



FABWELT

Smart Contract Audit Report

TABLE OF CONTENTS

[Audited Details](#)

- Audited Project
- Blockchain
- Addresses
- Project Website
- Codebase

[Summary](#)

- Contract Summary
- Audit Findings Summary
- Vulnerabilities Summary

[Conclusion](#)

[Audit Results](#)

[Smart Contract Analysis](#)

- Detected Vulnerabilities

[Disclaimer](#)

[About Us](#)

AUDITED DETAILS

Audited Project

Project name	Token ticker	Blockchain
FABWELT	WELT	Polygon Matic

Addresses

Contract address	0x23e8b6a3f6891254988b84da3738d2bfe5e703b9
Contract deployer address	0x63401aaC2469bfe676D134571dEfe64839c35A61

Project Website

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

Codebase

<https://polygonscan.com/address/0x23e8b6a3f6891254988b84da3738d2bfe5e703b9#code>

SUMMARY

Fabwelt is a revolutionary concept that brings blockchain technology into the core of high-quality games of all types or genres

Contract Summary

Documentation Quality

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

- The technical description is provided clearly and structured and also don't have any high risk issue.

Code Quality

The Overall quality of the basecode is standard.

- Standard solidity basecode and rules are already followed by FABWELT 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 124, 156, 179, 180, 215, 251, 489, 490, 491, 491, 492, 493, 494, 609, 611, 626, 627, 628, 789 and 611.
- SWC-103 | Pragma statements can be allowed to float when a contract is intended on lines 11.
- SWC-110 SWC-123 | It is recommended to use of `revert()`, `assert()`, and `require()` in Solidity, and the new REVERT opcode in the EVM on lines 610, 611, 611, 790, 790, 791 and 792.

CONCLUSION

We have audited the FABWELT project released on September 2021 to discover issues and identify potential security vulnerabilities in FABWELT 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 satisfactory results with low-risk issues.

The issues found in the FABWELT smart contract code 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, and out-of-bounds array access which the index access expression can cause an exception in case an invalid array index value is used. Specifying a fixed compiler version is recommended 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.

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
Unprotected Ether Withdrawal	SWC-105	Due to missing or insufficient access controls, malicious parties can withdraw from the contract.	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
Uninitialized Storage Pointer	SWC-109	Uninitialized local storage variables can point to unexpected storage locations in the contract.	PASS
Assert Violation	SWC-110 SWC-123	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	Delegatecalls 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
Incorrect Constructor Name	SWC-118	Constructors are special functions that are called only once during the contract creation.	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.	PASS
Write to Arbitrary Storage Location	SWC-124	The contract is responsible for ensuring that only authorized user or contract accounts may write to sensitive storage locations.	PASS
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
Insufficient Gas Griefing	SWC-126	Insufficient gas grieving attacks can be performed on contracts which accept data and use it in a sub-call on another contract.	PASS
Arbitrary Jump Function	SWC-127	As Solidity doesnt support pointer arithmetics, it is impossible to change such variable to an arbitrary value.	PASS

Typographical Error	SWC-129	A typographical error can occur for example when the intent of a defined operation is to sum a number to a variable.	PASS
Override control character	SWC-130	Malicious actors can use the Right-To-Left-Override unicode character to force RTL text rendering and confuse users as to the real intent of a contract.	PASS
Unused variables	SWC-131 SWC-135	Unused variables are allowed in Solidity and they do not pose a direct security issue.	PASS
Unexpected Ether balance	SWC-132	Contracts can behave erroneously when they strictly assume a specific Ether balance.	PASS
Hash Collisions Variable	SWC-133	Using <code>abi.encodePacked()</code> with multiple variable length arguments can, in certain situations, lead to a hash collision.	PASS
Hardcoded gas amount	SWC-134	The <code>transfer()</code> and <code>send()</code> functions forward a fixed amount of 2300 gas.	PASS
Unencrypted Private Data	SWC-136	It is a common misconception that private type variables cannot be read.	PASS

SMART CONTRACT ANALYSIS

Started	Saturday Sep 25 2021 11:08:41 GMT+0000 (Coordinated Universal Time)
Finished	Sunday Sep 26 2021 17:30:50 GMT+0000 (Coordinated Universal Time)
Mode	Standard
Main Source File	FabweltToken.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

[illegible]

SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 124

low SEVERITY

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

Source File

- FabweltToken.sol

Locations

```
123  function add(uint256 a, uint256 b) internal pure returns (uint256) {  
124      uint256 c = a + b;  
125      require(c >= a, "SafeMath: addition overflow");  
126  
127      return c;  
128  }
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 156

low SEVERITY

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

Source File

- FabweltToken.sol

Locations

```
155   require(b <= a, errorMessage);  
156   uint256 c = a - b;  
157  
158   return c;  
159   }  
160
```

SWC-101 | ARITHMETIC OPERATION "*" DISCOVERED

LINE 179

low SEVERITY

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

Source File

- FabweltToken.sol

Locations

```
178
179  uint256 c = a * b;
180  require(c / a == b, "SafeMath: multiplication overflow");
181
182  return c;
183
```

SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 180

low SEVERITY

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

Source File

- FabweltToken.sol

Locations

```
179     uint256 c = a * b;  
180     require(c / a == b, "SafeMath: multiplication overflow");  
181  
182     return c;  
183 }  
184
```

SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 215

low SEVERITY

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

Source File

- FabweltToken.sol

Locations

```
214     require(b > 0, errorMessage);
215     uint256 c = a / b;
216     // assert(a == b * c + a % b); // There is no case in which this doesn't hold
217
218     return c;
219
```

SWC-101 | ARITHMETIC OPERATION "%" DISCOVERED

LINE 251

low SEVERITY

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

Source File

- FabweltToken.sol

Locations

```
250     require(b != 0, errorMessage);
251     return a % b;
252 }
253 }
254
255
```


SWC-101 | ARITHMETIC OPERATION "**" DISCOVERED

LINE 489

low SEVERITY

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

Source File

- FabweltToken.sol

Locations

```
488  _DECIMALS = _decimals;  
489  _DECIMALFACTOR = 10 ** _DECIMALS;  
490  _tTotal = _supply * _DECIMALFACTOR;  
491  _rTotal = (_MAX - (_MAX % _tTotal));  
492  _TAX_FEE = _txFee* 100;  
493
```

SWC-101 | ARITHMETIC OPERATION "*" DISCOVERED

LINE 490

low SEVERITY

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

Source File

- FabweltToken.sol

Locations

```
489  _DECIMALFACTOR = 10 ** _DECIMALS;  
490  _tTotal = _supply * _DECIMALFACTOR;  
491  _rTotal = (_MAX - (_MAX % _tTotal));  
492  _TAX_FEE = _txFee* 100;  
493  _CHARITY_FEE = _charityFee* 100;  
494
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 491

low SEVERITY

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

Source File

- FabweltToken.sol

Locations

```
490  _tTotal =_supply * _DECIMALFACTOR;  
491  _rTotal = (_MAX - (_MAX % _tTotal));  
492  _TAX_FEE = _txFee* 100;  
493  _CHARITY_FEE = _charityFee* 100;  
494  _STAKE_FEE = _stakeFee* 100;  
495
```

SWC-101 | ARITHMETIC OPERATION "%" DISCOVERED

LINE 491

low SEVERITY

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

Source File

- FabweltToken.sol

Locations

```
490  _tTotal =_supply * _DECIMALFACTOR;  
491  _rTotal = (_MAX - (_MAX % _tTotal));  
492  _TAX_FEE = _txFee* 100;  
493  _CHARITY_FEE = _charityFee* 100;  
494  _STAKE_FEE = _stakeFee* 100;  
495
```

SWC-101 | ARITHMETIC OPERATION "*" DISCOVERED

LINE 492

low SEVERITY

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

Source File

- FabweltToken.sol

Locations

```
491  _rTotal = (_MAX - (_MAX % _tTotal));  
492  _TAX_FEE = _txFee* 100;  
493  _CHARITY_FEE = _charityFee* 100;  
494  _STAKE_FEE = _stakeFee* 100;  
495  ORIG_TAX_FEE = _TAX_FEE;  
496
```

SWC-101 | ARITHMETIC OPERATION "*" DISCOVERED

LINE 493

low SEVERITY

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

Source File

- FabweltToken.sol

Locations

```
492  _TAX_FEE = _txFee* 100;
493  _CHARITY_FEE = _charityFee* 100;
494  _STAKE_FEE = _stakeFee* 100;
495  ORIG_TAX_FEE = _TAX_FEE;
496  ORIG_CHARITY_FEE = _CHARITY_FEE;
497
```

SWC-101 | ARITHMETIC OPERATION "*" DISCOVERED

LINE 494

low SEVERITY

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

Source File

- FabweltToken.sol

Locations

```
493  _CHARITY_FEE = _charityFee* 100;  
494  _STAKE_FEE = _stakeFee* 100;  
495  ORIG_TAX_FEE = _TAX_FEE;  
496  ORIG_CHARITY_FEE = _CHARITY_FEE;  
497  ORIG_STAKE_FEE = _STAKE_FEE;  
498
```

SWC-101 | ARITHMETIC OPERATION "++" DISCOVERED

LINE 609

low SEVERITY

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

Source File

- FabweltToken.sol

Locations

```
608   require(!_isExcluded[account], "Account is already included");
609   for (uint256 i = 0; i < _excluded.length; i++) {
610       if (_excluded[i] == account) {
611           _excluded[i] = _excluded[_excluded.length - 1];
612           _tOwned[account] = 0;
613       }
```


SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 611

low SEVERITY

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

Source File

- FabweltToken.sol

Locations

```
610     if (_excluded[i] == account) {  
611         _excluded[i] = _excluded[_excluded.length - 1];  
612         _tOwned[account] = 0;  
613         _isExcluded[account] = false;  
614         _excluded.pop();  
615     }
```

SWC-101 | ARITHMETIC OPERATION "*" DISCOVERED

LINE 626

low SEVERITY

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

Source File

- FabweltToken.sol

Locations

```
625     require(_txFee < 100 && _stakeFee < 100 && _charityFee < 100);
626     _TAX_FEE = _txFee* 100;
627     _CHARITY_FEE = _charityFee* 100;
628     _STAKE_FEE = _stakeFee* 100;
629     ORIG_TAX_FEE = _TAX_FEE;
630
```

SWC-101 | ARITHMETIC OPERATION "*" DISCOVERED

LINE 627

low SEVERITY

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

Source File

- FabweltToken.sol

Locations

```
626  _TAX_FEE = _txFee* 100;  
627  _CHARITY_FEE = _charityFee* 100;  
628  _STAKE_FEE = _stakeFee* 100;  
629  ORIG_TAX_FEE = _TAX_FEE;  
630  ORIG_CHARITY_FEE = _CHARITY_FEE;  
631
```

SWC-101 | ARITHMETIC OPERATION "*" DISCOVERED

LINE 628

low SEVERITY

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

Source File

- FabweltToken.sol

Locations

```
627  _CHARITY_FEE = _charityFee* 100;  
628  _STAKE_FEE = _stakeFee* 100;  
629  ORIG_TAX_FEE = _TAX_FEE;  
630  ORIG_CHARITY_FEE = _CHARITY_FEE;  
631  ORIG_STAKE_FEE = _STAKE_FEE;  
632
```

SWC-101 | ARITHMETIC OPERATION "++" DISCOVERED

LINE 789

low SEVERITY

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

Source File

- FabweltToken.sol

Locations

```
788     uint256 tSupply = _tTotal;
789     for (uint256 i = 0; i < _excluded.length; i++) {
790         if (_rOwned[_excluded[i]] > rSupply || _tOwned[_excluded[i]] > tSupply) return
            (_rTotal, _tTotal);
791         rSupply = rSupply.sub(_rOwned[_excluded[i]]);
792         tSupply = tSupply.sub(_tOwned[_excluded[i]]);
793     }
```

SWC-101 | COMPILER-REWRITABLE "<UINT> - 1" DISCOVERED

LINE 611

low SEVERITY

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

Source File

- FabweltToken.sol

Locations

```
610     if (_excluded[i] == account) {  
611         _excluded[i] = _excluded[_excluded.length - 1];  
612         _tOwned[account] = 0;  
613         _isExcluded[account] = false;  
614         _excluded.pop();  
615     }
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 11

low SEVERITY

The current pragma Solidity directive is `""^0.8.2""`. 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

- FabweltToken.sol

Locations

```
10
11  pragma solidity ^0.8.2;
12
13
14  abstract contract Context {
15
```

SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 610

low SEVERITY

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

Source File

- FabweltToken.sol

Locations

```
609   for (uint256 i = 0; i < _excluded.length; i++) {  
610     if (_excluded[i] == account) {  
611       _excluded[i] = _excluded[_excluded.length - 1];  
612       _tOwned[account] = 0;  
613       _isExcluded[account] = false;  
614     }
```


SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 611

low SEVERITY

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

Source File

- FabweltToken.sol

Locations

```
610     if (_excluded[i] == account) {  
611         _excluded[i] = _excluded[_excluded.length - 1];  
612         _tOwned[account] = 0;  
613         _isExcluded[account] = false;  
614         _excluded.pop();  
615     }
```

SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 611

low SEVERITY

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

Source File

- FabweltToken.sol

Locations

```
610     if (_excluded[i] == account) {  
611         _excluded[i] = _excluded[_excluded.length - 1];  
612         _tOwned[account] = 0;  
613         _isExcluded[account] = false;  
614         _excluded.pop();  
615     }
```

SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 790

low SEVERITY

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

Source File

- FabweltToken.sol

Locations

```
789   for (uint256 i = 0; i < _excluded.length; i++) {  
790     if (_rOwned[_excluded[i]] > rSupply || _tOwned[_excluded[i]] > tSupply) return  
      (_rTotal, _tTotal);  
791     rSupply = rSupply.sub(_rOwned[_excluded[i]]);  
792     tSupply = tSupply.sub(_tOwned[_excluded[i]]);  
793   }  
794
```

SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 790

low SEVERITY

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

Source File

- FabweltToken.sol

Locations

```
789   for (uint256 i = 0; i < _excluded.length; i++) {  
790     if (_rOwned[_excluded[i]] > rSupply || _tOwned[_excluded[i]] > tSupply) return  
      (_rTotal, _tTotal);  
791     rSupply = rSupply.sub(_rOwned[_excluded[i]]);  
792     tSupply = tSupply.sub(_tOwned[_excluded[i]]);  
793   }  
794
```

SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 791

low SEVERITY

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

Source File

- FabweltToken.sol

Locations

```
790  if (_rOwned[_excluded[i]] > rSupply || _tOwned[_excluded[i]] > tSupply) return
    (_rTotal, _tTotal);
791  rSupply = rSupply.sub(_rOwned[_excluded[i]]);
792  tSupply = tSupply.sub(_tOwned[_excluded[i]]);
793  }
794  if (rSupply < _rTotal.div(_tTotal)) return (_rTotal, _tTotal);
795
```

SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 792

low SEVERITY

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

Source File

- FabweltToken.sol

Locations

```
791   rSupply = rSupply.sub(_rOwned[_excluded[i]]);
792   tSupply = tSupply.sub(_tOwned[_excluded[i]]);
793   }
794   if (rSupply < _rTotal.div(_tTotal)) return (_rTotal, _tTotal);
795   return (rSupply, tSupply);
796
```

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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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