Audit Report
PETWARS

February 2022

Type	BEP20
Network	BSC
Address	0xF42cfbeaF56EF778E20e699E0794c3b8953ee39a
Audited by	© coinscope

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Contract Review

Contract Name	PWARS
Compiler Version	v0.8.12+commit.f00d7308
Optimization	200 runs
Licence	MIT
Explorer	https://bscscan.com/token/0x5053a8544DdE242030C8BA100b213d551776aAD1
Symbol	PWARS
Decimals	9
Total Supply	10,000,000,000
Source	contract.sol
Domain	

Audit Updates

Initial Audit	20th February 2022
Corrected	12th March 2022

Contract Analysis

● Critical   ● Medium   ● Minor   ● Pass

Severity	Code	Description
●	ST	Contract Owner is not able to stop or pause transactions
●	OCTD	Contract Owner is not able to transfer tokens from specific address
●	OTUT	Owner Transfer User's Tokens
●	ELFM	Contract Owner is not able to increase fees more than a reasonable percent (25%)
●	ULTW	Contract Owner is not able to increase the amount of liquidity taken by dev wallet more than a reasonable percent
●	MT	Contract Owner is not able to mint new tokens
●	BT	Contract Owner is not able to burn tokens from specific wallet
●	BC	Contract Owner is not able to blacklist wallets from selling

Contract Diagnostics

● Critical ● Medium ● Minor

Severity	Code	Description
●	CO	Code Optimization
●	L01	Public Function could be Declared External
●	L02	State Variables could be Declared Constant
●	L05	Unused State Variable
●	L04	Conformance to Solidity Naming Conventions
●	L09	Dead Code Elimination
●	L12	Using Variables before Declaration
●	L07	Missing Events Arithmetic
●	L15	Local Scope Variable Shadowing

CO - Code Optimization

Criticality	minor
Location	contract.sol#L1553

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 process of swapping tokens for BNB is taking place three times during the liquidation feature. The process of swapping tokens for BNB is producing gas.

```
uint256 feeTokens =
contractTokenBalance.mul(marketingFee.add(buybackFee).add(charityFee)).div(total
Fees);
swapAndSendToFee(feeTokens);

uint256 swapTokens = contractTokenBalance.mul(liquidityFee).div(totalFees);
swapAndLiquify(swapTokens);

uint256 sellTokens = balanceOf(address(this));
swapAndSendDividends(sellTokens);
```

Recommendation

The process of swapping tokens for BNB could be happened once for the total amount of tokens. Then, the swapped BNB could be distributed according to the requirements.

L01 - Public Function could be Declared External

Criticality	minor
Location	contract.sol#L282,291,509,513,520,526,715,723,740,766 and 19 more

Description

Public functions that are never called by the contract should be declared external to save gas.

```
process
getAccountAtIndex
dividendTokenBalanceOf
withdrawableDividendOf
isExcludedFromFees
updateGasForProcessing
setAutomatedMarketMakerPair
excludeMultipleAccountsFromFees
updateUniswapV2Router

...
```

Recommendation

Use the external attribute for functions never called from the contract

L02 - State Variables could be Declared Constant

Criticality	minor
Location	contract.sol#L1209,1202

Description

Constant state variables should be declared constant to save gas.

```
enableAntiBot
deadWallet
```

Recommendation

Add the constant attribute to state variables that never change.

L05 - Unused State Variable

Criticality	minor
Location	contract.sol#L23

Description

There are segments that contain unused state variables.

```
MAX_INT256
```

Recommendation

Remove unused state variables.

L04 - Conformance to Solidity Naming Conventions

Criticality	minor
Location	contract.sol#L300,448,449,466,1104,1111,1118,1128,1030,1036 and 20 more

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.

```
_account
_charityWalletAddress
_buybackWalletAddress
_marketingWalletAddress
SELLtotalFees
SELLcharityFee
SELLbuybackFee
SELLmarketingFee
SELLliquidityFee
...
```

Recommendation

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

L09 - Dead Code Elimination

Criticality	minor
Location	contract.sol#L1138,69

Description

Functions that are not used in the contract, and make the code's size bigger.

```
abs
_transfer
```

Recommendation

Remove unused functions.

L12 - Using Variables before Declaration

Criticality	minor
Location	contract.sol#L1613

Description

The contract is using a variable before the declaration. This is usually happening either if it has not been declared yet or the variable has been declared in a different scope.

```
iterations
claims
lastProcessedIndex
```

Recommendation

The variables should be declared before any usage of them.

L07 - Missing Events Arithmetic

Criticality	minor
Location	contract.sol#L1392,1403,1421

Description

Detected missing events for critical arithmetic parameters. There are functions that have no event emitted, so it is difficult to track off-chain changes.

```
swapTokensAtAmount = amount
SELLBNBRewardsFee = newRewardFee
BUYBNBRewardsFee = newRewardFee
```

Recommendation

Emit an event for critical parameter changes.

L15 - Local Scope Variable Shadowing

Criticality	minor
Location	contract.sol#L1056,1104,1111,1118,1128

Description

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

```
_owner
_symbol
_name
```

Recommendation

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

Contract Functions

Contract	Type	Bases		
	Function Name	Visibility	Mutability	Modifiers
SafeMathUint	Library			
	toInt256Safe	Internal		
SafeMathInt	Library			
	mul	Internal		
	div	Internal		
	sub	Internal		
	add	Internal		
	abs	Internal		
	toUint256Safe	Internal		
SafeMath	Library			
	add	Internal		
	sub	Internal		
	sub	Internal		
	mul	Internal		
	div	Internal		
	div	Internal		
	mod	Internal		
	mod	Internal		
Context	Implementation			
	_msgSender	Internal		
	_msgData	Internal		
Ownable	Implementation	Context		
	<Constructor>	Public	✓	-
	owner	Public		-
	renounceOwnership	Public	✓	onlyOwner

	transferOwnership	Public	✓	onlyOwner
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	✓	-
IUniswapV2Pai	Interface			

r				
	name	External		-
	symbol	External		-
	decimals	External		-
	totalSupply	External		-
	balanceOf	External		-
	allowance	External		-
	approve	External	✓	-
	transfer	External	✓	-
	transferFrom	External	✓	-
	DOMAIN_SEPARATOR	External		-
	PERMIT_TYPEHASH	External		-
	nonces	External		-
	permit	External	✓	-
	MINIMUM_LIQUIDITY	External		-
	factory	External		-
	token0	External		-
	token1	External		-
	getReserves	External		-
	price0CumulativeLast	External		-
	price1CumulativeLast	External		-
	kLast	External		-
	mint	External	✓	-
	burn	External	✓	-
	swap	External	✓	-
	skim	External	✓	-
	sync	External	✓	-
	initialize	External	✓	-
IUniswapV2Factory	Interface			
	feeTo	External		-
	feeToSetter	External		-
	getPair	External		-
	allPairs	External		-
	allPairsLength	External		-

	createPair	External	✓	-
	setFeeTo	External	✓	-
	setFeeToSetter	External	✓	-
IterableMapping	Library			
	get	Public		-
	getIndexOfKey	Public		-
	getKeyAtIndex	Public		-
	size	Public		-
	set	Public	✓	-
	remove	Public	✓	-
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		
	<Constructor>	Public	✓	-
	name	Public		-
	symbol	Public		-
	decimals	Public		-
	totalSupply	Public		-
	balanceOf	Public		-

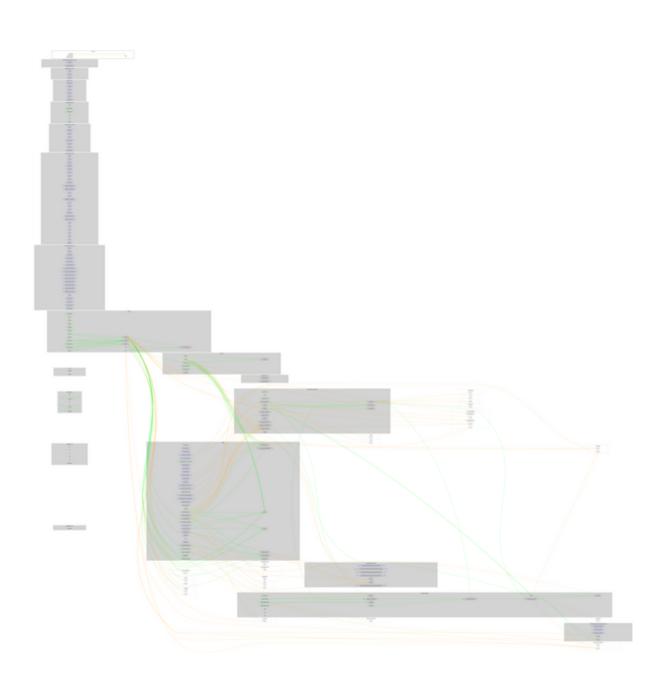|	transfer	Public	✓	-
	allowance	Public		-
	approve	Public	✓	-
	transferFrom	Public	✓	-
	increaseAllowance	Public	✓	-
	decreaseAllowance	Public	✓	-
	_transfer	Internal	✓	
	_mint	Internal	✓	
	_burn	Internal	✓	
	_approve	Internal	✓	
	_beforeTokenTransfer	Internal	✓	
DividendPayingTokenOptionalInterface	Interface			
	withdrawableDividendOf	External		-
	withdrawnDividendOf	External		-
	accumulativeDividendOf	External		-
DividendPayingTokenInterface	Interface			
	dividendOf	External		-
	withdrawDividend	External	✓	-
DividendPayingToken	Implementation	ERC20, Ownable, DividendPayingTokenInterface, DividendPayingTokenOptionalInterface		
	<Constructor>	Public	✓	ERC20
	distributeBNBDividends	Public	✓	onlyOwner
	withdrawDividend	Public	✓	-
	_withdrawDividendOfUser	Internal	✓	
	dividendOf	Public		-

	withdrawableDividendOf	Public		-
	withdrawnDividendOf	Public		-
	accumulativeDividendOf	Public		-
	_transfer	Internal	✓	
	_mint	Internal	✓	
	_burn	Internal	✓	
	_setBalance	Internal	✓	
IPinkAntiBot	Interface			
	setTokenOwner	External	✓	-
	onPreTransferCheck	External	✓	-
PWARS	Implementation	ERC20, Ownable		
	<Constructor>	Public	✓	ERC20
	<Receive Ether>	External	Payable	-
	setEnableAntiBot	External	✓	onlyOwner
	updateDividendTracker	Public	✓	onlyOwner
	updateUniswapV2Router	Public	✓	onlyOwner
	excludeFromFees	Public	✓	onlyOwner
	excludeMultipleAccountsFromFees	Public	✓	onlyOwner
	setMarketingWallet	External	✓	onlyOwner
	setBuybackWallet	External	✓	onlyOwner
	setCharityWallet	External	✓	onlyOwner
	setBUYFee	External	✓	onlyOwner
	setSELLFee	External	✓	onlyOwner
	whitelistPresaleAddress	External	✓	onlyOwner
	changeSwapTokensAtAmount	External	✓	onlyOwner
	setAutomatedMarketMakerPair	Public	✓	onlyOwner
	_setAutomatedMarketMakerPair	Private	✓	
	updateGasForProcessing	Public	✓	onlyOwner
	updateClaimWait	External	✓	onlyOwner
	getClaimWait	External		-
	getTotalDividendsDistributed	External		-
	isExcludedFromFees	Public		-
	withdrawableDividendOf	Public		-

	dividendTokenBalanceOf	Public		-
	excludeFromDividends	External	✓	onlyOwner
	getAccountDividendsInfo	External		-
	getAccountDividendsInfoAtIndex	External		-
	processDividendTracker	External	✓	-
	claim	External	✓	-
	getLastProcessedIndex	External		-
	getNumberOfDividendTokenHolders	External		-
	_transfer	Internal	✓	
	withdrawStuckBNB	External	✓	onlyOwner
	removeStuckToken	External	✓	onlyOwner
	swapAndSendToFee	Private	✓	
	swapAndLiquify	Private	✓	
	swapTokensForEth	Private	✓	
	swapTokensForBNB	Private	✓	
	addLiquidity	Private	✓	
	swapAndSendDividends	Private	✓	
PETWARSDividendTracker	Implementation	Ownable, DividendPayingToken		
	<Constructor>	Public	✓	DividendPayingToken
	_transfer	Internal		
	withdrawDividend	Public		-
	excludeFromDividends	External	✓	onlyOwner
	updateClaimWait	External	✓	onlyOwner
	getLastProcessedIndex	External		-
	getNumberOfTokenHolders	External		-
	getAccount	Public		-
	getAccountAtIndex	Public		-
	canAutoClaim	Private		
	setBalance	External	✓	onlyOwner
	process	Public	✓	-
	processAccount	Public	✓	onlyOwner

Contract Flow

Summary

The Project 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. There is also a limit of max 11% sale and 7% buy fees.

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