



# Smart Contract Audit

FOR

## MetaBot

DATED : 08 October 23'



# AUDIT SUMMARY

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**Project name –** MetaBot

**Date:** 08 October 2023

**Scope of Audit-** Audit Ace was consulted to conduct the smart contract audit of the solidity source codes.

**Audit Status:** **Passed**

## Issues Found

Status	Critical	High	Medium	Low	Suggestion
Open	0	0	0	0	1
Acknowledged	0	0	0	0	0
Resolved	0	0	0	0	0

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# USED TOOLS

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## Tools:

### 1- Manual Review:

A line by line code review has been performed by audit ace team.

**2- BSC Test Network:** All tests were conducted on the BSC Test network, and each test has a corresponding transaction attached to it. These tests can be found in the "Functional Tests" section of the report.

### 3- Slither :

The code has undergone static analysis using Slither.

### Testnet version:

The tests were performed using the contract deployed on the BSC Testnet, which can be found at the following address:

<https://testnet.bscscan.com/token/0x5348614Ff37DD3A430e0d46A257e02494d70271D>

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# Token Information

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**Token Address :**

0x653E54aCddEa5a0E0e59668e515343bDEC8D86e9

**Name:** MetaBot

**Symbol:** MetaBot

**Decimals:** 18

**Network:** Binance smart chain

**Token Type:** BEP20

**Owner:** 0x14841ECb261967a70f1078f6F77668864115970E

**Deployer:** 0x14841ECb261967a70f1078f6F77668864115970E

**Token Supply:** 100,000,000

**Checksum:**

f1c3cb841514c1aadcf11d34d03046b96b491056

**Testnet version:**

The tests were performed using the contract deployed on the BSC Testnet, which can be found at the following address:  
<https://testnet.bscscan.com/token/0x5348614Ff37DD3A430e0d46A257e02494d70271D>

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# TOKEN OVERVIEW

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**buy fee:** 0-10%

**Sell fee:** 0-10%

**transfer fee:** 0%

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**Fee Privilege:** Owner

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**Ownership:** Owned

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**Minting:** None

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**Max Tx:** No

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**Blacklist:** No

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**Other Privileges:**

- Initial distribution of the tokens
  - Modifying fees
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# AUDIT METHODOLOGY

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The auditing process will follow a routine as special considerations by Auditace:

- Review of the specifications, sources, and instructions provided to Auditace to make sure the contract logic meets the intentions of the client without exposing the user's funds to risk.
  - Manual review of the entire codebase by our experts, which is the process of reading source code line-by-line in an attempt to identify potential vulnerabilities.
  - Specification comparison is the process of checking whether the code does what the specifications, sources, and instructions provided to Auditace describe.
  - Test coverage analysis determines whether the test cases are covering the code and how much code is exercised when we run the test cases.
  - Symbolic execution is analysing a program to determine what inputs cause each part of a program to execute.
  - Reviewing the codebase to improve maintainability, security, and control based on the established industry and academic practices.
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# VULNERABILITY CHECKLIST

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- |                                    |                               |
|------------------------------------|-------------------------------|
| ✓ Return values of low-level calls | ✓ Gasless Send                |
| ✓ Private modifier                 | ✓ Using block.timestamp       |
| ✓ Multiple Sends                   | ✓ Re-entrancy                 |
| ✓ Using Suicide                    | ✓ Tautology or contradiction  |
| ✓ Gas Limitand Loops               | ✓ Timestamp Dependence        |
| ✓ Address hardcoded                | ✓ Revert/require functions    |
| ✓ Exception Disorder               | ✓ Use of tx.origin            |
| ✓ Using inline assembly            | ✓ Integer overflow/underflow  |
| ✓ Divide before multiply           | ✓ Dangerous strict equalities |
| ✓ Missing Zero Address Validation  | ✓ Using SHA3                  |
| ✓ Compiler version not fixed       | ✓ Using throw                 |
-

# CLASSIFICATION OF RISK

## Severity

## Description

### ◆ Critical

These vulnerabilities could be exploited easily and can lead to asset loss, data loss, asset, or data manipulation. They should be fixed right away.

### ◆ High-Risk

A vulnerability that affects the desired outcome when using a contract, or provides the opportunity to use a contract in an unintended way.

### ◆ Medium-Risk

A vulnerability that could affect the desired outcome of executing the contract in a specific scenario.

### ◆ Low-Risk

A vulnerability that does not have a significant impact on possible scenarios for the use of the contract and is probably subjective.

### ◆ Gas Optimization /Suggestion

A vulnerability that has an informational character but is not affecting any of the code.

## Findings

### Severity

### Found

#### ◆ Critical

0

#### ◆ High-Risk

0

#### ◆ Medium-Risk

0

#### ◆ Low-Risk

0

#### ◆ Gas Optimization / Suggestions

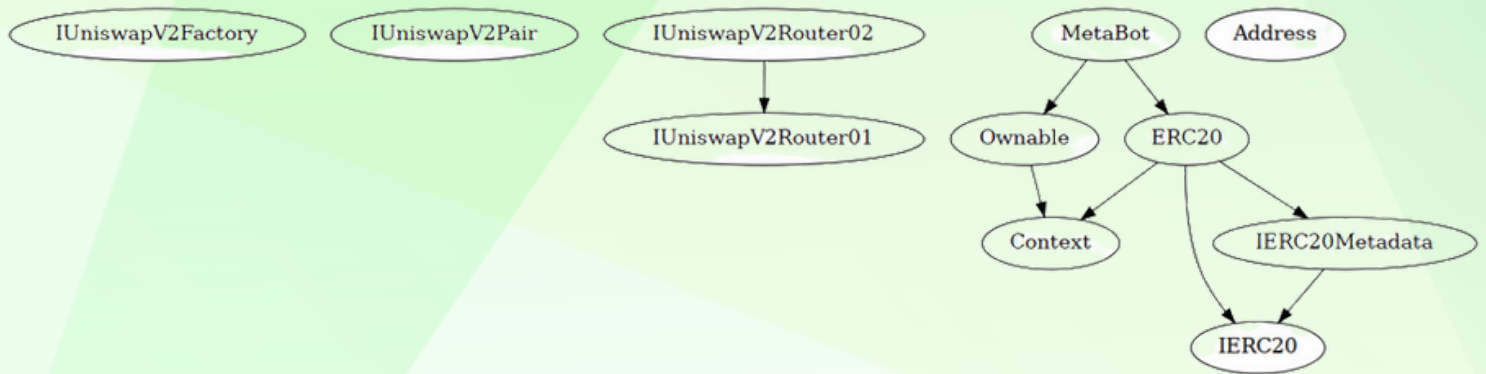
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# INHERITANCE TREE

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# POINTS TO NOTE

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- **Sum of total buy and sell fees is always less than 10%**
  - **Owner is not able to adjust transfer fees**
  - Owner is not able to blacklist an arbitrary wallet
  - Owner is not able to disable trades
  - Owner is not able to mint new tokens
  - Owner is not able to set maximum wallet and maximum buy/sell/transfer limits
-



# STATIC ANALYSIS

```
INFO:Detectors:
Pragma version^0.8.17 (contracts/Token.sol#7) allows old versions
solc-0.8.17 is not recommended for deployment
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#incorrect-versions-of-solidity
INFO:Detectors:
Low level call in Address.sendValue(address,uint256) (contracts/Token.sol#425-436):
- (success) = recipient.call{value: amount}() (contracts/Token.sol#431)
Low level call in Address.functionCallWithValue(address,bytes,uint256,string) (contracts/Token.sol#514-534):
- (success,returndata) = target.call{value: value}(data) (contracts/Token.sol#524-526)
Low level call in Address.functionStaticCall(address,bytes,string) (contracts/Token.sol#560-573):
- (success,returndata) = target.staticcall(data) (contracts/Token.sol#565)
Low level call in Address.functionDelegateCall(address,bytes,string) (contracts/Token.sol#599-612):
- (success,returndata) = target.delegatecall(data) (contracts/Token.sol#604)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#low-level-calls
INFO:Detectors:
Function IUniswapV2Pair.DOMAIN_SEPARATOR() (contracts/Token.sol#69) is not in mixedCase
Function IUniswapV2Pair.PERMIT_TYPEHASH() (contracts/Token.sol#71) is not in mixedCase
Function IUniswapV2Pair.MINIMUM_LIQUIDITY() (contracts/Token.sol#102) is not in mixedCase
Function IUniswapV2Router01.WETH() (contracts/Token.sol#142) is not in mixedCase
Event MetaBot.botDevWalletChanged(address) (contracts/Token.sol#938) is not in CapWords
Parameter MetaBot.updateBuyFees(uint256,uint256)._marketingFeeOnBuy (contracts/Token.sol#1029) is not in mixedCase
Parameter MetaBot.updateBuyFees(uint256,uint256)._botDevFeeOnBuy (contracts/Token.sol#1030) is not in mixedCase
Parameter MetaBot.updateSellFees(uint256,uint256)._marketingFeeOnSell (contracts/Token.sol#1046) is not in mixedCase
Parameter MetaBot.updateSellFees(uint256,uint256)._botDevFeeOnSell (contracts/Token.sol#1047) is not in mixedCase
Parameter MetaBot.changeMarketingWallet(address)._marketingWallet (contracts/Token.sol#1063) is not in mixedCase
Parameter MetaBot.changeBotDevWallet(address)._botDevWallet (contracts/Token.sol#1078) is not in mixedCase
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#conformance-to-solidity-naming-conventions
INFO:Detectors:
Redundant expression "this (contracts/Token.sol#680)" inContext (contracts/Token.sol#674-683)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#redundant-statements
INFO:Detectors:
Variable IUniswapV2Router01.addLiquidity(address,address,uint256,uint256,uint256,uint256,address,uint256).amountADesired (contracts/Token.sol#147) is too similar to IUniswapV2Router01.addLiquidity(address,address,uint256,uint256,uint256,uint256,address,uint256).amountBDesired (contracts/Token.sol#148)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#variable-names-too-similar
INFO:Detectors:
MetaBot.maxFee (contracts/Token.sol#928) should be immutable
MetaBot.uniswapV2Pair (contracts/Token.sol#915) should be immutable
MetaBot.uniswapV2Router (contracts/Token.sol#914) should be immutable
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#state-variables-that-could-be-declared-immutable
INFO:Slither:./contracts/Token.sol analyzed (11 contracts with 88 detectors), 43 result(s) found
```

**Result => A static analysis of contract's source code has been performed using slither,**

**No major issues were found in the output**



# CONTRACT ASSESMENT

```
| Contract|      Type      |Bases |      |      |
|:-----:|:-----:|:-----:|:-----:|:-----:|
|  └─ **Function Name** |**Visibility** | **Mutability** |**Modifiers** |
|||||
| **IUniswapV2Factory** | Interface | |||
|  └─ feeTo | External ! | |NO ! |
|  └─ feeToSetter | External ! | |NO ! |
|  └─ getPair | External ! | |NO ! |
|  └─ allPairs | External ! | |NO ! |
|  └─ allPairsLength | External ! | |NO ! |
|  └─ createPair | External ! | ●|NO ! |
|  └─ setFeeTo | External ! | ●|NO ! |
|  └─ setFeeToSetter | External ! | ●|NO ! |
|||||
| **IUniswapV2Pair** | Interface | |||
|  └─ name | External ! | |NO ! |
|  └─ symbol | External ! | |NO ! |
|  └─ decimals | External ! | |NO ! |
|  └─ totalSupply | External ! | |NO ! |
|  └─ balanceOf | External ! | |NO ! |
|  └─ allowance | External ! | |NO ! |
|  └─ approve | External ! | ●|NO ! |
|  └─ transfer | External ! | ●|NO ! |
|  └─ transferFrom | External ! | ●|NO ! |
|  └─ DOMAIN_SEPARATOR | External ! | |NO ! |
|  └─ PERMIT_TYPEHASH | External ! | |NO ! |
|  └─ nonces | External ! | |NO ! |
|  └─ permit | External ! | ●|NO ! |
|  └─ MINIMUM_LIQUIDITY | External ! | |NO ! |
|  └─ factory | External ! | |NO ! |
|  └─ token0 | External ! | |NO ! |
|  └─ token1 | External ! | |NO ! |
|  └─ getReserves | External ! | |NO ! |
|  └─ price0CumulativeLast | External ! ||NO ! |
|  └─ price1CumulativeLast | External ! ||NO ! |
|  └─ kLast | External ! | |NO ! |
|  └─ mint | External ! | ●|NO ! |
|  └─ burn | External ! | ●|NO ! |
```



# CONTRACT ASSESMENT

```
|  | swap | External ! | ● | NO ! |
|  | skim | External ! | ● | NO ! |
|  | sync | External ! | ● | NO ! |
|  | initialize | External ! | ● | NO ! |
|||||
| **IUniswapV2Router01** | Interface | |||
|  | factory | External ! | | NO ! |
|  | WETH | External ! | | NO ! |
|  | addLiquidity | External ! | ● | NO ! |
|  | addLiquidityETH | External ! | 💵 | NO ! |
|  | removeLiquidity | External ! | ● | NO ! |
|  | removeLiquidityETH | External ! | ● | NO ! |
|  | removeLiquidityWithPermit | External ! | ● | NO ! |
|  | removeLiquidityETHWithPermit | External ! | ● | NO ! |
|  | swapExactTokensForTokens | External ! | ● | NO ! |
|  | swapTokensForExactTokens | External ! | ● | NO ! |
|  | swapExactETHForTokens | External ! | 💵 | NO ! |
|  | swapTokensForExactETH | External ! | ● | NO ! |
|  | swapExactTokensForETH | External ! | ● | NO ! |
|  | swapETHForExactTokens | External ! | 💵 | NO ! |
|  | quote | External ! | | NO ! |
|  | getAmountOut | External ! | | NO ! |
|  | getAmountIn | External ! | | NO ! |
|  | getAmountsOut | External ! | | NO ! |
|  | getAmountsIn | External ! | | NO ! |
|||||
| **IUniswapV2Router02** | Interface | IUniswapV2Router01 |||
|  | removeLiquidityETHSupportingFeeOnTransferTokens | External ! | ● | NO ! |
|  | removeLiquidityETHWithPermitSupportingFeeOnTransferTokens | External ! | ● | NO ! |
|  | swapExactTokensForTokensSupportingFeeOnTransferTokens | External ! | ● | NO ! |
|  | swapExactETHForTokensSupportingFeeOnTransferTokens | External ! | 💵 | NO ! |
|  | swapExactTokensForETHSupportingFeeOnTransferTokens | External ! | ● | NO ! |
|||||
| **IERC20** | Interface | |||
|  | totalSupply | External ! | | NO ! |
|  | balanceOf | External ! | | NO ! |
|  | transfer | External ! | ● | NO ! |
|  | allowance | External ! | | NO ! |
|  | approve | External ! | ● | NO ! |
|  | transferFrom | External ! | ● | NO ! |
```



# CONTRACT ASSESMENT

|||||

| **\*\*IERC20Metadata\*\*** | Interface | IERC20 |||

|   └ | name | External ! | | NO ! |

|   └ | symbol | External ! | | NO ! |

|   └ | decimals | External ! | | NO ! |

|||||

| **\*\*Address\*\*** | Library | |||

|   └ | isContract | Internal 🔒 | | |

|   └ | sendValue | Internal 🔒 | ● | |

|   └ | functionCall | Internal 🔒 | ● | |

|   └ | functionCall | Internal 🔒 | ● | |

|   └ | functionCallWithValue | Internal 🔒 | ● | |

|   └ | functionCallWithValue | Internal 🔒 | ● | |

|   └ | functionStaticCall | Internal 🔒 | | |

|   └ | functionStaticCall | Internal 🔒 | | |

|   └ | functionDelegateCall | Internal 🔒 | ● | |

|   └ | functionDelegateCall | Internal 🔒 | ● | |

|   └ | verifyCallResultFromTarget | Internal 🔒 | | |

|   └ | verifyCallResult | Internal 🔒 | | |

|   └ | \_revert | Private 🔒 | | |

|||||

| **\*\*Context\*\*** | Implementation | |||

|   └ | \_msgSender | Internal 🔒 | | |

|   └ | \_msgData | Internal 🔒 | | |

|||||

| **\*\*Ownable\*\*** | Implementation | Context |||

|   └ | <Constructor> | Public ! | ● | NO ! |

|   └ | owner | Public ! | | NO ! |

|   └ | renounceOwnership | Public ! | ● | onlyOwner |

|   └ | transferOwnership | Public ! | ● | onlyOwner |

|||||

| **\*\*ERC20\*\*** | Implementation | Context, IERC20, IERC20Metadata |||

|   └ | <Constructor> | Public ! | ● | NO ! |

|   └ | name | Public ! | | NO ! |

|   └ | symbol | Public ! | | NO ! |

|   └ | decimals | Public ! | | NO ! |

|   └ | totalSupply | Public ! | | NO ! |

|   └ | balanceOf | Public ! | | NO ! |

|   └ | transfer | Public ! | ● | NO ! |

|   └ | allowance | Public ! | | NO ! |

|   └ | approve | Public ! | ● | NO ! |

|   └ | transferFrom | Public ! | ● | NO ! |

|   └ | increaseAllowance | Public ! | ● | NO ! |

|   └ | decreaseAllowance | Public ! | ● | NO ! |

|   └ | \_transfer | Internal 🔒 | ● | |

|   └ | \_mint | Internal 🔒 | ● | |



# CONTRACT ASSESMENT

```
|  ↳ | _burn | Internal 🔒 | 🔴 | |
|  ↳ | _approve | Internal 🔒 | 🔴 | |
|  ↳ | _beforeTokenTransfer | Internal 🔒 | 🔴 | |
|  ↳ | _afterTokenTransfer | Internal 🔒 | 🔴 | |
|||||
| **MetaBot** | Implementation | ERC20, Ownable |||
|  ↳ | <Constructor> | Public ! | 🔴 | ERC20 |
|  ↳ | <Receive Ether> | External ! | 💵 | NO ! |
|  ↳ | claimStuckTokens | External ! | 🔴 | onlyOwner |
|  ↳ | excludeFromFees | External ! | 🔴 | onlyOwner |
|  ↳ | isExcludedFromFees | Public ! | | NO ! |
|  ↳ | updateBuyFees | Public ! | 🔴 | onlyOwner |
|  ↳ | updateSellFees | Public ! | 🔴 | onlyOwner |
|  ↳ | changeMarketingWallet | External ! | 🔴 | onlyOwner |
|  ↳ | changebotDevWallet | External ! | 🔴 | onlyOwner |
|  ↳ | _transfer | Internal 🔒 | 🔴 | |
|  ↳ | setSwapTokensAtAmount | External ! | 🔴 | onlyOwner |
|  ↳ | swapAndSendMarketing | Private 🔒 | 🔴 | |
|  ↳ | swapAndSendbotDev | Private 🔒 | 🔴 | |
```

### Legend

- | Symbol | Meaning |
- | :-----: | ----- |
- | 🔴 | Function can modify state |
- | 💵 | Function is payable |



# FUNCTIONAL TESTING

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## 1- Adding liquidity (**passed**):

<https://testnet.bscscan.com/tx/0x2e92bbf989af690dd8102874ab7d5b98c31a68725fba612f3f249ac8a1a48c27>

## 2- Buying when excluded (0% tax) (**passed**):

<https://testnet.bscscan.com/tx/0x1c38bd7d7ba9dc1bd3474ed16e5466262e1dc94ed6696f802516b2e8a1f740ce>

## 3- Selling when excluded (0% tax) (**passed**):

<https://testnet.bscscan.com/tx/0x4f4785c3e5382363100a66b9eeab89b2871ac65236a12473abce58a1a884ca5b>

## 4- Transferring when excluded from fees (0% tax) (**passed**):

<https://testnet.bscscan.com/tx/0xa2cd46311da04f36e940af71d6685aae13e3b5360fafc005204048ca38851a6f>

## 5- Buying when not excluded from fees (tax 0-10%) (**passed**):

<https://testnet.bscscan.com/tx/0x55ae91f68d41212206672a2f3b495c972b88dde89ecb2c9a5e4cf4c933ce7008>

## 6- Selling when not excluded from fees (tax 0-10%) (**passed**):

<https://testnet.bscscan.com/tx/0xf32880cef5e12913827b317964dd610ca61d71ea42382b008a54d5fa5695b337>

## 7- Transferring when not excluded from fees (0% tax ) (**passed**):

<https://testnet.bscscan.com/tx/0xd771fede0c2c7b5cf22f84a828ba2bc7d10f63b95ee3f3418a4ef542c50cbb75>

## 8- Internal swap (BNB set to marketing and bot wallet) (**passed**):

<https://testnet.bscscan.com/tx/0xf32880cef5e12913827b317964dd610ca61d71ea42382b008a54d5fa5695b337>

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# MANUAL TESTING

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## Logical – Setting fee receiver to BNB rejector

**Severity:** Informational

**function:** sendValue

**Status:** Open

**Overview:**

If marketingWallet or botDevWallet are set to a contract that rejects receiving BNB during an internal swap, the transaction will be failed

```
function sendValue(address payable recipient, uint256 amount) internal {
    require(
        address(this).balance >= amount,
        "Address: insufficient balance"
    );

    (bool success, ) = recipient.call{value: amount}("");
    require(
        success,
        "Address: unable to send value, recipient may have reverted"
    );
}
```

BNB rejector example:

```
contract rejector {
    receive() external payable{
        revert();
    }
}
```

**Suggestion**

Ignore “success” variable, this means transaction will not be reverted even if calls to one of this addresses failed

```
function sendValue(address payable recipient, uint256 amount) internal {
    require(
        address(this).balance >= amount,
        "Address: insufficient balance"
    );

    (bool success, ) = recipient.call{value: amount}("")
}
```

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# DISCLAIMER

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# ABOUT AUDITACE

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We specialize in providing thorough and reliable audits for Web3 projects. With a team of experienced professionals, we use cutting-edge technology and rigorous methodologies to evaluate the security and integrity of blockchain systems. We are committed to helping our clients ensure the safety and transparency of their digital assets and transactions.



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