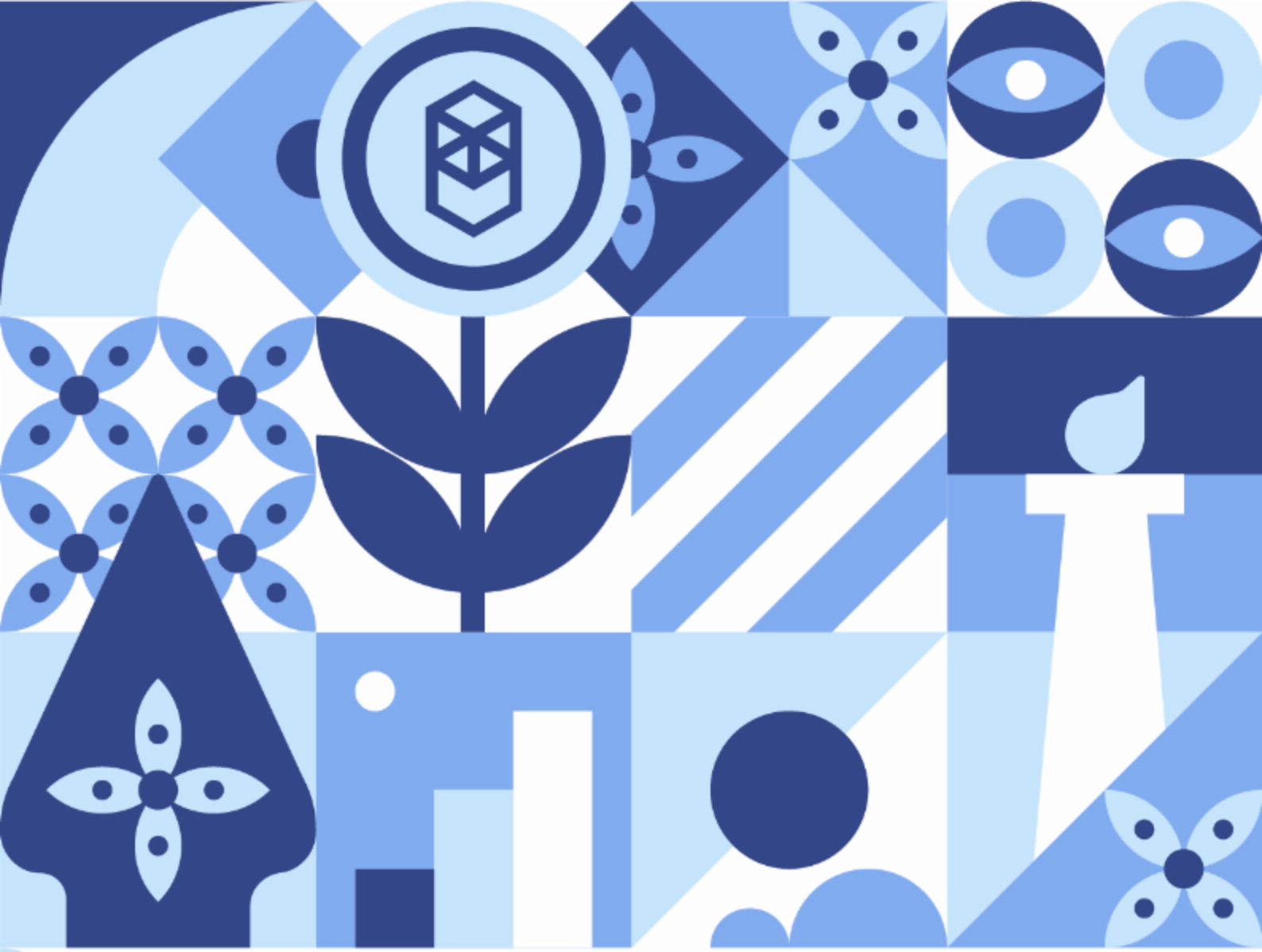

War Bond Token

Smart Contract Audit Report

SYSFIXED

23 Dec 2021

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AUDITED DETAILS

Audited Project

Project name	Token ticker	Blockchain
War Bond Token	WBOND	Fantom

Addresses

Contract address	0x59c6606ed2af925f270733e378d6af7829b5b3cf
Contract deployer address	0x9362A0A0b65426b2815cd81691488645B5708534

Project Website

https://tankwars.zone/

Codebase

https://ftmscan.com/address/0x59c6606ed2af925f270733e378d6af7829b5b3cf#code

SUMMARY

Tank Wars Zone is a blockchain-integrated game by three developers who have had a great passion for blockchain games and NFTs since 2020. The founding members are from Fantom Vietnam Validator, and we have been running as Validator on Fantom since Genesis Mainnet. Currently, the Tank Wars Zone team has 14 members, including developers, designers, and marketers.

Contract Summary

Documentation Quality

War Bond Token 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 War Bond Token with the discovery of several low issues.

Test Coverage

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

Audit Findings Summary

- SWC-103 | Pragma statements can be allowed to float when a contract is intended on lines 11, 43, 128, 439, 487 and 560.
- SWC-107 | It is recommended to use a reentrancy lock, reentrancy weaknesses detected on lines 341, 384, 343, 344, 386, 387, 275 and 409.

CONCLUSION

We have audited the War Bond Token project released on December 2021 to discover issues and identify potential security vulnerabilities in War Bond Token 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 issue found in the War Bond Token smart contract code does 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 floating pragmas set on several lines, read and write to persistent state following external call. 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. Consider accessing the state only before the call, especially if the callee is untrusted. Alternatively, a reentrancy lock can be used to prevent untrusted callees from re-entering the contract in an intermediate state.

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.	PASS
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.	ISSUE FOUND
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.	PASS
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 griefing 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 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.	PASS
Unencrypted Private Data	SWC-136	It is a common misconception that private type variables cannot be read.	PASS

SMART CONTRACT ANALYSIS

Started	Wednesday Dec 22 2021 00:26:43 GMT+0000 (Coordinated Universal Time)
Finished	Thursday Dec 23 2021 04:14:39 GMT+0000 (Coordinated Universal Time)
Mode	Standard
Main Source File	WBond.sol

Detected Issues

ID	Title	Severity	Status
SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged
SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged
SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged
SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged
SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged
SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged
SWC-107	READ OF PERSISTENT STATE FOLLOWING EXTERNAL CALL.	low	acknowledged
SWC-107	READ OF PERSISTENT STATE FOLLOWING EXTERNAL CALL.	low	acknowledged
SWC-107	WRITE TO PERSISTENT STATE FOLLOWING EXTERNAL CALL.	low	acknowledged
SWC-107	READ OF PERSISTENT STATE FOLLOWING EXTERNAL CALL.	low	acknowledged
SWC-107	WRITE TO PERSISTENT STATE FOLLOWING EXTERNAL CALL.	low	acknowledged
SWC-107	READ OF PERSISTENT STATE FOLLOWING EXTERNAL CALL.	low	acknowledged
SWC-107	READ OF PERSISTENT STATE FOLLOWING EXTERNAL CALL.	low	acknowledged
SWC-107	WRITE TO PERSISTENT STATE FOLLOWING EXTERNAL CALL.	low	acknowledged

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 11

low SEVERITY

The current pragma Solidity directive is ""^0.8.0"". 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

- WBond.sol

Locations

```
10
11   pragma solidity ^0.8.0;
12
13   /*
14   * @dev Provides information about the current execution context, including the
15
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 43

low SEVERITY

The current pragma Solidity directive is ""^0.8.0"". 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

- WBond.sol

Locations

```
42
43   pragma solidity ^0.8.0;
44
45   /**
46   * @dev Interface of the ERC20 standard as defined in the EIP.
47
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 128

low SEVERITY

The current pragma Solidity directive is ""^0.8.0"". 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

- WBond.sol

Locations

```
127
128   pragma solidity ^0.8.0;
129
130   ////import "./IERC20.sol";
131   ////import "../../utils/Context.sol";
132
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 439

low SEVERITY

The current pragma Solidity directive is ""^0.8.0"". 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

- WBond.sol

Locations

```
438
439   pragma solidity ^0.8.0;
440
441   ////import "../ERC20.sol";
442   ////import "../../../utils/Context.sol";
443
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 487

low SEVERITY

The current pragma Solidity directive is ""^0.8.0"". 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

- WBond.sol

Locations

```
486
487   pragma solidity ^0.8.0;
488
489   ////import "../utils/Context.sol";
490   /**
491
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 560

low SEVERITY

The current pragma Solidity directive is ""^0.8.0"". 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

- WBond.sol

Locations

```
559   ////// SPDX-License-Identifier-FLATTEN-SUPPRESS-WARNING: MIT
560   pragma solidity ^0.8.0;
561
562   ////import "@openzeppelin/contracts/access/Ownable.sol";
563
564
```

SWC-107 | READ OF PERSISTENT STATE FOLLOWING EXTERNAL CALL.

LINE 341

low SEVERITY

The contract account state is accessed after an external call. To prevent reentrancy issues, consider accessing the state only before the call, especially if the callee is untrusted. Alternatively, a reentrancy lock can be used to prevent untrusted callees from re-entering the contract in an intermediate state.

Source File

- WBond.sol

Locations

```
340
341   uint256 senderBalance = _balances[sender];
342   require(senderBalance >= amount, "ERC20: transfer amount exceeds balance");
343   _balances[sender] = senderBalance - amount;
344   _balances[recipient] += amount;
345
```

SWC-107 | READ OF PERSISTENT STATE FOLLOWING EXTERNAL CALL.

LINE 384

low SEVERITY

The contract account state is accessed after an external call. To prevent reentrancy issues, consider accessing the state only before the call, especially if the callee is untrusted. Alternatively, a reentrancy lock can be used to prevent untrusted callees from re-entering the contract in an intermediate state.

Source File

- WBond.sol

Locations

```
383
384   uint256 accountBalance = _balances[account];
385   require(accountBalance >= amount, "ERC20: burn amount exceeds balance");
386   _balances[account] = accountBalance - amount;
387   _totalSupply -= amount;
388
```

SWC-107 | WRITE TO PERSISTENT STATE FOLLOWING EXTERNAL CALL.

LINE 343

low SEVERITY

The contract account state is accessed after an external call. To prevent reentrancy issues, consider accessing the state only before the call, especially if the callee is untrusted. Alternatively, a reentrancy lock can be used to prevent untrusted callees from re-entering the contract in an intermediate state.

Source File

- WBond.sol

Locations

```
342   require(senderBalance >= amount, "ERC20: transfer amount exceeds balance");
343   _balances[sender] = senderBalance - amount;
344   _balances[recipient] += amount;
345
346   emit Transfer(sender, recipient, amount);
347
```

SWC-107 | READ OF PERSISTENT STATE FOLLOWING EXTERNAL CALL.

LINE 344

low SEVERITY

The contract account state is accessed after an external call. To prevent reentrancy issues, consider accessing the state only before the call, especially if the callee is untrusted. Alternatively, a reentrancy lock can be used to prevent untrusted callees from re-entering the contract in an intermediate state.

Source File

- WBond.sol

Locations

```
343   _balances[sender] = senderBalance - amount;
344   _balances[recipient] += amount;
345
346   emit Transfer(sender, recipient, amount);
347   }
348
```

SWC-107 | WRITE TO PERSISTENT STATE FOLLOWING EXTERNAL CALL.

LINE 386

low SEVERITY

The contract account state is accessed after an external call. To prevent reentrancy issues, consider accessing the state only before the call, especially if the callee is untrusted. Alternatively, a reentrancy lock can be used to prevent untrusted callees from re-entering the contract in an intermediate state.

Source File

- WBond.sol

Locations

```
385   require(accountBalance >= amount, "ERC20: burn amount exceeds balance");
386   _balances[account] = accountBalance - amount;
387   _totalSupply -= amount;
388
389   emit Transfer(account, address(0), amount);
390
```

SWC-107 | READ OF PERSISTENT STATE FOLLOWING EXTERNAL CALL.

LINE 387

low SEVERITY

The contract account state is accessed after an external call. To prevent reentrancy issues, consider accessing the state only before the call, especially if the callee is untrusted. Alternatively, a reentrancy lock can be used to prevent untrusted callees from re-entering the contract in an intermediate state.

Source File

- WBond.sol

Locations

```
386   _balances[account] = accountBalance - amount;
387   _totalSupply -= amount;
388
389   emit Transfer(account, address(0), amount);
390   }
391
```

SWC-107 | READ OF PERSISTENT STATE FOLLOWING EXTERNAL CALL.

LINE 275

low SEVERITY

The contract account state is accessed after an external call. To prevent reentrancy issues, consider accessing the state only before the call, especially if the callee is untrusted. Alternatively, a reentrancy lock can be used to prevent untrusted callees from re-entering the contract in an intermediate state.

Source File

- WBond.sol

Locations

```
274
275   uint256 currentAllowance = _allowances[sender][_msgSender()];
276   require(currentAllowance >= amount, "ERC20: transfer amount exceeds allowance");
277   _approve(sender, _msgSender(), currentAllowance - amount);
278
279
```

SWC-107 | WRITE TO PERSISTENT STATE FOLLOWING EXTERNAL CALL.

LINE 409

low SEVERITY

The contract account state is accessed after an external call. To prevent reentrancy issues, consider accessing the state only before the call, especially if the callee is untrusted. Alternatively, a reentrancy lock can be used to prevent untrusted callees from re-entering the contract in an intermediate state.

Source File

- WBond.sol

Locations

```
408
409   _allowances[owner][spender] = amount;
410   emit Approval(owner, spender, amount);
411   }
412
413
```

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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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