Cyberscope

Audit Report

StarWar

February 2023

Type	ERC20
Network	ARBITRUM
Address	0x56983c00722571af0e4374a0bc17e36e4f4ec7be
Audited by	© cyberscope

Table of Contents

Review

Contract Name	StarWar
Compiler Version	v0.8.16+commit.07a7930e
Optimization	200 runs
Explorer	https://arbiscan.io/address/0x56983c00722571af0e4374a0bc17e36e4f4ec7be
Address	0x56983c00722571af0e4374a0bc17e36e4f4ec7be
Network	ARBITRUM
Symbol	STAR
Decimals	18
Total Supply	100,000,000

Audit Updates

Initial Audit	25 Feb 2023
Corrected Phase 2	26 Feb 2023

Source Files

Filename	SHA256
StarWar.sol	d5a908fe448fb9337470a0f0ab912849e93ba7b8ec5734e60d316fff9e24d423

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
●	DDP	Decimal Division Precision	Unresolved
●	L04	Conformance to Solidity Naming Conventions	Unresolved
●	L13	Divide before Multiply Operation	Unresolved
●	L15	Local Scope Variable Shadowing	Unresolved

DDP - Decimal Division Precision

Criticality	Minor / Informative
Location	StarWar.sol#L466
Status	Unresolved

Description

Division of decimal (fixed point) numbers can result in rounding errors due to the way that division is implemented in Solidity. Thus, it may produce issues with precise calculations with decimal numbers.

Solidity represents decimal numbers as integers, with the decimal point implied by the number of decimal places specified in the type (e.g. decimal with 18 decimal places). When a division is performed with decimal numbers, the result is also represented as an integer, with the decimal point implied by the number of decimal places in the type. This can lead to rounding errors, as the result may not be able to be accurately represented as an integer with the specified number of decimal places.

Hence, the splitted shares will not have the exact precision and some funds may not be calculated as expected.

```
tokensForLiquidity += (fees * sellLiquidityFee) / sellTotalFees;
tokensForOperations += (fees * sellOperationsFee) / sellTotalFees;
tokensForRewards += (fees * sellRewardsFee) / sellTotalFees;
tokensForReserve += (fees * sellReserveFee) / sellTotalFees;
```

Recommendation

The contract could calculate the subtraction of the divided funds in the last calculation in order to avoid the division rounding issue.

L04 - Conformance to Solidity Naming Conventions

Criticality	Minor / Informative
Location	StarWar.sol#L183
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.

L13 - Divide before Multiply Operation

Criticality	Minor / Informative
Location	StarWar.sol#L456,461,462,463,464,465,470,471
Status	Unresolved

Description

It is important to be aware of the order of operations when performing arithmetic calculations. This is especially important when working with large numbers, as the order of operations can affect the final result of the calculation. Performing divisions before multiplications may cause loss of prediction.

```
tokensForRewards += (fees * sellRewardsFee) / sellTotalFees
fees = (amount * buyTotalFees) / 100
```

Recommendation

To avoid this issue, it is recommended to carefully consider the order of operations when performing arithmetic calculations in Solidity. It's generally a good idea to use parentheses to specify the order of operations. The basic rule is that the multiplications should be prior to the divisions.

L15 - Local Scope Variable Shadowing

Criticality	Minor / Informative
Location	StarWar.sol#L267
Status	Unresolved

Description

Local scope variable shadowing occurs when a local variable with the same name as a variable in an outer scope is declared within a function or code block. When this happens, the local variable "shadows" the outer variable, meaning that it takes precedence over the outer variable within the scope in which it is declared.

```
uint256 _totalSupply = 100 * 1e6 * 1e18
```

Recommendation

It's important to be aware of shadowing when working with local variables, as it can lead to confusion and unintended consequences if not used correctly. It's generally a good idea to choose unique names for local variables to avoid shadowing outer variables and causing confusion.

Functions Analysis

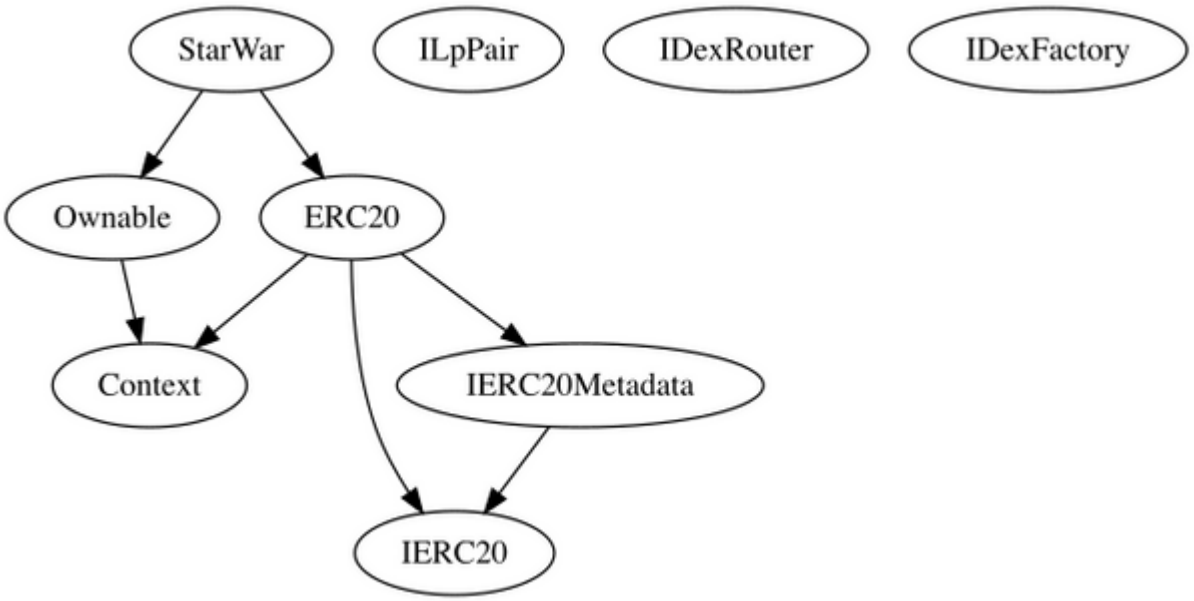
Contract	Type	Bases		
	Function Name	**Visibility**	**Mutability**	**Modifiers**
Context	Implementation			
	_msgSender	Internal		
	_msgData	Internal		
IERC20	Interface			
	totalSupply	External		-
	balanceOf	External		-
	transfer	External	✓	-
	allowance	External		-
	approve	External	✓	-
	transferFrom	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	✓	
	_createInitialSupply	Internal	✓	
	_approve	Internal	✓	
Ownable	Implementation	Context		
		Public	✓	-
	owner	Public		-
	renounceOwnership	External	✓	onlyOwner
	transferOwnership	Public	✓	onlyOwner
ILpPair	Interface			
	sync	External	✓	-
IDexRouter	Interface			
	factory	External		-
	WETH	External		-
	swapExactTokensForETHSupportingFeeOnTransferTokens	External	✓	-
	swapExactETHForTokensSupportingFeeOnTransferTokens	External	Payable	-
	swapExactTokensForTokensSupportingFeeOnTransferTokens	External	✓	-
	addLiquidityETH	External	Payable	-

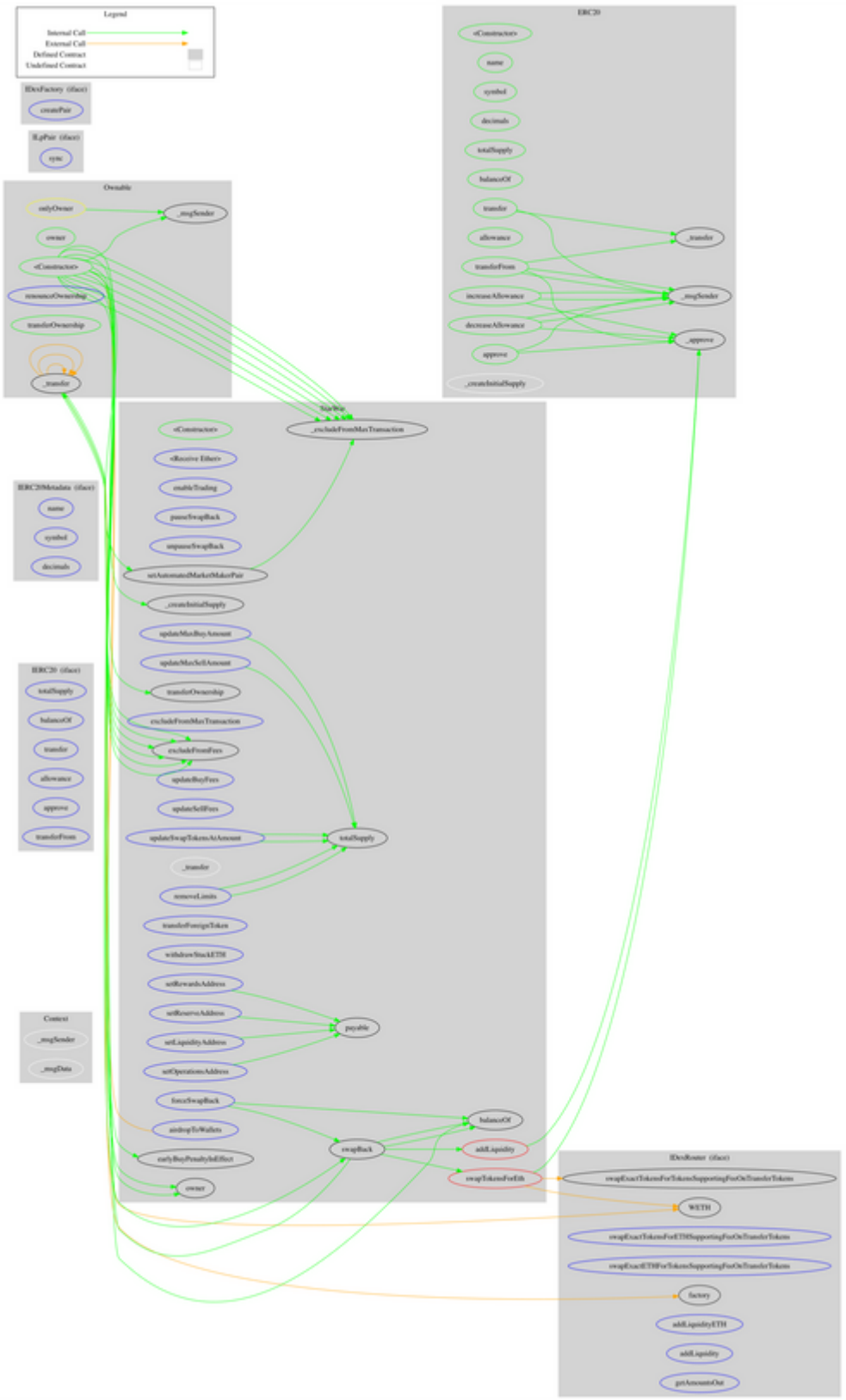
	addLiquidity	External	✓	-
	getAmountsOut	External		-
IDexFactory	Interface			
	createPair	External	✓	-
StarWar	Implementation	ERC20, Ownable		
		Public	✓	ERC20
		External	Payable	-
	enableTrading	External	✓	onlyOwner
	pauseSwapBack	External	✓	onlyOwner
	unpauseSwapBack	External	✓	onlyOwner
	removeLimits	External	✓	onlyOwner
	updateMaxBuyAmount	External	✓	onlyOwner
	updateMaxSellAmount	External	✓	onlyOwner
	updateSwapTokensAtAmount	External	✓	onlyOwner
	_excludeFromMaxTransaction	Private	✓	
	airdropToWallets	External	✓	onlyOwner
	excludeFromMaxTransaction	External	✓	onlyOwner
	setAutomatedMarketMakerPair	Public	✓	onlyOwner
	updateBuyFees	External	✓	onlyOwner
	updateSellFees	External	✓	onlyOwner
	excludeFromFees	Public	✓	onlyOwner
	_transfer	Internal	✓	
	earlyBuyPenaltyInEffect	Public		-
	swapTokensForEth	Private	✓	
	addLiquidity	Private	✓	
	swapBack	Private	✓	
	transferForeignToken	External	✓	onlyOwner

	withdrawStuckETH	External	✓	onlyOwner
	setOperationsAddress	External	✓	onlyOwner
	setRewardsAddress	External	✓	onlyOwner
	setReserveAddress	External	✓	onlyOwner
	setLiquidityAddress	External	✓	onlyOwner
	forceSwapBack	External	✓	onlyOwner

Inheritance Graph



Flow Graph


Legend
Internal Call
External Call
Defined Contract
Undefined Contract
IDexFactory (iface)
createPair
ILpPair (iface)
sync
Ownable
onlyOwner
_msgSender
owner
<Constructor>
renounceOwnership
transferOwnership
_transfer
ERC20
<Constructor>
name
symbol
decimals
totalSupply
balanceOf
transfer
allowance
transferFrom
increaseAllowance
decreaseAllowance
approve
_createInitialSupply
_transfer
_msgSender
_approve
StarWar
_excludeFromMaxTransaction
<Constructor>
<Receive Ether>
enableTrading
pauseSwapBack
unpauseSwapBack
setAutomatedMarketMakerPair
_createInitialSupply
updateMaxBuyAmount
updateMaxSellAmount
transferOwnership
excludeFromMaxTransaction
excludeFromFees
updateBuyFees
updateSellFees
updateSwapTokensAtAmount
totalSupply
_transfer
removeLimits
transferForeignToken
withdrawStuckETH
setRewardsAddress
setReserveAddress
payable
setLiquidityAddress
setOperationsAddress
forceSwapBack
balanceOf
airdropToWallets
swapBack
addLiquidity
earlyBuyPenaltyInEffect
swapTokensForEth
owner
IERC20Metadata (iface)
name
symbol
decimals
IERC20 (iface)
totalSupply
balanceOf
transfer
allowance
approve
transferFrom
Context
_msgSender
_msgData
IDexRouter (iface)
swapExactTokensForTokensSupportingFeeOnTransferTokens
WETH
swapExactTokensForETHSupportingFeeOnTransferTokens
swapExactETHForTokensSupportingFeeOnTransferTokens
factory
addLiquidityETH
addLiquidity
getAmountsOut

Summary

There are some functions that can be abused by the owner like stop transactions and massively blacklist addresses. A multi-wallet signing pattern will provide security against potential hacks. Temporarily locking the contract or renouncing ownership will eliminate all the contract threats. There is also a limit of max 20% fee is sales and 2% is bought.

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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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