

**FABWELT** 

Smart Contract Audit Report





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# **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 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 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 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.		
Outdated Compiler Version	SWC-102	It is recommended to use a recent version of the Solidity compiler.		
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.		
Unprotected Ether Withdrawal	SWC-105	Due to missing or insufficient access controls, malicious parties can withdraw from the contract.		
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		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.	
Shadowing State Variable	SWC-119	State variables should not be shadowed.	
Weak Sources of Randomness	SWC-120	Random values should never be generated from Chain Attributes or be predictable.	
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		PASS
Insufficient Gas Griefing	SWC-126 contracts which accept data and use it in a sub-call on		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.	
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.	
Unused variables	SWC-131 SWC-135	Unused variables are allowed in Solidity and they do not pose a direct security issue.	
Unexpected Ether balance	SWC-132	Contracts can behave erroneously when they strictly assume a specific Ether balance.	
Hash Collisions Variable	SWC-133 Using abi.encodePacked() with multiple variable length arguments can, in certain situations, lead to a hash collision.		PASS
Hardcoded gas amount	SWC-134	The transfer() and send() functions forward a fixed amount of 2300 gas.	
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



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	COMPILER-REWRITABLE " <uint> - 1" DISCOVERED</uint>	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
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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



**LINE 124** 

#### **low SEVERITY**

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

#### Source File

- FabweltToken.sol

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



**LINE 156** 

#### **low SEVERITY**

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

#### Source File

- FabweltToken.sol

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



**LINE** 179

#### **low SEVERITY**

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

#### Source File

- FabweltToken.sol

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



**LINE 180** 

#### **low SEVERITY**

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

#### Source File

- FabweltToken.sol

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



**LINE 215** 

#### **low SEVERITY**

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

#### Source File

- FabweltToken.sol

```
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
```



**LINE 251** 

#### **low SEVERITY**

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

#### Source File

- FabweltToken.sol

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



**LINE 489** 

#### **low SEVERITY**

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

#### Source File

- FabweltToken.sol

```
488 _DECIMALS = _decimals;

489 _DECIMALFACTOR = 10 ** _DECIMALS;

490 _tTotal =_supply * _DECIMALFACTOR;

491 _rTotal = (_MAX - (_MAX % _tTotal));

492 _TAX_FEE = _txFee* 100;

493
```



**LINE 490** 

#### **low SEVERITY**

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

#### Source File

- FabweltToken.sol

```
489 _DECIMALFACTOR = 10 ** _DECIMALS;

490 _tTotal =_supply * _DECIMALFACTOR;

491 _rTotal = (_MAX - (_MAX % _tTotal));

492 _TAX_FEE = _txFee* 100;

493 _CHARITY_FEE = _charityFee* 100;

494
```



**LINE 491** 

#### **low SEVERITY**

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

#### Source File

- FabweltToken.sol

```
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
```



**LINE 491** 

#### **low SEVERITY**

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

#### Source File

- FabweltToken.sol

```
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
```



**LINE 492** 

#### **low SEVERITY**

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

#### Source File

- FabweltToken.sol

```
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
```



**LINE 493** 

#### **low SEVERITY**

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

#### Source File

- FabweltToken.sol

```
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
```



**LINE 494** 

#### **low SEVERITY**

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

#### Source File

- FabweltToken.sol

```
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
```



**LINE** 609

#### **low SEVERITY**

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

#### Source File

- FabweltToken.sol

```
for require(_isExcluded[account], "Account is already included");
for (uint256 i = 0; i < _excluded.length; i++) {
  if (_excluded[i] == account) {
    _excluded[i] = _excluded.length - 1];
    _tOwned[account] = 0;
  if (_excluded[account] = 0;
    _towned[account] = 0;
    _excluded[account] = 0;
    _
```



**LINE 611** 

#### **low SEVERITY**

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

#### Source File

- FabweltToken.sol

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



**LINE 626** 

#### **low SEVERITY**

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

#### Source File

- FabweltToken.sol

```
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
```



**LINE 627** 

#### **low SEVERITY**

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

#### Source File

- FabweltToken.sol

```
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
```



**LINE 628** 

#### **low SEVERITY**

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

#### Source File

- FabweltToken.sol

```
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
```



**LINE** 789

#### **low SEVERITY**

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

#### Source File

- FabweltToken.sol

```
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

```
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

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



**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



**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

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



**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

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



**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

```
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
```



**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

```
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
```



**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

```
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</pre>
```



**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

```
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</pre>
```



### **DISCLAIMER**

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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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Sysfixed is a blockchain security certification organization established in 2021 with the objective to provide smart contract security services and verify their correctness in blockchain-based protocols. Sysfixed automatically scans for security vulnerabilities in Ethereum and other EVM-based blockchain smart contracts. Sysfixed a comprehensive range of analysis techniques—including static analysis, dynamic analysis, and symbolic execution—can accurately detect security vulnerabilities to provide an in-depth analysis report. With a vibrant ecosystem of world-class integration partners that amplify developer productivity, Sysfixed can be utilized in all phases of your project's lifecycle. Our team of security experts is dedicated to the research and improvement of our tools and techniques used to fortify your code.