



# Defrost Finance Token Smart Contract Audit Report

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# AUDITED DETAILS

## Audited Project

| Project name          | Token ticker | Blockchain |
|-----------------------|--------------|------------|
| Defrost Finance Token | MELT         | Avalanche  |

## Addresses

|                           |  |
|---------------------------|--|
| Contract address          | 0x47eb6f7525c1aa999fbc9ee92715f5231eb1241d |
| Contract deployer address | 0x550607084493DA6101Bc3270c76c7b17054e38ff |

## Project Website

<https://www.defrost.finance/home>

## Codebase

<https://snowtrace.io/address/0x47eb6f7525c1aa999fbc9ee92715f5231eb1241d#code>

# SUMMARY

Defrost Finance is a decentralized protocol that allows you to leverage yield-bearing Tokens or other pool tokens from Avalanche and cross-chain protocols as collaterals for generating H2O, a USD-pegged stablecoin. Defrost Finance helps users improve capital efficiency from assets locked in pools or vaults. It supports users to provide liquidity to gain additional yields from features such as farming, borrowing, staking, swap, and bridge support for convenience when trading.

## Contract Summary

### Documentation Quality

Defrost Finance Token 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 Defrost Finance Token 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 59, 91, 113, 114, 150 and 186.
- SWC-103 | Pragma statements can be allowed to float when a contract is intended on lines 7, 33, 192 and 382.

## CONCLUSION

We have audited the Defrost Finance Token project released in January 2023 to discover issues and identify potential security vulnerabilities in Defrost Finance 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 satisfactory results with low-risk issues.

The issues found in the Defrost Finance Token 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 are some arithmetic operation issues, and a floating pragma is set. 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<br>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<br>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<br>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<br>SWC-121<br>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<br>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          | Monday Nov 15 2021 15:48:17 GMT+0000 (Coordinated Universal Time)  |
| Finished         | Tuesday Nov 16 2021 04:46:07 GMT+0000 (Coordinated Universal Time) |
| Mode             | Standard   |
| Main Source File | DefrostToken.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-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-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 59

### low SEVERITY

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

### Source File

- DefrostToken.sol

### Locations

```
58  function add(uint256 a, uint256 b) internal pure returns (uint256) {
59  uint256 c = a + b;
60  require(c >= a, "SafeMath: addition overflow");
61
62  return c;
63
```

# SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 91

## low SEVERITY

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

## Source File

- DefrostToken.sol

## Locations

```
90  require(b <= a, errorMessage);
91  uint256 c = a - b;
92
93  return c;
94  }
95
```

## SWC-101 | ARITHMETIC OPERATION "\*" DISCOVERED

LINE 113

### low SEVERITY

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

### Source File

- DefrostToken.sol

### Locations

```
112
113  uint256 c = a * b;
114  require(c / a == b, "SafeMath: multiplication overflow");
115
116  return c;
117
```

## SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 114

### low SEVERITY

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

### Source File

- DefrostToken.sol

### Locations

```
113     uint256 c = a * b;
114     require(c / a == b, "SafeMath: multiplication overflow");
115
116     return c;
117 }
118
```

## SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 150

### low SEVERITY

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

### Source File

- DefrostToken.sol

### Locations

```
149   require(b > 0, errorMessage);
150   uint256 c = a / b;
151   // assert(a == b * c + a % b); // There is no case in which this doesn't hold
152
153   return c;
154
```

## SWC-101 | ARITHMETIC OPERATION "%" DISCOVERED

LINE 186

### low SEVERITY

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

### Source File

- DefrostToken.sol

### Locations

```
185     require(b != 0, errorMessage);
186     return a % b;
187 }
188 }
189
190
```

## SWC-103 | A FLOATING PRAGMA IS SET.

LINE 7

### low SEVERITY

The current pragma Solidity directive is `""^0.5.16""`. 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

- DefrostToken.sol

### Locations

```
6
7  pragma solidity ^0.5.16;
8
9  /**
10   * @title ERC20 interface
11
```



## SWC-103 | A FLOATING PRAGMA IS SET.

LINE 33

### low SEVERITY

The current pragma Solidity directive is ""^0.5.0"". 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

- DefrostToken.sol

### Locations

```
32
33  pragma solidity ^0.5.0;
34
35  /**
36   * @dev Wrappers over Solidity's arithmetic operations with added overflow
37
```

## SWC-103 | A FLOATING PRAGMA IS SET.

LINE 192

### low SEVERITY

The current pragma Solidity directive is `""^0.5.16""`. 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

- DefrostToken.sol

### Locations

```
191
192  pragma solidity ^0.5.16;
193
194
195
196
```

## SWC-103 | A FLOATING PRAGMA IS SET.

LINE 382

### low SEVERITY

The current pragma Solidity directive is `^0.5.16`. 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

- DefrostToken.sol

### Locations

```
381
382  pragma solidity ^0.5.16;
383
384
385  contract DefrostToken is StandardToken20{
386
```

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