



MetaRaceverse Smart Contract Audit Report

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AUDITED DETAILS

Audited Project

Project name	Token ticker	Blockchain
MetaRaceverse	RACEVERSE	Binance Smart Chain

Addresses

Contract address	0xE3f0F6FAea683f10Ad5370637f8cE905e4D331ef
Contract deployer address	0xf04454B12151F59E406B569DBab325A18c46162D

Project Website

<https://www.metaraceverse.com/>

Codebase

<https://bscscan.com/address/0xE3f0F6FAea683f10Ad5370637f8cE905e4D331ef#code>

SUMMARY

MetaRaceverse -a play-to-earn spaceship racing game where players and participants own parts of the game. Buy, sell, collect your spaceships and race to victory!

Contract Summary

Documentation Quality

MetaRaceverse provides a very good documentation with standard of solidity base code.

- The technical description is provided clearly and structured and also dont have any high risk issue.

Code Quality

The Overall quality of the basecode is standard.

- Standard solidity basecode and rules are already followed by MetaRaceverse with the discovery of several low issues.

Test Coverage

Test coverage of the project is 100% (Through Codebase)

Audit Findings Summary

- SWC-101 | It is recommended to use vetted safe math libraries for arithmetic operations consistently on lines 194, 216, 241, 270, 271, 400, 431, 462, 472, 483, 511, 520, 526, 535, 542, 546, 566, 567, 569, 575, 576, 577, 584, 633 and 659.
- SWC-103 | Pragma statements can be allowed to float when a contract is intended on lines 7.
- SWC-110 | It is recommended to use of revert(), assert(), and require() in Solidity, and the new REVERT opcode in the EVM on lines 595, 596 and 660.
- SWC-120 | It is recommended to use external sources of randomness via oracles on lines 511 and 640.

CONCLUSION

We have audited the MetaRaceverse project released on January 2023 to discover issues and identify potential security vulnerabilities in MetaRaceverse Project. This process is used to find technical issues and security loopholes which might be found in the smart contract.

The security audit report provides a satisfactory result with some low-risk issues.

The issues found in the code on MetaRaceverse smart contract do not pose a considerable risk. The writing of the contract is close to the standard of writing contracts in general. The low-risk issues found are some arithmetic operation issues, a floating pragma is set, weak sources of randomness and out of bounds array access which the index access expression can cause an exception in case of the use of an invalid array index value.

AUDIT RESULT

Article	Category	Description	Result
Default Visibility	SWC-100 SWC-108	Functions and state variables visibility should be set explicitly. Visibility levels should be specified consciously.	PASS
Integer Overflow and Underflow	SWC-101	If unchecked math is used, all math operations should be safe from overflows and underflows.	ISSUE FOUND
Outdated Compiler Version	SWC-102	It is recommended to use a recent version of the Solidity compiler.	PASS
Floating Pragma	SWC-103	Contracts should be deployed with the same compiler version and flags that they have been tested thoroughly.	ISSUE FOUND
Unchecked Call Return Value	SWC-104	The return value of a message call should be checked.	PASS
SELFDESTRUCT Instruction	SWC-106	The contract should not be self-destructible while it has funds belonging to users.	PASS
Reentrancy	SWC-107	Check effect interaction pattern should be followed if the code performs recursive call.	PASS
Assert Violation	SWC-110	Properly functioning code should never reach a failing assert statement.	ISSUE FOUND
Deprecated Solidity Functions	SWC-111	Deprecated built-in functions should never be used.	PASS
Delegate call to Untrusted Callee	SWC-112	Delegate calls should only be allowed to trusted addresses.	PASS
DoS (Denial of Service)	SWC-113 SWC-128	Execution of the code should never be blocked by a specific contract state unless required.	PASS
Race Conditions	SWC-114	Race Conditions and Transactions Order Dependency should not be possible.	PASS

Authorization through tx.origin	SWC-115	tx.origin should not be used for authorization.	PASS
Block values as a proxy for time	SWC-116	Block numbers should not be used for time calculations.	PASS
Signature Unique ID	SWC-117 SWC-121 SWC-122	Signed messages should always have a unique id. A transaction hash should not be used as a unique id.	PASS
Shadowing State Variable	SWC-119	State variables should not be shadowed.	PASS
Weak Sources of Randomness	SWC-120	Random values should never be generated from Chain Attributes or be predictable.	ISSUE FOUND
Incorrect Inheritance Order	SWC-125	When inheriting multiple contracts, especially if they have identical functions, a developer should carefully specify inheritance in the correct order. The rule of thumb is to inherit contracts from more /general/ to more /specific/.	PASS

SMART CONTRACT ANALYSIS

Started	Sunday Jan 08 2023 16:29:52 GMT+0000 (Coordinated Universal Time)
Finished	Monday Jan 09 2023 07:12:32 GMT+0000 (Coordinated Universal Time)
Mode	Standard
Main Source File	MetaRaceverse.sol

Detected Issues

ID	Title	Severity	Status
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "+" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "+=" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "*" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "*" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "+" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "+" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "+" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "+" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "/" DISCOVERED	low	acknowledged

SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "/" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "*" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "/" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "/" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "*" DISCOVERED	low	acknowledged
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SWC-101	ARITHMETIC OPERATION "++" DISCOVERED	low	acknowledged
SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged
SWC-110	OUT OF BOUNDS ARRAY ACCESS	low	acknowledged
SWC-110	OUT OF BOUNDS ARRAY ACCESS	low	acknowledged
SWC-110	OUT OF BOUNDS ARRAY ACCESS	low	acknowledged
SWC-120	POTENTIAL USE OF "BLOCK.NUMBER" AS SOURCE OF RANDOMNESS.	low	acknowledged
SWC-120	POTENTIAL USE OF "BLOCK.NUMBER" AS SOURCE OF RANDOMNESS.	low	acknowledged

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 194

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- MetaRaceverse.sol

Locations

```
193     require(currentAllowance >= amount, "BEP20: transfer amount exceeds allowance");
194     _approve(sender, _msgSender(), currentAllowance - amount);
195
196     return true;
197 }
198
```

SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 216

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- MetaRaceverse.sol

Locations

```
215  {  
216  _approve(_msgSender(), spender, _allowances[_msgSender()][spender] + addedValue);  
217  return true;  
218  }  
219  
220
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 241

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- MetaRaceverse.sol

Locations

```
240     require(currentAllowance >= subtractedValue, "BEP20: decreased allowance below
zero");
241     _approve(_msgSender(), spender, currentAllowance - subtractedValue);
242
243     return true;
244 }
245
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 270

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- MetaRaceverse.sol

Locations

```
269     require(senderBalance >= amount, "BEP20: transfer amount exceeds balance");
270     _balances[sender] = senderBalance - amount;
271     _balances[recipient] += amount;
272
273     emit Transfer(sender, recipient, amount);
274
```

SWC-101 | ARITHMETIC OPERATION "+=" DISCOVERED

LINE 271

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- MetaRaceverse.sol

Locations

```
270  _balances[sender] = senderBalance - amount;  
271  _balances[recipient] += amount;  
272  
273  emit Transfer(sender, recipient, amount);  
274  }  
275
```

SWC-101 | ARITHMETIC OPERATION "*" DISCOVERED

LINE 400

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- MetaRaceverse.sol

Locations

```
399
400  uint256 public tokenLiquidityThreshold = 1e6 * 10**18;
401
402  uint256 public genesis_block;
403  uint256 private deadline = 3;
404
```

SWC-101 | ARITHMETIC OPERATION "*" DISCOVERED

LINE 431

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- MetaRaceverse.sol

Locations

```
430     constructor() BEP20("MetaRaceverse", "RACEVERSE") {  
431         _tokengeneration(msg.sender, 1e9 * 10**decimals());  
432         exemptFee[msg.sender] = true;  
433  
434         IRouter _router = IRouter(0x10ED43C718714eb63d5aA57B78B54704E256024E);  
435     }
```


SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 462

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- MetaRaceverse.sol

Locations

```
461     require(currentAllowance >= amount, "BEP20: transfer amount exceeds allowance");
462     _approve(sender, _msgSender(), currentAllowance - amount);
463
464     return true;
465 }
466
```

SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 472

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- MetaRaceverse.sol

Locations

```
471  {  
472  _approve(_msgSender(), spender, _allowances[_msgSender()][spender] + addedValue);  
473  return true;  
474  }  
475  
476
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 483

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- MetaRaceverse.sol

Locations

```
482     require(currentAllowance >= subtractedValue, "BEP20: decreased allowance below
zero");
483     _approve(_msgSender(), spender, currentAllowance - subtractedValue);
484
485     return true;
486 }
487
```

SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 511

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- MetaRaceverse.sol

Locations

```
510     !exemptFee[recipient] &&  
511     block.number < genesis_block + deadline;  
512  
513     //set fee to zero if fees in contract are handled or exempted  
514     if (_interlock || exemptFee[sender] || exemptFee[recipient])  
515
```

SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 520

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- MetaRaceverse.sol

Locations

```
519     feeswap =  
520     sellTaxes.liquidity +  
521     sellTaxes.marketing;  
522     feesum = feeswap;  
523     currentTaxes = sellTaxes;  
524
```

SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 526

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- MetaRaceverse.sol

Locations

```
525     feeswap =  
526     taxes.liquidity +  
527     taxes.marketing;  
528     feesum = feeswap;  
529     currentTaxes = taxes;  
530
```

SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 535

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- MetaRaceverse.sol

Locations

```
534
535     fee = (amount * feesum) / 100;
536
537     //send fees if threshold has been reached
538     //don't do this on buys, breaks swap
539
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 542

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- MetaRaceverse.sol

Locations

```
541 //rest to recipient
542 super._transfer(sender, recipient, amount - fee);
543 if (fee > 0) {
544 //send the fee to the contract
545 if (feeswap > 0) {
546
```


SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 546

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- MetaRaceverse.sol

Locations

```
545     if (feeswap > 0) {  
546         uint256 feeAmount = (amount * feeswap) / 100;  
547         super._transfer(sender, address(this), feeAmount);  
548     }  
549  
550
```

SWC-101 | ARITHMETIC OPERATION "*" DISCOVERED

LINE 566

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- MetaRaceverse.sol

Locations

```
565 // Split the contract balance into halves
566 uint256 denominator = feeswap * 2;
567 uint256 tokensToAddLiquidityWith = (contractBalance * swapTaxes.liquidity) /
568 denominator;
569 uint256 toSwap = contractBalance - tokensToAddLiquidityWith;
570
```

SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 567

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- MetaRaceverse.sol

Locations

```
566 uint256 denominator = feeswap * 2;  
567 uint256 tokensToAddLiquidityWith = (contractBalance * swapTaxes.liquidity) /  
568 denominator;  
569 uint256 toSwap = contractBalance - tokensToAddLiquidityWith;  
570  
571
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 569

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- MetaRaceverse.sol

Locations

```
568     denominator;  
569     uint256 toSwap = contractBalance - tokensToAddLiquidityWith;  
570  
571     uint256 initialBalance = address(this).balance;  
572  
573
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 575

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- MetaRaceverse.sol

Locations

```
574
575  uint256 deltaBalance = address(this).balance - initialBalance;
576  uint256 unitBalance = deltaBalance / (denominator - swapTaxes.liquidity);
577  uint256 ethToAddLiquidityWith = unitBalance * swapTaxes.liquidity;
578
579
```

SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 576

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- MetaRaceverse.sol

Locations

```
575 uint256 deltaBalance = address(this).balance - initialBalance;
576 uint256 unitBalance = deltaBalance / (denominator - swapTaxes.liquidity);
577 uint256 ethToAddLiquidityWith = unitBalance * swapTaxes.liquidity;
578
579 if (ethToAddLiquidityWith > 0) {
580
```

SWC-101 | ARITHMETIC OPERATION "*" DISCOVERED

LINE 577

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- MetaRaceverse.sol

Locations

```
576  uint256 unitBalance = deltaBalance / (denominator - swapTaxes.liquidity);
577  uint256 ethToAddLiquidityWith = unitBalance * swapTaxes.liquidity;
578
579  if (ethToAddLiquidityWith > 0) {
580    // Add liquidity to pancake
581  }
```

SWC-101 | ARITHMETIC OPERATION "*" DISCOVERED

LINE 584

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- MetaRaceverse.sol

Locations

```
583
584     uint256 marketingAmt = unitBalance * 2 * swapTaxes.marketing;
585     if (marketingAmt > 0) {
586         payable(marketingWallet).sendValue(marketingAmt);
587     }
588
```


SWC-101 | ARITHMETIC OPERATION "*" DISCOVERED

LINE 633

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- MetaRaceverse.sol

Locations

```
632     require(new_amount <= 1e7, "Swap threshold amount should be lower or equal to 1% of
tokens");
633     tokenLiquidityThreshold = new_amount * 10**decimals();
634 }
635
636 function EnableTrading() external onlyOwner {
637
```

SWC-101 | ARITHMETIC OPERATION "++" DISCOVERED

LINE 659

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- MetaRaceverse.sol

Locations

```
658     function bulkExemptFee(address[] memory accounts, bool state) external onlyOwner {  
659         for (uint256 i = 0; i < accounts.length; i++) {  
660             exemptFee[accounts[i]] = state;  
661         }  
662     }  
663 }
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 7

low SEVERITY

The current pragma Solidity directive is `""^0.8.8""`. It is recommended to specify a fixed compiler version to ensure that the bytecode produced does not vary between builds. This is especially important if you rely on bytecode-level verification of the code.

Source File

- MetaRaceverse.sol

Locations

```
6
7  pragma solidity ^0.8.8;
8
9  abstract contract Context {
10     function _msgSender() internal view virtual returns (address) {
11
```

SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 595

low SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

Source File

- MetaRaceverse.sol

Locations

```
594     address[] memory path = new address[](2);  
595     path[0] = address(this);  
596     path[1] = router.WETH();  
597  
598     _approve(address(this), address(router), tokenAmount);  
599
```

SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 596

low SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

Source File

- MetaRaceverse.sol

Locations

```
595     path[0] = address(this);  
596     path[1] = router.WETH();  
597  
598     _approve(address(this), address(router), tokenAmount);  
599  
600
```

SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 660

low SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

Source File

- MetaRaceverse.sol

Locations

```
659     for (uint256 i = 0; i < accounts.length; i++) {  
660         exemptFee[accounts[i]] = state;  
661     }  
662 }  
663  
664
```

SWC-120 | POTENTIAL USE OF "BLOCK.NUMBER" AS SOURCE OF RANDOMNESS.

LINE 511

low SEVERITY

The environment variable "block.number" looks like it might be used as a source of randomness. Note that the values of variables like coinbase, gaslimit, block number and timestamp are predictable and can be manipulated by a malicious miner. Also keep in mind that attackers know hashes of earlier blocks. Don't use any of those environment variables as sources of randomness and be aware that use of these variables introduces a certain level of trust into miners.

Source File

- MetaRaceverse.sol

Locations

```
510     !exemptFee[recipient] &&  
511     block.number < genesis_block + deadline;  
512  
513     //set fee to zero if fees in contract are handled or exempted  
514     if (_interlock || exemptFee[sender] || exemptFee[recipient])  
515
```

SWC-120 | POTENTIAL USE OF "BLOCK.NUMBER" AS SOURCE OF RANDOMNESS.

LINE 640

low SEVERITY

The environment variable "block.number" looks like it might be used as a source of randomness. Note that the values of variables like coinbase, gaslimit, block number and timestamp are predictable and can be manipulated by a malicious miner. Also keep in mind that attackers know hashes of earlier blocks. Don't use any of those environment variables as sources of randomness and be aware that use of these variables introduces a certain level of trust into miners.

Source File

- MetaRaceverse.sol

Locations

```
639     providingLiquidity = true;
640     genesis_block = block.number;
641 }
642
643 function updateddeadline(uint256 _deadline) external onlyOwner {
644
```


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This is a limited report on our findings based on our analysis, in accordance with good industry practice as of the date of this report, in relation to cybersecurity vulnerabilities and issues in the framework and algorithms based on smart contracts, the details of which are set out in this report. In order to get a full view of our analysis, it is crucial for you to read the full report. While we have done our best in conducting our analysis and producing this report, it is important to note that you should not rely on this report and cannot claim against us on the basis of what it says or doesn't say, or how we produced it, and it is important for you to conduct your own independent investigations before making any decisions. We go into more detail on this in the below disclaimer below – please make sure to read it in full.

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