



Cyberscope

Audit Report

Mega Yacht Cult

May 2024

Network ETH

Address 0xD939212F16560447ED82ce46cA40A63DB62419B5

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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
●	RHO	Redundant Hook Override	Unresolved
●	L04	Conformance to Solidity Naming Conventions	Unresolved
●	L05	Unused State Variable	Unresolved
●	L09	Dead Code Elimination	Unresolved
●	L15	Local Scope Variable Shadowing	Unresolved
●	L16	Validate Variable Setters	Unresolved
●	L18	Multiple Pragma Directives	Unresolved
●	L19	Stable Compiler Version	Unresolved

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Review

Contract Name	MegaYachtCult
Compiler Version	v0.8.0+commit.c7dfd78e
Optimization	200 runs
Explorer	https://etherscan.io/address/0xd939212f16560447ed82ce46ca40a63db62419b5
Address	0xd939212f16560447ed82ce46ca40a63db62419b5
Network	ETH
Symbol	MYC
Decimals	18
Total Supply	100,000,000,000
Badge Eligibility	Yes

Audit Updates

Initial Audit	08 May 2024
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Source Files

Filename	SHA256
MegaYachtCult.sol	c9cc20bfb8b3698f52d94d27d6c21fb5ce0450069a33a0ebd571fff25802de23

Findings Breakdown



Critical	0
Medium	0
Minor / Informative	8

Severity	Unresolved	Acknowledged	Resolved	Other
Critical	0	0	0	0
Medium	0	0	0	0
Minor / Informative	8	0	0	0

RHO - Redundant Hook Override

Criticality	Minor / Informative
Location	MegaYachtCult.sol#L622
Status	Unresolved

Description

The contract overrides the `_beforeTokenTransfer` function inherited from the ERC20 standard but does not introduce any new logic or checks within this override. This unnecessary override leads to increased complexity and potential confusion about the contract's behavior, as it suggests the possibility of transfer restrictions or additional logic that does not actually exist.

```
function _beforeTokenTransfer(  
    address from,  
    address to,  
    uint256 amount  
) override internal virtual {  
  
}
```

Recommendation

It is recommended to remove the override of the `_beforeTokenTransfer` function, if there is no intention to modify token transfer conditions, in order to simplify the contract's codebase.

L04 - Conformance to Solidity Naming Conventions

Criticality	Minor / Informative
Location	MegaYachtCult.sol#L615
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 setRule(bool _limited, address _uniswapV2Pair, uint256
_maxHoldingAmount, uint256 _minHoldingAmount) external
onlyOwner {
    limited = _limited;
    uniswapV2Pair = _uniswapV2Pair;
    maxHoldingAmount = _maxHoldingAmount;
    minHoldingAmount = _minHoldingAmount;
}
```


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>.

L05 - Unused State Variable

Criticality	Minor / Informative
Location	MegaYachtCult.sol#L606,607,608,615
Status	Unresolved

Description

An unused state variable is a state variable that is declared in the contract, but is never used in any of the contract's functions. This can happen if the state variable was originally intended to be used, but was later removed or never used.

Unused state variables can create clutter in the contract and make it more difficult to understand and maintain. They can also increase the size of the contract and the cost of deploying and interacting with it.

```
bool public limited;
uint256 public maxHoldingAmount;
uint256 public minHoldingAmount;

function setRule(bool _limited, address _uniswapV2Pair, uint256
_maxHoldingAmount, uint256 _minHoldingAmount) external
onlyOwner {
    limited = _limited;
    uniswapV2Pair = _uniswapV2Pair;
    maxHoldingAmount = _maxHoldingAmount;
    minHoldingAmount = _minHoldingAmount;
}
```

Recommendation

To avoid creating unused state variables, it's important to carefully consider the state variables that are needed for the contract's functionality, and to remove any that are no longer needed. This can help improve the clarity and efficiency of the contract.

L09 - Dead Code Elimination

Criticality	Minor / Informative
Location	MegaYachtCult.sol#L518,574
Status	Unresolved

Description

In Solidity, dead code is code that is written in the contract, but is never executed or reached during normal contract execution. Dead code can occur for a variety of reasons, such as:

- Conditional statements that are always false.
- Functions that are never called.
- Unreachable code (e.g., code that follows a return statement).

Dead code can make a contract more difficult to understand and maintain, and can also increase the size of the contract and the cost of deploying and interacting with it.

```
function _burn(address account, uint256 amount) internal
virtual {
    require(account != address(0), "ERC20: burn from the
zero address");

    _beforeTokenTransfer(account, address(0), amount);

    uint256 accountBalance = _balances[account];
    require(accountBalance >= amount, "ERC20: burn amount
exceeds balance");
    unchecked {
        _balances[account] = accountBalance - amount;
    }
    _totalSupply -= amount;

    emit Transfer(account, address(0), amount);

    _afterTokenTransfer(account, address(0), amount);
}

...
```

Recommendation

To avoid creating dead code, it's important to carefully consider the logic and flow of the contract and to remove any code that is not needed or that is never executed. This can help improve the clarity and efficiency of the contract.

L15 - Local Scope Variable Shadowing

Criticality	Minor / Informative
Location	MegaYachtCult.sol#L611
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
```

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.

L16 - Validate Variable Setters

Criticality	Minor / Informative
Location	MegaYachtCult.sol#L617
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.

```
uniswapV2Pair = _uniswapV2Pair;
```

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.

L18 - Multiple Pragma Directives

Criticality	Minor / Informative
Location	MegaYachtCult.sol#L23,51,129,215,245,598
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 ^0.8.0;
```

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	MegaYachtCult.sol#L27,55,133,219,249,602
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.

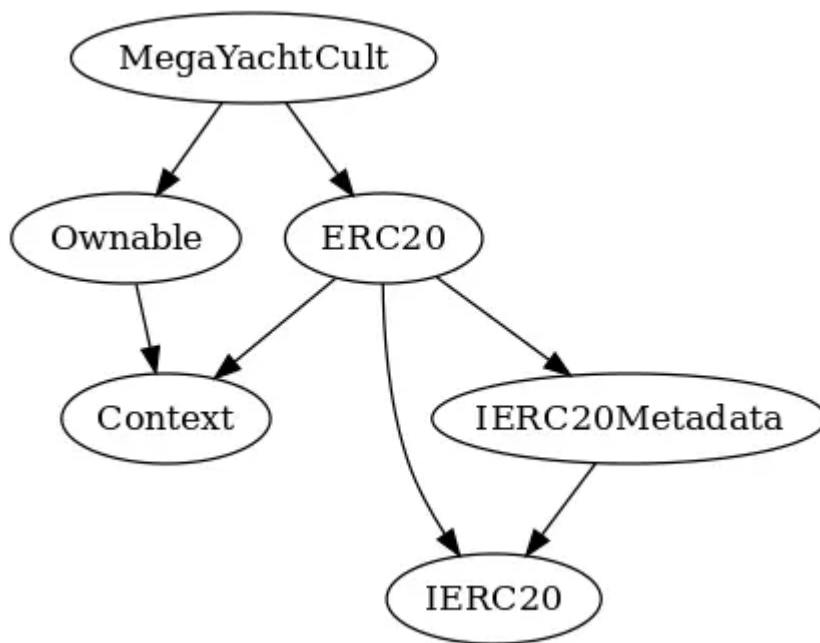
Functions Analysis

Contract	Type	Bases		
	Function Name	Visibility	Mutability	Modifiers
Context	Implementation			
	_msgSender	Internal		
	_msgData	Internal		
Ownable	Implementation	Context		
		Public	✓	-
	owner	Public		-
	renounceOwnership	Public	✓	onlyOwner
	transferOwnership	Public	✓	onlyOwner
	_transferOwnership	Internal	✓	
IERC20	Interface			
	totalSupply	External		-
	balanceOf	External		-
	transfer	External	✓	-
	allowance	External		-
	approve	External	✓	-
	transferFrom	External	✓	-

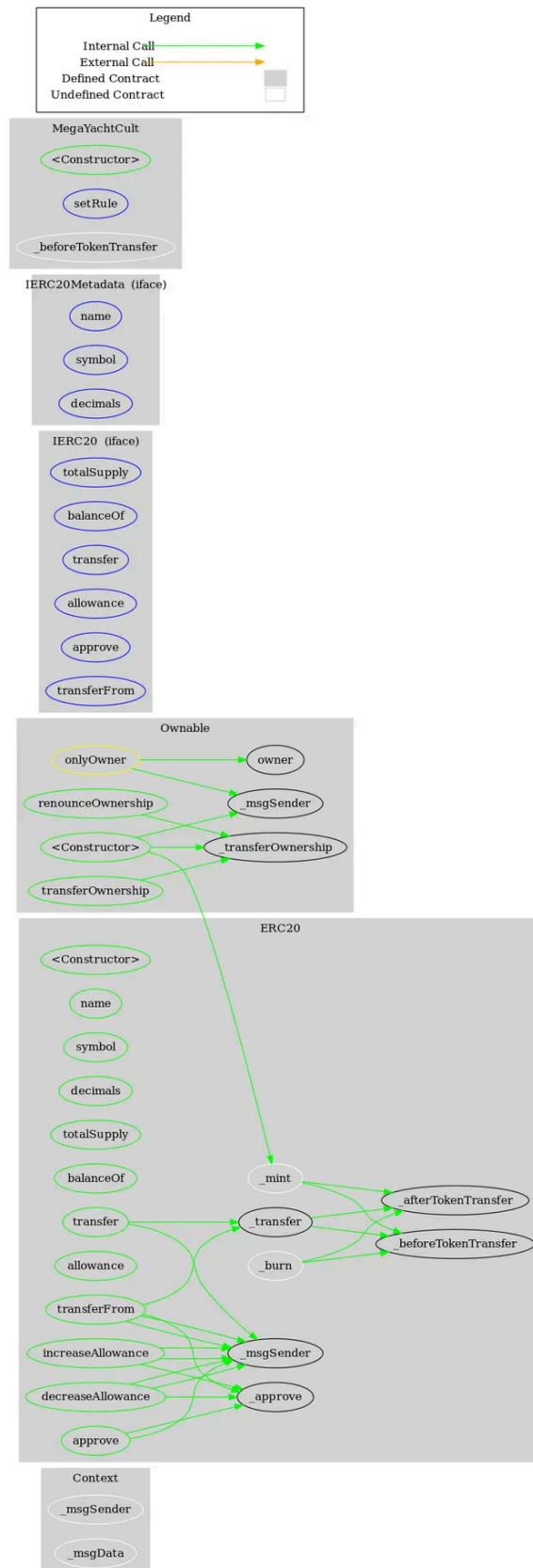
IERC20Metadata	Interface	IERC20		
	name	External		-
	symbol	External		-
	decimals	External		-
ERC20	Implementation	Context, IERC20, IERC20Meta data		
		Public	✓	-
	name	Public		-
	symbol	Public		-
	decimals	Public		-
	totalSupply	Public		-
	balanceOf	Public		-
	transfer	Public	✓	-
	allowance	Public		-
	approve	Public	✓	-
	transferFrom	Public	✓	-
	increaseAllowance	Public	✓	-
	decreaseAllowance	Public	✓	-
	_transfer	Internal	✓	
	_mint	Internal	✓	
	_burn	Internal	✓	
	_approve	Internal	✓	

	_beforeTokenTransfer	Internal	✓	
	_afterTokenTransfer	Internal	✓	
MegaYachtCult	Implementation	Ownable, ERC20		
		Public	✓	ERC20
	setRule	External	✓	onlyOwner
	_beforeTokenTransfer	Internal	✓	

Inheritance Graph



Flow Graph



Summary

Mega Yacht Cult contract implements a token mechanism. This audit investigates security issues, business logic concerns and potential improvements. Mega Yacht Cult 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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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

<https://www.cyberscope.io>