscope

Audit Report

PixelPulse Ai

March 2024

Network	ETH
Address	0x32531aedb8d25b37c5592ea857d4780cf1bee93a
Audited by	© cyberscope

Analysis

● Critical ● Medium ● Minor / Informative ● Pass

Severity	Code	Description	Status
●	ST	Stops Transactions	Passed
●	OTUT	Transfers User's Tokens	Passed
●	ELFM	Exceeds Fees Limit	Passed
●	MT	Mints Tokens	Passed
●	BT	Burns Tokens	Passed
●	BC	Blacklists Addresses	Passed

Diagnostics

● Critical ● Medium ● Minor / Informative

Severity	Code	Description	Status
●	RSW	Redundant Storage Writes	Unresolved
●	L04	Conformance to Solidity Naming Conventions	Unresolved
●	L16	Validate Variable Setters	Unresolved
●	L19	Stable Compiler Version	Unresolved

Table of Contents

Review

Contract Name	PXPToken
Compiler Version	v0.8.19+commit.7dd6d404
Optimization	200 runs
Explorer	https://etherscan.io/address/0x32531aedb8d25b37c5592ea857d4780cf1bee93a
Address	0x32531aedb8d25b37c5592ea857d4780cf1bee93a
Network	ETH
Symbol	PXP
Decimals	18
Total Supply	100,000,000,000
Badge Eligibility	Yes

Audit Updates

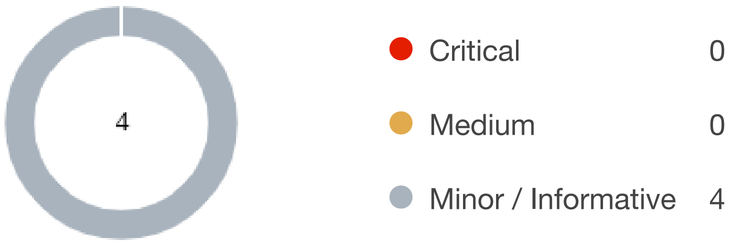
Initial Audit	10 Mar 2024

Source Files

Filename	SHA256
PXPToken.sol	6aea541b0293119af11318f6c0ef6d1451dea2e0296bbb244a3be3b81a2f5064
libraries/ERC20Base.sol	672021123b4469cc9a7037adb0e5bebecbd4928104d589b0e0e019846a50e8f7

libraries/AntiWhaleToken.sol	e351cce99e8ab51b71ad8f84ae8cbee98c2de8747f03e94db8e3372f38acad04
@openzeppelin/contracts/utils/Context.sol	1458c260d010a08e4c20a4a517882259a23a4baa0b5bd9add9fb6d6a1549814a
@openzeppelin/contracts/token/ERC20/IERC20.sol	94f23e4af51a18c2269b355b8c7cf4db8003d075c9c541019eb8dcf4122864d5
@openzeppelin/contracts/token/ERC20/ERC20.sol	bce14c3fd3b1a668529e375f6b70ffdf9cef8c4e410ae99608be5964d98fa701
@openzeppelin/contracts/token/ERC20/extensions/IERC20Metadata.sol	af5c8a77965cc82c33b7ff844deb9826166689e55dc037a7f2f790d057811990
@openzeppelin/contracts/access/Ownable.sol	9353af89436556f7ba8abb3f37a6677249aa4df6024fbfaa94f79ab2f44f3231

Findings Breakdown



Severity	Unresolved	Acknowledged	Resolved	Other
● Critical	0	0	0	0
● Medium	0	0	0	0
● Minor / Informative	4	0	0	0

RSW - Redundant Storage Writes

Criticality	Minor / Informative
Location	PXPToken.sol#L50
Status	Unresolved

Description

The contract modifies the state of the following variables without checking if their current value is the same as the one given as an argument. As a result, the contract performs redundant storage writes, when the provided parameter matches the current state of the variables, leading to unnecessary gas consumption and inefficiencies in contract execution.

```
    function setIsExcludedFromAntiWhale(address account, bool
excluded) external onlyOwner {
        _excludedFromAntiWhale[account] = excluded;
        emit ExcludedFromAntiWhale(account, excluded);
    }
```

Recommendation

The team is advised to implement additional checks within to prevent redundant storage writes when the provided argument matches the current state of the variables. By incorporating statements to compare the new values with the existing values before proceeding with any state modification, the contract can avoid unnecessary storage operations, thereby optimizing gas usage.

L04 - Conformance to Solidity Naming Conventions

Criticality	Minor / Informative
Location	libraries/ERC20Base.sol#L9
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.

```
uint256 public immutable TOKEN_CODE
```

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.

L16 - Validate Variable Setters

Criticality	Minor / Informative
Location	PXPToken.sol#L26
Status	Unresolved

Description

The contract performs operations on variables that have been configured on user-supplied input. These variables are missing of proper check for the case where a value is zero. This can lead to problems when the contract is executed, as certain actions may not be properly handled when the value is zero.

```
payable(feeReceiver_).transfer(msg.value)
```

Recommendation

By adding the proper check, the contract will not allow the variables to be configured with zero value. This will ensure that the contract can handle all possible input values and avoid unexpected behavior or errors. Hence, it can help to prevent the contract from being exploited or operating unexpectedly.

L19 - Stable Compiler Version

Criticality	Minor / Informative
Location	PXPToken.sol#L3 libraries/ERC20Base.sol#L3 libraries/AntiWhaleToken.sol#L3
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;
```

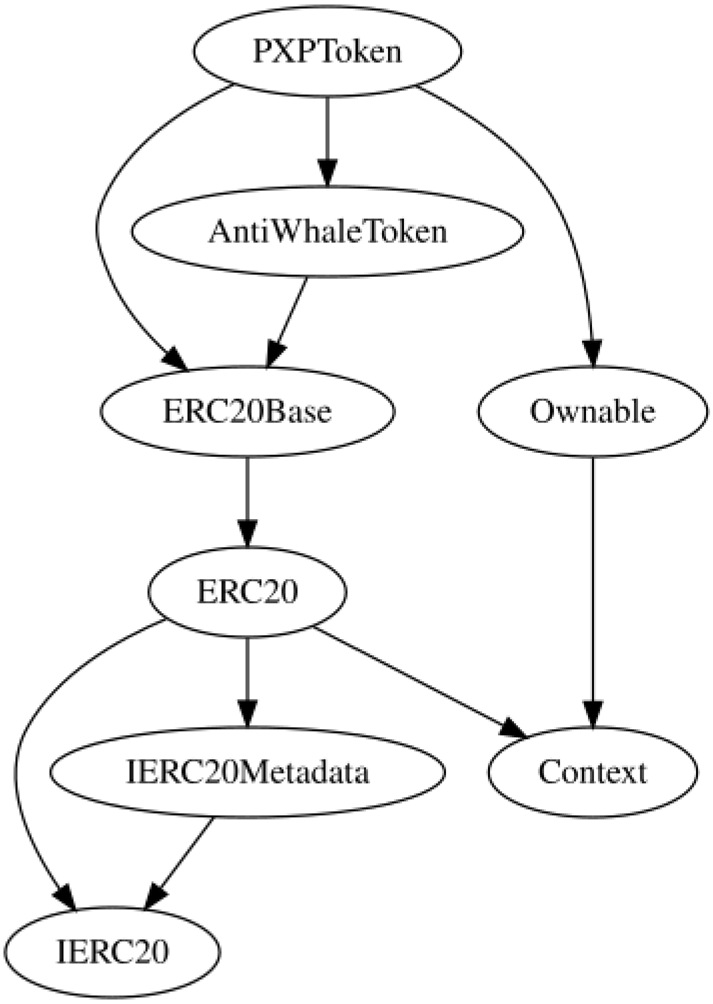
Recommendation

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.

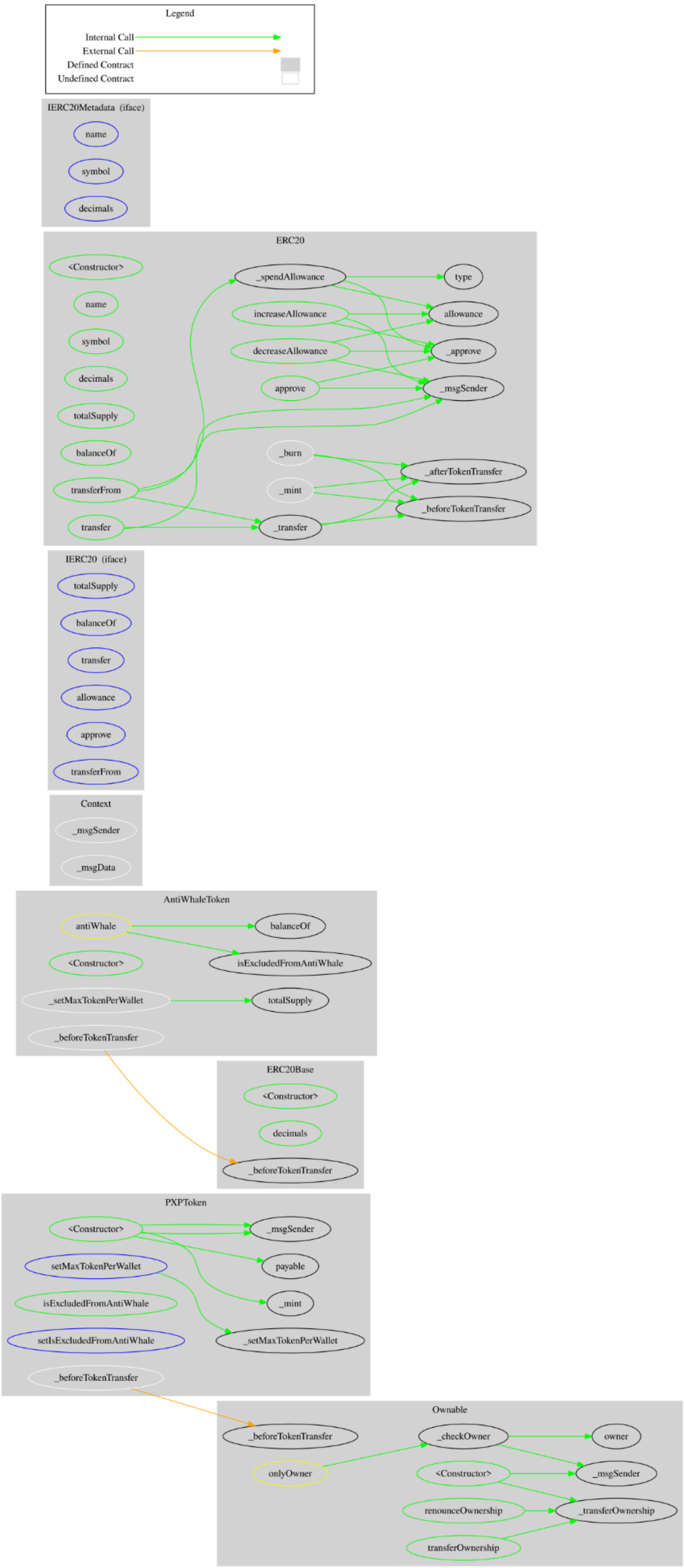
Functions Analysis

Contract	Type	Bases		
	Function Name	**Visibility**	**Mutability**	**Modifiers**
PXPToken	Implementation	ERC20Base, AntiWhaleToken, Ownable		
		Public	Payable	ERC20Base AntiWhaleToken
	setMaxTokenPerWallet	External	✓	onlyOwner
	isExcludedFromAntiWhale	Public		-
	setIsExcludedFromAntiWhale	External	✓	onlyOwner
	_beforeTokenTransfer	Internal	✓	
ERC20Base	Implementation	ERC20		
		Public	✓	ERC20
	decimals	Public		-
AntiWhaleToken	Implementation	ERC20Base		
		Public	✓	-
	isExcludedFromAntiWhale	Public		-
	_setMaxTokenPerWallet	Internal	✓	
	_beforeTokenTransfer	Internal	✓	antiWhale

Inheritance Graph



Flow Graph


Legend
Internal Call
External Call
Defined Contract
Undefined Contract
IERC20Metadata (iface)
name
symbol
decimals
ERC20
<Constructor>
name
symbol
decimals
totalSupply
balanceOf
transferFrom
transfer
_spendAllowance
increaseAllowance
decreaseAllowance
approve
_burn
_mint
_transfer
type
allowance
_approve
_msgSender
_afterTokenTransfer
_beforeTokenTransfer
IERC20 (iface)
totalSupply
balanceOf
transfer
allowance
approve
transferFrom
Context
_msgSender
_msgData
AntiWhaleToken
antiWhale
<Constructor>
_setMaxTokenPerWallet
_beforeTokenTransfer
balanceOf
isExcludedFromAntiWhale
totalSupply
ERC20Base
<Constructor>
decimals
_beforeTokenTransfer
PXPToken
<Constructor>
setMaxTokenPerWallet
isExcludedFromAntiWhale
setIsExcludedFromAntiWhale
_beforeTokenTransfer
_msgSender
payable
_mint
_setMaxTokenPerWallet
Ownable
_beforeTokenTransfer
onlyOwner
_checkOwner
<Constructor>
renounceOwnership
transferOwnership
owner
_msgSender
_transferOwnership

Summary

PixelPulse Ai contract implements a token mechanism. This audit investigates security issues, business logic concerns and potential improvements. PixelPulse Ai is an interesting project that has a friendly and growing community. The Smart Contract analysis reported no compiler error 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.

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The Cyberscope team

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