



**SOLID**Proof  
*Bring trust into your projects*

**Blockchain Security | Smart Contract Audits | KYC**

MADE IN GERMANY

**E•Network**

**Audit**

**Security Assessment**

15.June,2023

**For**



[SolidProof.io](https://SolidProof.io)



[@solidproof\\_io](https://t.me/solidproof_io)

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Version	Date	Description
1.0	09.June,2023	<ul style="list-style-type: none"><li>• Layout project</li><li>• Automated- /Manual-Security Testing</li><li>• Summary</li></ul>

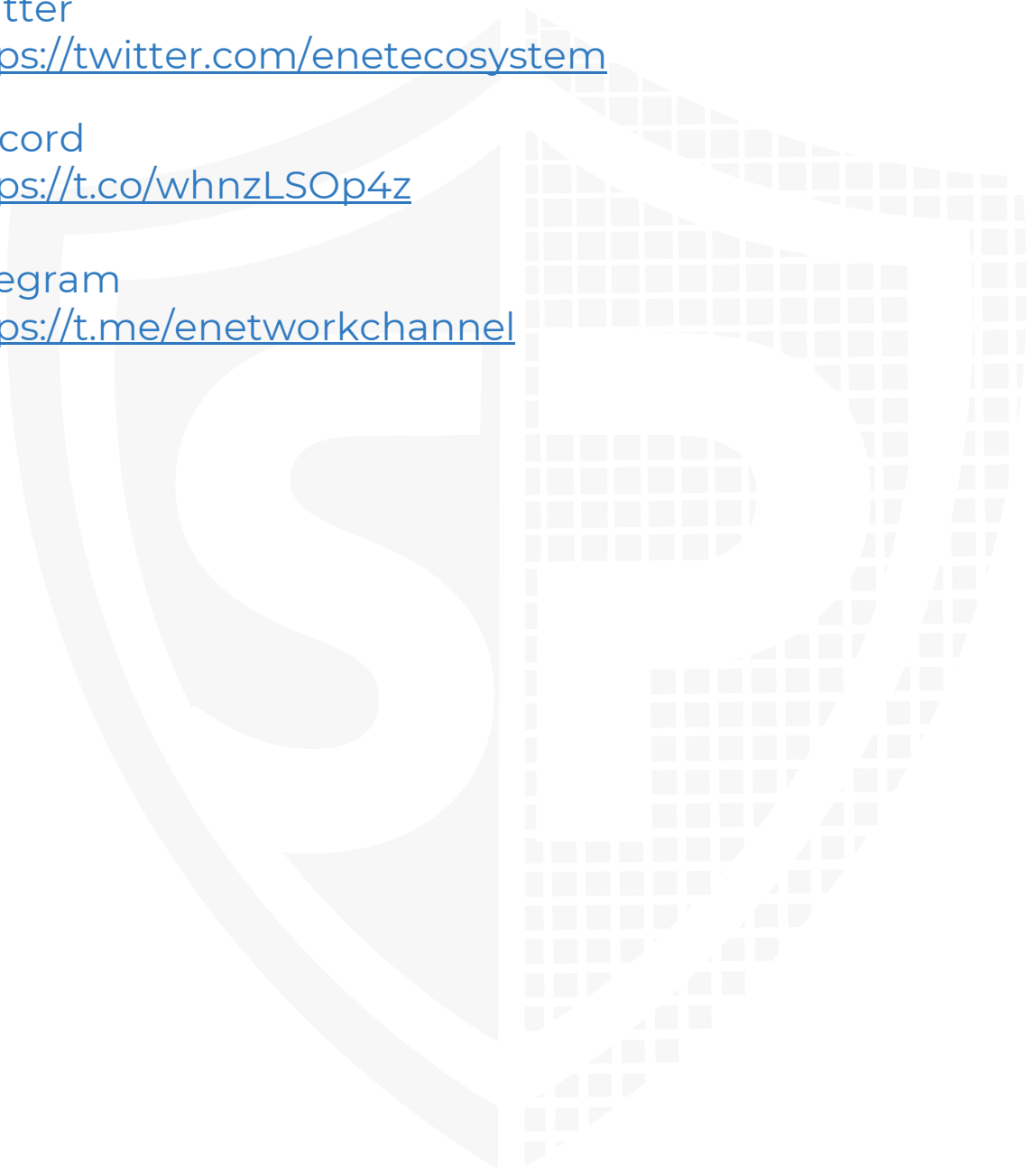
Network  
Polygon Mainnet

Website  
<https://enetecosystem.org>

Twitter  
<https://twitter.com/enetecosystem>

Discord  
<https://t.co/whnzLSOp4z>

Telegram  
<https://t.me/enetworkchannel>



## Description

Enetwork/Enetecosystem is a web3 company exploring and nurturing new ideas, innovating, and building web3 usable products.

## Project Engagement

During the 9<sup>th</sup> of June 2023, E·Network team engaged Solidproof.io to audit the smart contracts that they created. The engagement was technical in nature and focused on identifying the security flaws in the design and implementation of the contracts. They provided Solidproof.io with access to their code repository and whitepaper.

## Logo



## Contract Links

v1.0

Provided as Files

v1.1

<https://polygonscan.com/token/0x7247E0EF6B7301F9853B7Ce3b64cCf0DEfAbfa28#writeContract>

# Vulnerability & Risk Level

Risk represents the probability that a certain source-threat will exploit vulnerability, and the impact of that event on the organization or system. Risk Level is computed based on CVSS version 3.0.

Level	Value	Vulnerability	Risk (Required Action)
<b>Critical</b>	9 - 10	A vulnerability that can disrupt the contract functioning in a number of scenarios, or creates a risk that the contract may be broken.	Immediate action to reduce risk level.
<b>High</b>	7 – 8.9	A vulnerability that affects the desired outcome when using a contract, or provides the opportunity to use a contract in an unintended way.	Implementation of corrective actions as soon as possible.
<b>Medium</b>	4 – 6.9	A vulnerability that could affect the desired outcome of executing the contract in a specific scenario.	Implementation of corrective actions in a certain period.
<b>Low</b>	2 – 3.9	A vulnerability that does not have a significant impact on possible scenarios for the use of the contract and is probably subjective.	Implementation of certain corrective actions or accepting the risk.
<b>Informational</b>	0 – 1.9	A vulnerability that have informational character but is not effecting any of the code.	An observation that does not determine a level of risk

# Auditing Strategy and Techniques Applied

Throughout the review process, care was taken to evaluate the repository for security-related issues, code quality, and adherence to specification and best practices. To do so, reviewed line-by-line by our team of expert pentesters and smart contract developers, documenting any issues as there were discovered.

## **Methodology**

The auditing process follows a routine series of steps:

1. Code review that includes the following:
  - i) Review of the specifications, sources, and instructions provided to SolidProof to make sure we understand the size, scope, and functionality of the smart contract.
  - ii) Manual review of code, which is the process of reading source code line-by-line in an attempt to identify potential vulnerabilities.
  - iii) Comparison to specification, which is the process of checking whether the code does what the specifications, sources, and instructions provided to SolidProof describe.
2. Testing and automated analysis that includes the following:
  - i) Test coverage analysis, which is the process of determining whether the test cases are actually covering the code and how much code is exercised when we run those test cases.
  - ii) Symbolic execution, which is analyzing a program to determine what inputs causes each part of a program to execute.
3. Best practices review, which is a review of the smart contracts to improve efficiency, effectiveness, clarify, maintainability, security, and control based on the established industry and academic practices, recommendations, and research.
4. Specific, itemized, actionable recommendations to help you take steps to secure your smart contracts.

## Used Code from other Frameworks/Smart Contracts (direct imports)

### Imported packages:

```
@openzeppelin/contracts/token/ERC20/ERC20.sol  
@openzeppelin/contracts/security/Pausable.sol  
@openzeppelin/contracts/access/AccessControl.sol  
@openzeppelin/contracts/token/ERC20/extensions/ERC20Burnable.sol
```





# Tested Contract Files

This audit covered the following files listed below with a SHA-1 Hash.

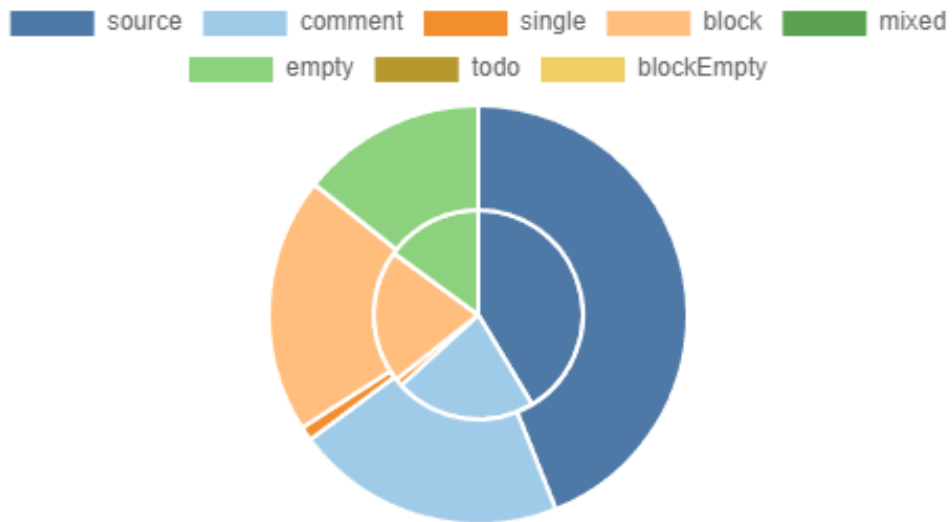
A file with a different Hash has been modified, intentionally or otherwise, after the security review. A different Hash could be (but not necessarily) an indication of a changed condition or potential vulnerability that was not within the scope of this review.

v1.0

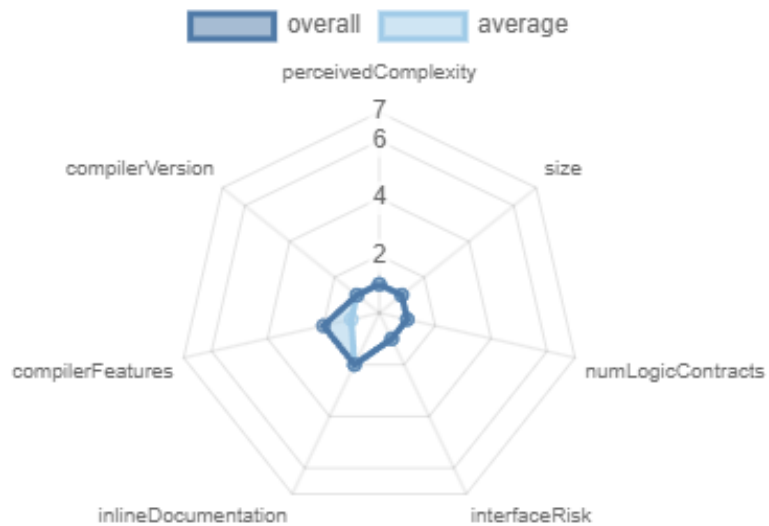
File Name	SHA-1 Hash
contracts/Enete.sol	a90efda612a3b66b9357f6377cd5502d1a2b38e0

# Metrics

## Source Lines v1.0






## Risk Level v1.0



# Capabilities

## Components

 Contracts	 Libraries	 Interfaces	 Abstract
1	0	0	0

### Exposed Functions

This section lists functions that are explicitly declared public or payable. Please note that getter methods for public stateVars are not included.





 Public	 Payable
3	0







External	Internal	Private	Pure	View
0	6	0	0	0


### StateVariables

Total	 Public
3	3

### Capabilities

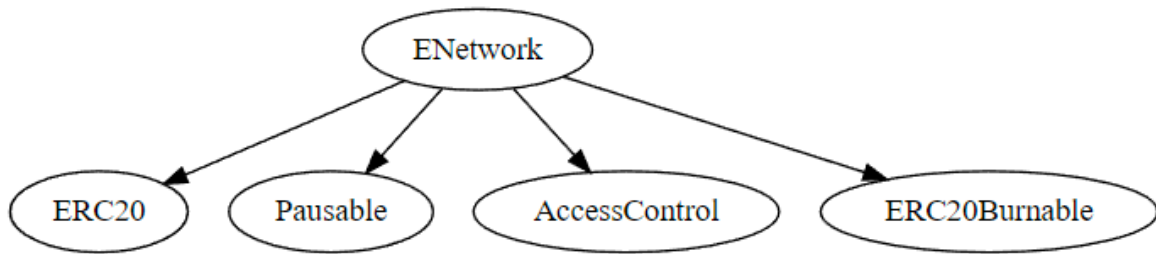
Solidity Versions observed	 Experimental Features	 Can Receive Funds	 Uses Assembly	 Has Destroyable Contracts
0.8.9				

 Transfers ETH	 Low-Level Calls	 DelegateCall	 Uses Hash Functions	 ECRecover	 New/Create/Create2
			yes		

 TryCatch	$\Sigma$ Unchecked

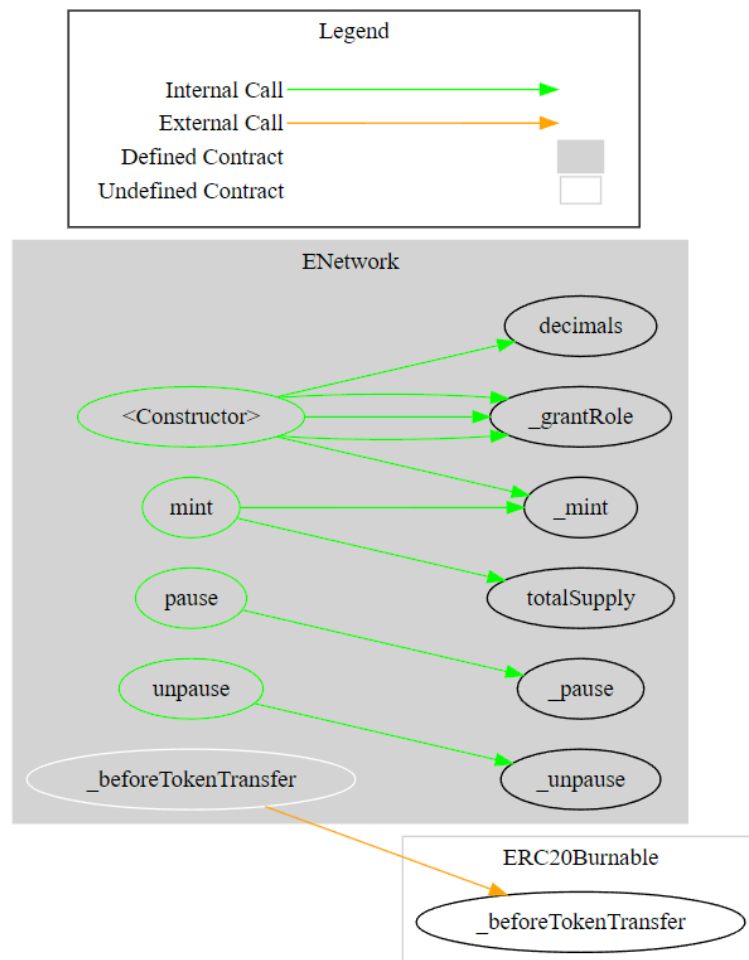
# Inheritance Graph

v1.0



## Call Graph

v1.0



## Scope of Work/Verify Claims

The above token Team provided us with the files that needs to be tested (Github, Bscscan, Etherscan, files, etc.). The scope of the audit is the main contract (usual the same name as team appended with .sol).

We will verify the following claims:

1. Is contract an upgradeable
2. Correct implementation of Token standard
3. Deployer cannot mint any new tokens
4. Deployer cannot burn or lock user funds
5. Deployer cannot pause the contract
6. Overall checkup (Smart Contract Security)



## Is contract an upgradeable

Name	
Is contract an upgradeable?	No



## Correct implementation of Token standard

ERC20				
Function	Description	Exist	Tested	Verified
totalSupply	Provides information about the total token supply	Yes	Yes	Yes
balanceOf	Provides account balance of the owner's account	Yes	Yes	Yes
transfer	Executes transfers of a specified number of tokens to a specified address	Yes	Yes	Yes
transferFrom	Executes transfers of a specified number of tokens from a specified address	Yes	Yes	Yes
approve	Allow a spender to withdraw a set number of tokens from a specified account	Yes	Yes	Yes
allowance	Returns a set number of tokens from a spender to the owner	Yes	Yes	Yes

## Deployer cannot mint any new tokens

Name	Exist	Tested	Status
Deployer cannot mint	True	True	Failed
Max / Total Supply	N/A		

### Comments:

The owner can mint tokens after the deployment not more than the total supply provided initially.



## Deployer cannot burn or lock user funds

Name	Exist	Tested	Status
Deployer cannot lock	True	True	Failed
Deployer cannot burn	N/A	N/A	N/A

### Comments:

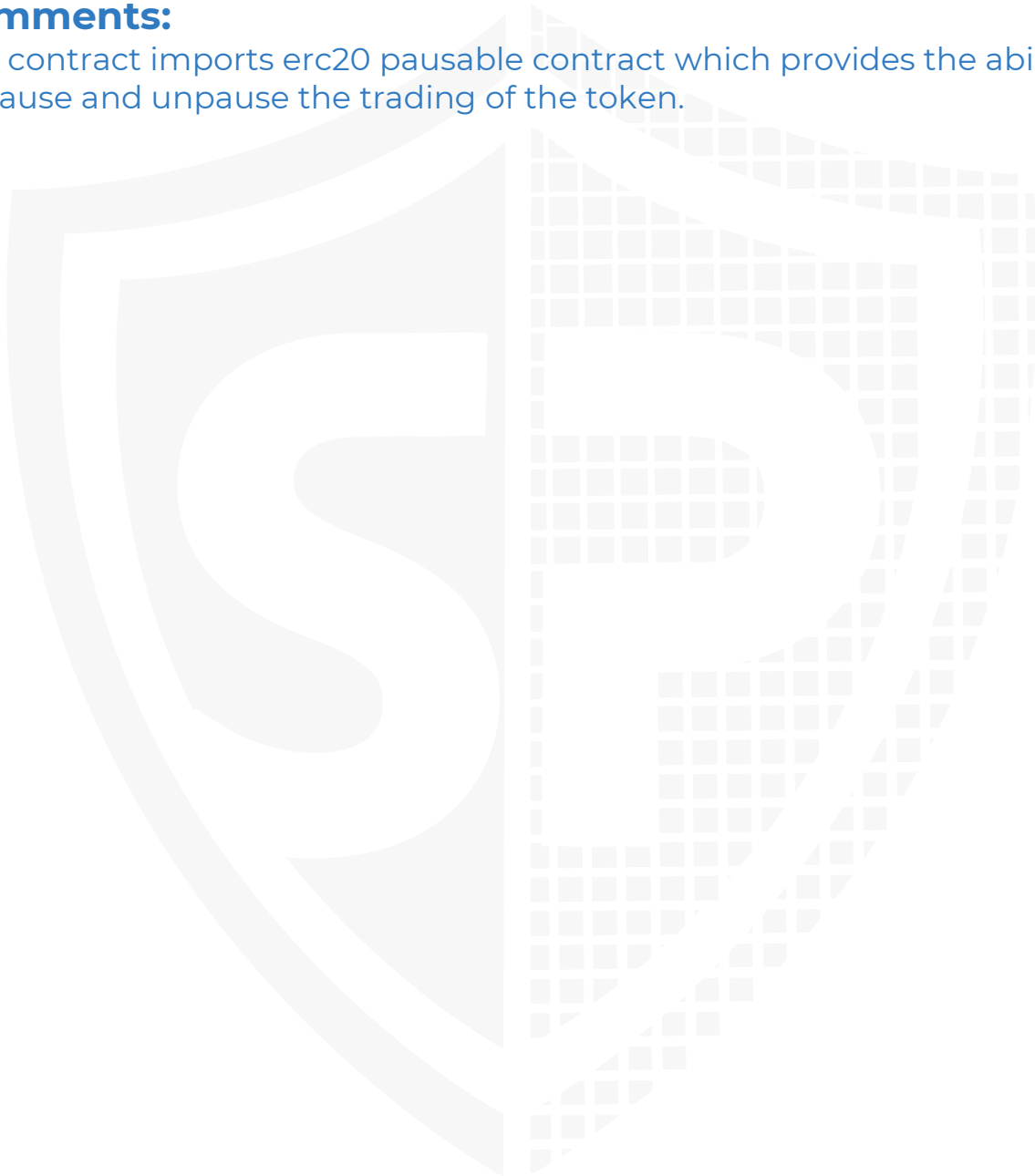
The owner has the ability to pause and unpaue the trading which can lock the user's funds.

## Deployer cannot pause the contract

Name	Exist	Tested	Status
Deployer cannot pause	True	True	Failed

### Comments:

This contract imports erc20 pausable contract which provides the ability to pause and unpaue the trading of the token.



## Overall checkup (Smart Contract Security)

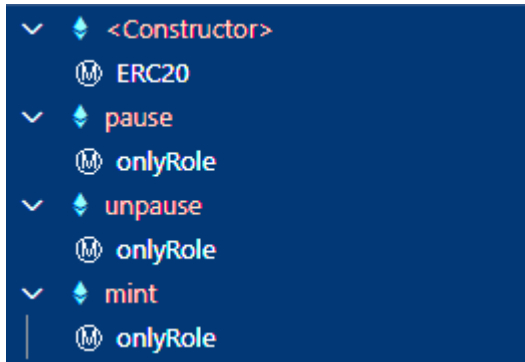
Tested	Verified

### Legend

Attribute	Symbol
Verified / Checked	
Partly Verified	
Unverified / Not checked	
Not available	

# Modifiers and public functions

v1.0







## Ownership Privileges:

- Owner can mint tokens not more than the total supply.
- Owner can pause and unpause trading.
- Owner can burn allowed tokens only.

# Source Units in Scope

v1.0

Type	File	Logic Contracts	Interfaces	Lines	nLines	nSLOC	Comment Lines	Complex. Score	Capabilities
	contracts/Enete.sol	1	————	72	68	36	19	38	
	Totals	1	————	72	68	36	19	38	

## Legend

Attribute	Description
Lines	total lines of the source unit
nLines	normalized lines of the source unit (e.g. normalizes functions spanning multiple lines)
nSLOC	normalized source lines of code (only source-code lines; no comments, no blank lines)
Comment Lines	lines containing single or block comments
Complexity Score	a custom complexity score derived from code statements that are known to introduce code complexity (branches, loops, calls, external interfaces, ...)

# Audit Results

## AUDIT PASSED

### Critical issues

No critical issues

### High issues

No high issues

### Medium issues

Issue	File	Type	Line	Description	Status
#1	Enete.sol	Owner can lock user funds.	L-46 to 53	The owner can lock the funds of users by disabling the transfer function. The transfer function can be enabled/disabled by calling the pause/unpause functions from the owner's address.	Acknowledged
#2	Enete.sol	Owner can mint tokens	L-54 to 57	The owner has the ability to mint more tokens after deploying the contract, Also he cannot mint more than the total supply that is added during the time of deployment.	Acknowledged

### Low issues

No Low issues

## Informational issues

Issue	File	Type	Line	Description
#1	Enete.sol	Natspec documentation missing	-	If you started to comment on your code, also comment on all other functions, variables, etc.

## Audit Comments

- We recommend you to use the special form of comments (NatSpec Format, Follow link for more information <https://docs.soliditylang.org/en/v0.5.10/natspec-format.html>) for your contracts to provide rich documentation for functions, return variables and more. This helps investors to make clear what those variables, functions etc. do.

### 15. June 2023:

- Owner can lock funds and can be able to enable and disable trading.
- The owner can burn only allowed tokens.
- The Owner can also mint tokens after the deployment not more than the total supply that was provided initially.
- Read the report and modifier section to get more details.

## SWC Attacks

ID	Title	Relationships	Status
<a href="#">SWC-136</a>	Unencrypted Private Data On-Chain	<a href="#">CWE-767: Access to Critical Private Variable via Public Method</a>	<b>PASSED</b>
<a href="#">SWC-135</a>	Code With No Effects	<a href="#">CWE-1164: Irrelevant Code</a>	<b>PASSED</b>
<a href="#">SWC-134</a>	Message call with hardcode	<a href="#">CWE-655: Improper Initialization</a>	<b>PASSED</b>

	d gas amount		
<a href="#">SWC-133</a>	Hash Collisions With Multiple Variable Length Arguments	<a href="#">CWE-294: Authentication Bypass by Capture-replay</a>	PASSED
<a href="#">SWC-132</a>	Unexpected Ether balance	<a href="#">CWE-667: Improper Locking</a>	PASSED
<a href="#">SWC-131</a>	Presence of unused variables	<a href="#">CWE-1164: Irrelevant Code</a>	PASSED
<a href="#">SWC-130</a>	Right-To-Left-Override control character (U+202E)	<a href="#">CWE-451: User Interface (UI) Misrepresentation of Critical Information</a>	PASSED
<a href="#">SWC-129</a>	Typographical Error	<a href="#">CWE-480: Use of Incorrect Operator</a>	PASSED
<a href="#">SWC-128</a>	DoS With Block Gas Limit	<a href="#">CWE-400: Uncontrolled Resource Consumption</a>	PASSED
<a href="#">SWC-127</a>	Arbitrary Jump with Function	<a href="#">CWE-695: Use of Low-Level Functionality</a>	PASSED



	Type Variable		
<a href="#">SWC-125</a>	Incorrect Inheritance Order	<a href="#">CWE-696: Incorrect Behavior Order</a>	<b>PASSED</b>
<a href="#">SWC-124</a>	Write to Arbitrary Storage Location	<a href="#">CWE-123: Write-what-where Condition</a>	<b>PASSED</b>
<a href="#">SWC-123</a>	Requirement Violation	<a href="#">CWE-573: Improper Following of Specification by Caller</a>	<b>PASSED</b>
<a href="#">SWC-122</a>	Lack of Proper Signature Verification	<a href="#">CWE-345: Insufficient Verification of Data Authenticity</a>	<b>PASSED</b>
<a href="#">SWC-121</a>	Missing Protection against Signature Replay Attacks	<a href="#">CWE-347: Improper Verification of Cryptographic Signature</a>	<b>PASSED</b>
<a href="#">SWC-120</a>	Weak Sources of Randomness from Chain Attributes	<a href="#">CWE-330: Use of Insufficiently Random Values</a>	<b>PASSED</b>

<a href="#">SWC-119</a>	Shadowing State Variables	<a href="#">CWE-710: Improper Adherence to Coding Standards</a>	<b>PASSED</b>
<a href="#">SWC-118</a>	Incorrect Construct or Name	<a href="#">CWE-665: Improper Initialization</a>	<b>PASSED</b>
<a href="#">SWC-117</a>	Signature Malleability	<a href="#">CWE-347: Improper Verification of Cryptographic Signature</a>	<b>PASSED</b>
<a href="#">SWC-116</a>	Timestamp Dependence	<a href="#">CWE-829: Inclusion of Functionality from Untrusted Control Sphere</a>	<b>PASSED</b>
<a href="#">SWC-115</a>	Authorization through tx.origin	<a href="#">CWE-477: Use of Obsolete Function</a>	<b>PASSED</b>
<a href="#">SWC-114</a>	Transaction Order Dependence	<a href="#">CWE-362: Concurrent Execution using Shared Resource with Improper Synchronization ('Race Condition')</a>	<b>PASSED</b>
<a href="#">SWC-113</a>	DoS with Failed Call	<a href="#">CWE-703: Improper Check or Handling of Exceptional Conditions</a>	<b>PASSED</b>
<a href="#">SWC-112</a>	Delegate call to Untrusted Callee	<a href="#">CWE-829: Inclusion of Functionality from Untrusted Control Sphere</a>	<b>PASSED</b>

<a href="#">SWC-111</a>	Use of Deprecat ed Solidity Functions	<a href="#">CWE-477: Use of Obsolete Function</a>	<b>PASSED</b>
<a href="#">SWC-110</a>	Assert Violation	<a href="#">CWE-670: Always-Incorrect Control Flow Implementation</a>	<b>PASSED</b>
<a href="#">SWC-109</a>	Uninitializ ed Storage Pointer	<a href="#">CWE-824: Access of Uninitialized Pointer</a>	<b>PASSED</b>
<a href="#">SWC-108</a>	State Variable Default Visibility	<a href="#">CWE-710: Improper Adherence to Coding Standards</a>	<b>PASSED</b>
<a href="#">SWC-107</a>	Reentran cy	<a href="#">CWE-841: Improper Enforcement of Behavioral Workflow</a>	<b>PASSED</b>
<a href="#">SWC-106</a>	Unprotec ted SELFDESTRUCT Instructio n	<a href="#">CWE-284: Improper Access Control</a>	<b>PASSED</b>
<a href="#">SWC-105</a>	Unprotec ted Ether Withdraw al	<a href="#">CWE-284: Improper Access Control</a>	<b>PASSED</b>
<a href="#">SWC-104</a>	Unchecke d Call Return Value	<a href="#">CWE-252: Unchecked Return Value</a>	<b>PASSED</b>

<a href="#">SWC-103</a>	Floating Pragma	<a href="#">CWE-664: Improper Control of a Resource Through its Lifetime</a>	<b>PASSED</b>
<a href="#">SWC-102</a>	Outdated Compiler Version	<a href="#">CWE-937: Using Components with Known Vulnerabilities</a>	<b>Failed</b>
<a href="#">SWC-101</a>	Integer Overflow and Underflow	<a href="#">CWE-682: Incorrect Calculation</a>	<b>PASSED</b>
<a href="#">SWC-100</a>	Function Default Visibility	<a href="#">CWE-710: Improper Adherence to Coding Standards</a>	<b>PASSED</b>



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