CFG NINJA AUDITS

Security Assessment

Nibble Token

February 16, 2023

Audit Status: Pass

Table of Contents

Assessment Summary

This report has been prepared for Nibble Token on the Ethereum network. CFGNINJA provides both client-centered and user-centered examination of the smart contracts and their current status when applicable. This report represents the security assessment made to find issues and vulnerabilities on the source code along with the current liquidity and token holder statistics of the protocol.

A comprehensive examination has been performed, utilizing Cross Referencing, Static Analysis, In-House Security Tools, and line-by-line Manual Review.

The auditing process pays special attention to the following considerations:

- Testing the smart contracts against both common and uncommon attack vectors.
- Inspecting liquidity and holders statistics to inform the current status to both users and client when applicable.
- Assessing the codebase to ensure compliance with current best practices and industry standards.
- Verifying contract functions that allow trusted and/or untrusted actors to mint, lock, pause, and transfer assets.
- Cross referencing contract structure and implementation against similar smart contracts produced by industry leaders
- Thorough line-by-line manual review of the entire codebase by industry experts.

Project Overview

Token Summary

Parameter	Result
Address	0xE2d593ee1018C6BeEADc3415316EEf1084061aB1
Name	Nibble
Token Tracker	Nibble (NBBL)
Decimals	18
Supply	296,000
Platform	Ethereum
compiler	v0.8.17+commit.8df45f5f
Contract Name	NIBBLE
Optimization	Yes with 200 runs
LicenseType	MIT
Language	Solidity
Codebase	https://bscscan.com/address/0xE2d593ee1018C6BeEADc3415316EEf1084061aB1#code
Payment Tx	Corporate

Project Overview

Risk Analysis Summary

Parameter	Result
Buy Tax	0%
Sale Tax	40%
Is honeypot?	Clean
Can edit tax?	Yes
Is anti whale?	Yes
Is blacklisted?	No
Is whitelisted?	No
Holders	0
Confidence Level	Low

The following quick summary it's added to the project overview; however, there are more details about the audit and its results. Please read every detail.

Project Overview

Simulation Summary

Parameter	Result
Transfer From Owner	Pass
Transfer From Holder	Pass
Add Liquidity	Pass
Buy from Owner	Pass
Buy from Holder	Pass
Remove Liquidity	Pass
SwapAndLiquify	Pass
RemoveLiquidity	Pass
LaunchPad	PinkSale

The following quick summary it's added to the project overview; however, there are more details about the audit and its results. Please read every detail.

Main Contract Assessed Contract Name

Name	Contract	Live
Nibble	0xE2d593ee1018C6BeEADc3415316EEf1084061aB1	Yes

TestNet Contract Assessed Contract Name

Name	Contract	Live
Nibble	0xE2d593ee1018C6BeEADc3415316EEf1084061aB1	Yes

Solidity Code Provided

SolID	File Sha-1	FileName
Nibble	6d1dcdf07f2fbb0458ca40559c91a3e63eed7267	nibble.sol

Mint Check

The project owners of Nibble have the ability to Mint New Tokens, The Project has a Current Supply of 296,000

We Recommend the team to review the current Mint Function.

Mint Notes:

Auditor Notes: Contract can mint up to 888,000, since this is for phase 1 then audit is failed for this.

Project Owner Notes: Customer state they will mint in 3 phases.

Fees Check

The project owners of Nibble have the ability to set higher than 25%
We Recommend the team to create a new contract with fees restrictions to avoid any problems, as alternative the team can use multi signature wallet to ensure the project is safe from a potential fee increase.

Tax Fee Notes:

Auditor Notes: The contract currently has 0% buy and 40% sale taxes, and it will go down to 0%

Project Owner Notes:

Blacklist Check

The project owners of Nibble do not have a blacklist function their contract.

The Project allow owners to transfer their tokens without any restrictions.

Token owner cannot blacklist the contract: Malicious or compromised owners can trap contracts relying on tokens with a blacklist.

Blacklist Notes:

Auditor Notes:

Project Owner Notes: undefined

MaxTx Check

The Project Owners of Nibble can set max tx amount.

The ability to set MaxTx can be used as bad actor, this can limit the ability of investors to sale their tokens at any given time if is set too low..

We recommend the project to set MaxTx to Total Supply or simiar to avoid swap or transfer from failures

MaxTX Notes:

Auditor Notes: Customer has a max Wallet Configuration now.

Project Owner Notes:

Pause Trade Check

The Project Owners of Nibble don't have the ability to stop or pause trading.

The Team has done a great job to avoid stop trading, and investors has the ability to trade at any given time without any problems

Pause Trade Notes:

Auditor Notes:

Project Owner Notes:

Contract Ownership

The contract ownership of Nibble is not currently renounced. The ownership of the contract grants special powers to the protocol creators, making them the sole addresses that can call sensible ownable functions that may alter the state of the protocol.

The current owner is the address 0x8eb594dc2209e36264606681fc67e1452083fca3 which can be viewed:
HERE

The owner wallet has the power to call the functions displayed on the privileged functions chart below, if the owner's wallet is compromised, they could exploit these privileges.

We recommend the team renounce ownership at the right time, if possible, or gradually migrate to a timelock with governing functionalities regarding transparency and safety considerations.

We recommend the team use a Multisignature Wallet if the contract is not going to be renounced; this will give the team more control over the contract.

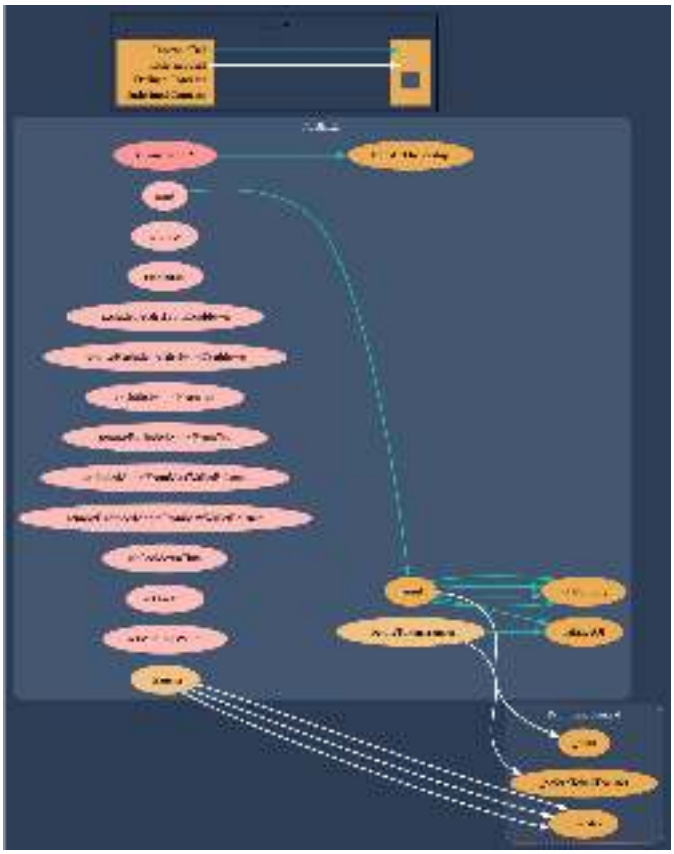
Liquidity Ownership

Most of the liquidity is currently locked; the lock can be seen here:

Liquidity Locker Link can be viewed from:
HERE

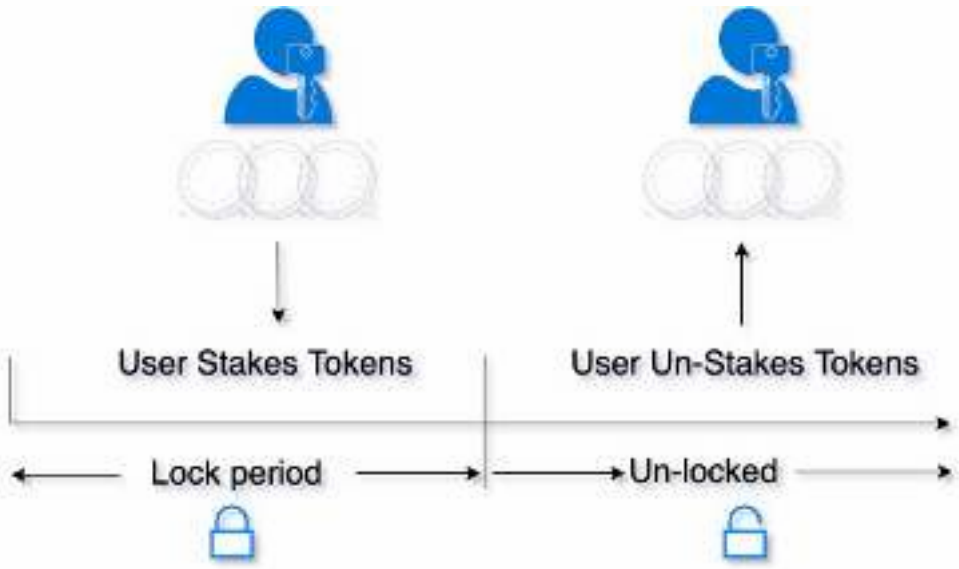
Call Graph

The contract for Nibble has the following call graph structure.



What is a Staking Contract

A smart contract which allows users to stake and un-stake a specified ERC20 token. Staked tokens are locked for a specific length of time (set by the contrat owner at the outset). Once the time period has elapsed, the user can remove their tokens again.

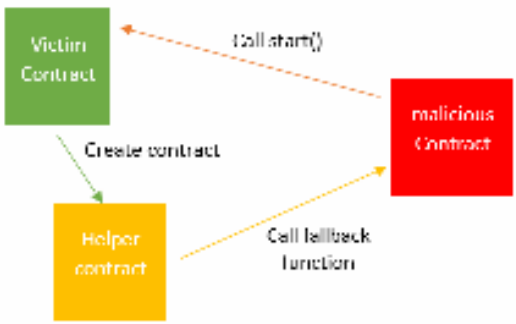


Reentrancy Check

The Project Owners of Nibble have implemented Reentrancy Guard Library

The Team has done a great job to avoid potential reentrancy issues in the contract.

You can read more about the reentrancy library used.
ReentrancyGuard



KYC Information

The Project Owners of Nibble have provided KYC Documentation.

KYC Certificated can be found on the Following:
KYC Data

KYC Information Notes:

Auditor Notes:

Project Owner Notes:

Smart Contract Vulnerability Checks

The Smart Contract Weakness Classification Registry (SWC Registry) is an implementation of the weakness classification scheme proposed in EIP-1470. It is loosely aligned to the terminologies and structure used in the Common Weakness Enumeration (CWE) while overlaying a wide range of weakness variants that are specific to smart contracts.

ID	Severity	Name	File	location
SWC-100	Pass	Function Default Visibility	nibble.sol	L: 0 C: 0
SWC-101	Pass	Integer Overflow and Underflow.	nibble.sol	L: 0 C: 0
SWC-102	Pass	Outdated Compiler Version file.	nibble.sol	L: 0 C: 0
SWC-103	Low	A floating pragma is set.	nibble.sol	L: 7 C: 0
SWC-104	Pass	Unchecked Call Return Value.	nibble.sol	L: 0 C: 0
SWC-105	Pass	Unprotected Ether Withdrawal.	nibble.sol	L: 0 C: 0
SWC-106	Pass	Unprotected SELFDESTRUCT Instruction	nibble.sol	L: 0 C: 0
SWC-107	Pass	Read of persistent state following external call.	nibble.sol	L: 0 C: 0
SWC-108	Pass	State variable visibility is not set..	nibble.sol	L: 0 C: 0
SWC-109	Pass	Uninitialized Storage Pointer.	nibble.sol	L: 0 C: 0
SWC-110	Pass	Assert Violation.	nibble.sol	L: 0 C: 0

ID	Severity	Name	File	location
SWC-111	Pass	Use of Deprecated Solidity Functions.	nibble.sol	L: 0 C: 0
SWC-112	Pass	Delegate Call to Untrusted Callee.	nibble.sol	L: 0 C: 0
SWC-113	Pass	Multiple calls are executed in the same transaction.	nibble.sol	L: 0 C: 0
SWC-114	Pass	Transaction Order Dependence.	nibble.sol	L: 0 C: 0
SWC-115	Pass	Authorization through tx.origin.	nibble.sol	L: 0 C: 0
SWC-116	Pass	A control flow decision is made based on The block.timestamp environment variable.	nibble.sol	L: 0 C: 0
SWC-117	Pass	Signature Malleability.	nibble.sol	L: 0 C: 0
SWC-118	Pass	Incorrect Constructor Name.	nibble.sol	L: 0 C: 0
SWC-119	Pass	Shadowing State Variables.	nibble.sol	L: 0 C: 0
SWC-120	Pass	Potential use of block.number as source of randonmness.	nibble.sol	L: 0 C: 0
SWC-121	Pass	Missing Protection against Signature Replay Attacks.	nibble.sol	L: 0 C: 0
SWC-122	Pass	Lack of Proper Signature Verification.	nibble.sol	L: 0 C: 0
SWC-123	Pass	Requirement Violation.	nibble.sol	L: 0 C: 0
SWC-124	Pass	Write to Arbitrary Storage Location.	nibble.sol	L: 0 C: 0
SWC-125	Pass	Incorrect Inheritance Order.	nibble.sol	L: 0 C: 0

ID	Severity	Name	File	location
SWC-126	Pass	Insufficient Gas Griefing.	nibble.sol	L: 0 C: 0
SWC-127	Pass	Arbitrary Jump with Function Type Variable.	nibble.sol	L: 0 C: 0
SWC-128	Pass	DoS With Block Gas Limit.	nibble.sol	L: 0 C: 0
SWC-129	Pass	Typographical Error.	nibble.sol	L: 0 C: 0
SWC-130	Pass	Right-To-Left-Override control character (U +202E).	nibble.sol	L: 0 C: 0
SWC-131	Pass	Presence of unused variables.	nibble.sol	L: 0 C: 0
SWC-132	Pass	Unexpected Ether balance.	nibble.sol	L: 0 C: 0
SWC-133	Pass	Hash Collisions with Multiple Variable Length Arguments.	nibble.sol	L: 0 C: 0
SWC-134	Pass	Message call with hardcoded gas amount.	nibble.sol	L: 0 C: 0
SWC-135	Pass	Code With No Effects (Irrelevant/Dead Code).	nibble.sol	L: 0 C: 0
SWC-136	Pass	Unencrypted Private Data On-Chain.	nibble.sol	L: 0 C: 0

We scan the contract for additional security issues using MYTHX and industry-standard security scanning tools.

Smart Contract Vulnerability Details

SWC-103 - Floating Pragma.

CWE-664: Improper Control of a Resource Through its Lifetime.

References:

Description:

Contracts should be deployed with the same compiler version and flags that they have been tested with thoroughly. Locking the pragma helps to ensure that contracts do not accidentally get deployed using, for example, an outdated compiler version that might introduce bugs that affect the contract system negatively.

Remediation:

Lock the pragma version and also consider known bugs (https://github.com/ethereum/solidity/releases) for the compiler version that is chosen.

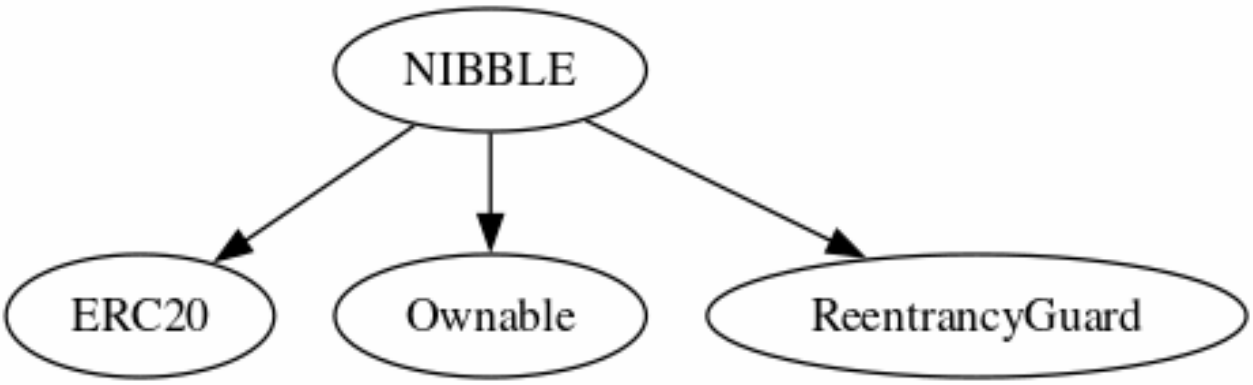
Pragma statements can be allowed to float when a contract is intended for consumption by other developers, as in the case with contracts in a library or EthPM package. Otherwise, the developer would need to manually update the pragma in order to compile locally.

References:

Ethereum Smart Contract Best Practices - Lock pragmas to specific compiler version.

Inheritance

The contract for Nibble has the following inheritance structure.



Smart Contract Advance Checks

ID	Severity	Name	Result	Status
NBBL-01	Minor	Potential Sandwich Attacks.	Pass	Not-Found
NBBL-02	Minor	Function Visibility Optimization	Pass	Not-Found
NBBL-03	Minor	Lack of Input Validation.	Fail	Pending
NBBL-04	Major	Centralized Risk In addLiquidity.	Pass	Not-Found
NBBL-05	Major	Missing Event Emission.	Fail	Pending
NBBL-06	Minor	Conformance with Solidity Naming Conventions.	Pass	Not-Found
NBBL-07	Minor	State Variables could be Declared Constant.	Pass	Not-Found
NBBL-08	Major	Dead Code Elimination.	Pass	Not-Found
NBBL-09	Major	Third Party Dependencies.	Pass	Not Found
NBBL-10	Major	Initial Token Distribution.	Pass	Not-Found
NBBL-11	Critical	The use of setHoldTime can lead to a pause trade or honeyPot State	Pass	Not-found
NBBL-12	Major	Centralization Risks In The X Role	Pass	Not Found
NBBL-13	Informational	Extra Gas Cost For User..	Pass	Not-Found
NBBL-14	Medium	Unnecessary Use Of SafeMath	Pass	Not-Found

ID	Severity	Name	Result	Status
NBBL-15	Medium	Symbol Length Limitation due to Solidity Naming Standards.	Pass	Not-Found
NBBL-16	Medium	Invalid collection of Taxes during Transfer.	Pass	Not-Found

NBBL-03 | Lack of Input Validation.

Category	Severity	Location	Status
Volatile Code	Minor	nibble.sol: 306,14	Pending

Description

The given input is missing the check for the non-zero address.

The given input is missing the check for the revokeMinter,setTaxable, setMaxBalanceOn is missing required function.

Remediation

We advise the client to add the check for the passed-in values to prevent unexpected errors as below:

```
...
 require(receiver != address(0), "Receiver is the zero address");
...
...
require(value X limitation, "Your not able to do this function");
...
```

We also recommend customer to review the following function that is missing a required validation. revokeMinter,setTaxable, setMaxBalanceOn is missing required function.

NBBL-05 | Missing Event Emission.

Category	Severity	Location	Status
Volatile Code	Major	nibble.sol: 322, 14	Pending

Description

Detected missing events for critical arithmetic parameters. There are functions that have no event emitted, so it is difficult to track off-chain changes.The linked code does not create an event for the transfer.

Remediation

Emit an event for critical parameter changes. It is recommended emitting events for the sensitive functions that are controlled by centralization roles.

Technical Findings Summary

Classification of Risk

Severity	Description
Critical	Risks are those that impact the safe functioning of a platform and must be addressed before launch. Users should not invest in any project with outstanding critical risks.
Major	Risks can include centralization issues and logical errors. Under specific circumstances, these major risks can lead to loss of funds and/or control of the project.
Medium	Risks may not pose a direct risk to users' funds, but they can affect the overall functioning of a platform
Minor	Risks can be any of the above but on a smaller scale. They generally do not compromise the overall integrity of the Project, but they may be less efficient than other solutions.
Informational	Errors are often recommended to improve the code's style or certain operations to fall within industry best practices. They usually do not affect the overall functioning of the code.

Findings

Severity	Found	Pending	Resolved
Critical	0	0	0
Major	1	1	0
Medium	0	0	0
Minor	1	1	0
Informational	0	0	0
Total	2	0	0

Social Media Checks

Social Media	URL	Result
Twitter	https://twitter.com/8bit_arcade1	Pass
Other	https://www.youtube.com/channel/UCHM7_dyHQm8iWrC8N-kE6iA	Pass
Website	https://8bit-arcade.com/	Pass
Telegram	https://t.me/The8bitcryptocommunity	Pass

We recommend to have 3 or more social media sources including a completed working websites.

Social Media Information Notes:

Auditor Notes: undefined

Project Owner Notes:

Assessment Results

Score Results

Review	Score
Overall Score	80/100
Auditor Score	85/100
Review by Section	**Score**
Manual Scan Score	30/50
SWC Scan Score	36 /37
Advance Check Score	14 /16

The Following Score System Has been Added to this page to help understand the value of the audit, the maximun score is 100, however to attain that value the project most pass and provide all the data needed for the assessment. Our Passing Score has been changed to 80 Points, if a project does not attain 80% is an automatic failure. Read our notes and final assessment below.

Audit Passed

Assessment Results

Important Notes:

- The contract can be simplified in many ways, is currently using a few incorrect logics.
- contract has a max wallet.
- The transfer works as expected.
- Add/Remove Fees,Wallet,Tax using an array. This can be simplified by using an isExcluded logic and set to true or false to be coded in a more simplified method and to save coding space. Current naming for functions is not using solidity naming structure correctly.
- Mint is set in 3 stages, each stage mints 286,000 so this token max supply will be 888,000.
- A 40% tax on sales (initially). This tax will be reduced for every subsequent mint until Platform is LIVE; then, it will be removed after consulting with the community of holders and conducting a vote (proceeds from tax will be locked into a wallet which will be used for competitions, Kichstarter funding, liquidity and anything else the holding community vote for).

Auditor Score =85
Audit Passed

Appendix

Finding Categories

Centralization / Privilege

Centralization / Privilege findings refer to either feature logic or implementation of components that actagainst the nature of decentralization, such as explicit ownership or specialized access roles incombination with a mechanism to relocate funds.

Gas Optimization

Gas Optimization findings do not affect the functionality of the code but generate different, more optimalEVM opcodes resulting in a reduction on the total gas cost of a transaction.

Logical Issue

Logical Issue findings detail a fault in the logic of the linked code, such as an incorrect notion on howblock.timestamp works.

Control Flow

Control Flow findings concern the access control imposed on functions, such as owner-only functionsbeing invoke-able by anyone under certain circumstances.

Volatile Code

Volatile Code findings refer to segments of code that behave unexpectedly on certain edge cases that mayresult in a vulnerability.

Coding Style

Coding Style findings usually do not affect the generated byte-code but rather comment on how to makethe codebase more legible and, as a result, easily maintainable.

Inconsistency

Inconsistency findings refer to functions that should seemingly behave similarly yet contain different code,such as a constructor assignment imposing different require statements on the input variables than a setterfunction.

Coding Best Practices

ERC 20 Conding Standards are a set of rules that each developer should follow to ensure the code meet a set of creterias and is readable by all the developers.

Disclaimer

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