CFG NINJA AUDITS

Security Assessment

Federal Reserve 3.0 Token

August 23, 2022

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Audit Summary

This report has been prepared for Federal Reserve 3.0 Token on the Binance Smart Chain 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.

Project Overview

Token Summary

Parameter	Result
Address	0x83df572468b836f70d166c73a631b708cc18b0f9
Name	Federal Reserve 3.0
Token Tracker	Federal Reserve 3.0 ($FED3.0)
Decimals	18
Supply	100,000,000,000
Platform	Binance Smart Chain
compiler	v0.8.16+commit.07a7930e
Contract Name	FederalReserve
Optimization	Yes with 200 runs
LicenseType	MIT
Language	Solidity
Codebase	https://bscscan.com/address/0x83df572468b836f70d166c73a631b708cc18b0f9#code
Payment Tx	0x950471ff1f9dc6022bde3852b8dfec1a22dad84fe4b67383660c97dbd41e2209

Project Overview

Risk Analysis Summary

Parameter	Result
Buy Tax	10%
Sale Tax	10%
Is honeypot?	Clean
Can edit tax?	Yes
Is anti whale?	No
Is blacklisted?	Yes
Is whitelisted?	No
Holders	Clean
Security Score	95/100
Auditor Score	96/100
Confidence Level	Pass

The following quick summary has been added to the project overview, however there are more details about the audit and their results please read every details.

Main Contract Assessed
Contract Name

Name	Contract	Live
Federal Reserve 3.0	0x83df572468b836f70d166c73a631b708cc18b0f9	Yes

TestNet Contract Assessed
Contract Name

Name	Contract	Live
Federal Reserve 3.0	0x5926CE5DBc4cC9A712Bb78e8F2752071675a2E42	Yes

Solidity Code Provided

SolID	File Sha-1	FileName
FederalReserve	b3aacbbfe7998b3d8c0ebf84f1f62d2a8664a5cf	FederalReserve.sol

Mint Check

The Project Owners of Federal Reserve 3.0 does not have a mint function in the contract, owner cannot mint tokens after initial deploy

. .

The Project has a Total Supply of 100,000,000,000 and cannot mint any more than the Max Supply.

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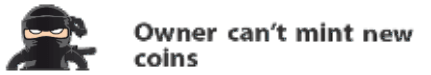
Mint Notes:

Auditor Notes: A Mint Function was not found during the code review

Project Owner Notes:



Fees Check

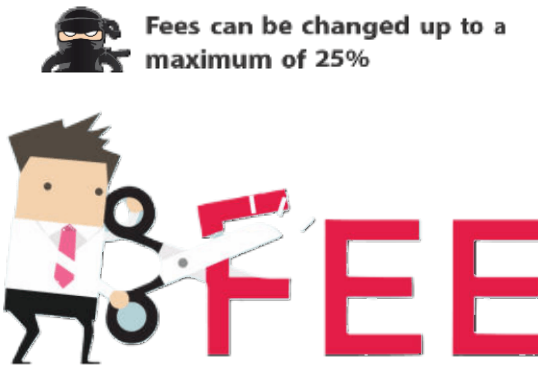
The Project Owners of Federal Reserve 3.0 does not have the ability to set fees higher than 25% .

Team May have fees defined, however they dont have the ability to set those fees higher than 25%.

Tax Fee Notes:

Auditor Notes: Contract currently have 10% tax and can be increased up to 15%

Project Owner Notes: .



Blacklist Check

The Project Onwers of Federal Reserve 3.0 has the ability to Blacklist holders from transferring their tokens.

We Recommend the team to be careful with a blacklist function as this can basically prevent ah holder from buying/selling/transferring their assets. Malicious or compromised owners can trap contracts relying on tokens with a blacklist.

Blacklist Notes:

Auditor Notes: Contract have a blacklist function presented.

Project Owner Notes: .

MaxTx Check

The Project Owners of Federal Reserve 3.0 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: Project Owner can set maxTx and maxWallet, this is currently set to total supply

Project Owner Notes: Project Owner state. cannot reduce it lower than 0.1%

Pause Trade Check

The Project Owners of Federal Reserve 3.0 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 can only start the trade and don't have the ability to stop the trade after that. function startTrading(bool _bool) external authorized.

Project Owner Notes: The Start Trade will be executed right after launch and no longer have the ability to stop the trade.

Contract Ownership

The contract ownership of Federal Reserve 3.0 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 0xc4b64e8785a670b42d72a3d4b58fae8453c12002 which can be viewed from:
HERE

The owner wallet has the power to call the functions displayed on the priviliged functions chart below, if the owner wallet is compromised this privileges could be exploited.

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

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

Liquidity Ownership

The token does not have liquidity at the moment of the audit, block 20637265

If liquidity is unlocked, then the token developers can do what is infamously known as 'rugpull'. Once investors start buying token from the exchange, the liquidity pool will accumulate more and more coins of established value (e.g., ETH or BNB or Tether). This is because investors are basically sending these tokens of value to the exchange, to get the new token. Developers can withdraw this liquidity from the exchange, cash in all the value and run off with it. Liquidity is locked by renouncing the ownership of liquidity pool (LP) tokens for a fixed time period, by sending them to a time-lock smart contract. Without ownership of LP tokens, developers cannot get liquidity pool funds back. This provides confidence to the investors that the token developers will not run away with the liquidity money. It is now a standard practice that all token developers follow, and this is what really differentiates a scam coin from a real one.

Read More

KYC Information

The Project Onwers of Federal Reserve 3.0 has provided KYC Documentation.

KYC Certificated can be found on the Following:
KYC Data

KYC Information Notes:

Auditor Notes: Asked project owner about KYC, Project owner is waiting for contract deployment to pass IDOPresales

Project Owner Notes:

Smart Contract Vulnerability Checks

ID	Severity	Name	File	location
SWC-100	Pass	Function Default Visibility	FederalReserve.sol	L: 0 C: 0
SWC-101	Pass	Integer Overflow and Underflow.	FederalReserve.sol	L: 0 C: 0
SWC-102	Pass	Outdated Compiler Version file.	FederalReserve.sol	L: 0 C: 0
SWC-103	Pass	A floating pragma is set.	FederalReserve.sol	L: 2 C: 0
SWC-104	Pass	Unchecked Call Return Value.	FederalReserve.sol	L: 0 C: 0
SWC-105	Pass	Unprotected Ether Withdrawal.	FederalReserve.sol	L: 0 C: 0
SWC-106	Pass	Unprotected SELFDESTRUCT Instruction	FederalReserve.sol	L: 0 C: 0
SWC-107	Pass	Read of persistent state following external call.	FederalReserve.sol	L: 0 C: 0
SWC-108	Pass	State variable visibility is not set..	FederalReserve.sol	L: 290 C: 12
SWC-109	Pass	Uninitialized Storage Pointer.	FederalReserve.sol	L: 0 C: 0
SWC-110	Pass	Assert Violation.	FederalReserve.sol	L: 0 C: 0
SWC-111	Pass	Use of Deprecated Solidity Functions.	FederalReserve.sol	L: 0 C: 0
SWC-112	Pass	Delegate Call to Untrusted Callee.	FederalReserve.sol	L: 0 C: 0

ID	Severity	Name	File	location
SWC-113	Pass	Multiple calls are executed in the same transaction.	FederalReserve.sol	L: 0 C: 0
SWC-114	Pass	Transaction Order Dependence.	FederalReserve.sol	L: 0 C: 0
SWC-115	Pass	Authorization through tx.origin.	FederalReserve.sol	L: 0 C: 0
SWC-116	Pass	A control flow decision is made based on The block.timestamp environment variable.	FederalReserve.sol	L: 0 C: 0
SWC-117	Pass	Signature Malleability.	FederalReserve.sol	L: 0 C: 0
SWC-118	Pass	Incorrect Constructor Name.	FederalReserve.sol	L: 0 C: 0
SWC-119	Pass	Shadowing State Variables.	FederalReserve.sol	L: 0 C: 0
SWC-120	Low	Potential use of block.number as source of randonmness.	FederalReserve.sol	L: 421 C: 12,L: 496 C: 22, L: 497 C: 28
SWC-121	Pass	Missing Protection against Signature Replay Attacks.	FederalReserve.sol	L: 0 C: 0
SWC-122	Pass	Lack of Proper Signature Verification.	FederalReserve.sol	L: 0 C: 0
SWC-123	Pass	Requirement Violation.	FederalReserve.sol	L: 0 C: 0
SWC-124	Pass	Write to Arbitrary Storage Location.	FederalReserve.sol	L: 0 C: 0
SWC-125	Pass	Incorrect Inheritance Order.	FederalReserve.sol	L: 0 C: 0
SWC-126	Pass	Insufficient Gas Griefing.	FederalReserve.sol	L: 0 C: 0

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

We scan the contract for additional security issues using MYTHX and industry standard security scanning tool

Smart Contract Vulnerability Details

SWC-120 - Weak Sources of Randomness from Chain Attributes

CWE-330: Use of Insufficiently Random Values

Description:

Solidity allows for ambiguous naming of state variables when inheritance is used. Contract A with a variable x could inherit contract B that also has a state variable x defined. This would result in two separate versions of x, one of them being accessed from contract A and the other one from contract B. In more complex contract systems this condition could go unnoticed and subsequently lead to security issues.

Shadowing state variables can also occur within a single contract when there are multiple definitions on the contract and function level.

Remediation:

Using commitment scheme, e.g. RANDAO. Using external sources of randomness via oracles, e.g. Oraclize. Note that this approach requires trusting in oracle, thus it may be reasonable to use multiple oracles. Using Bitcoin block hashes, as they are more expensive to mine.

References:

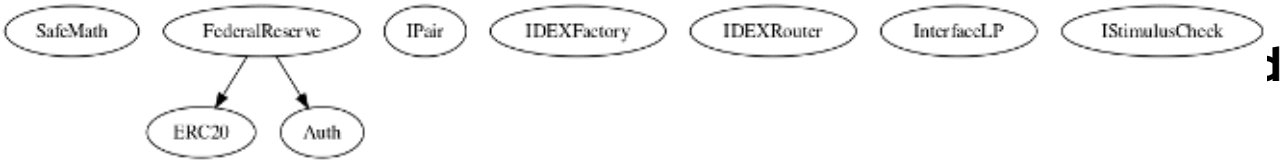
How can I securely generate a random number in my smart contract?)

When can BLOCKHASH be safely used for a random number? When would it be unsafe?

The Run smart contract.

Call Graph and Inheritance

The contract for Federal Reserve 3.0 has the following call graph structure



Priviliged Functions (onlyOwner)

Function Name	Parameters	Visibility
authorize	none	public
unauthorize	none	public
transferOwnership	none	public
clearStuckBalance	none	public
tradingStatus	none	external
setTxLimit	none	external
setMaxWallet	none	external
manage_blacklist	none	external
setBL	none	external
updateF	none	public
updateMarketingWallet	none	external

Function Name	Parameters	Visibility
setIsFeeExempt	none	external
setIsMaxWalletExempt	none	external
setIsTxLimitExempt	none	external
setBuyFees	none	external
setSellFees	none	external
setTransferFee	none	external
setFeeReceivers	none	external
setSwapBackSettings	none	external
setAutomatedMarketMakerPair	none	external
setStimulusCA	none	external

Function Name	Parameters	Visibility
updateStimulusStatus	none	external
updateStimulusCooldown	none	external
updateStimulusCheckThreshold	none	external
rescueERC20	none	external

Assessment Results

- Project Team seems to be doing the due diligence to ensure a successful launch.
- Contract has been tested and we did not found any potentiall errors or issues with the contract on our latest test.
- https://testnet.bscscan.com/address/0x2AAFe9e0B236895c631f63628b552e9d15168785
- Project Owner has the ability to authorize more than one wallet to execute the traditional onlyOwner functions.

Audit Passed

Social Media Checks

Social Media	URL	Result
Twitter	https://twitter.com/the_degen_fed	Pass
Instagram	https://www.tiktok.com/@the_degen_fed	Pass
Website	http://www.fedreserve.money/	Pass
Telegram	https://t.me/fedreserveportal	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: No other social media

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 recommendations to improve the style of the code 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	0	0
Medium	1	0	0
Minor	1	0	0
Informational	1	1	0
Total	1	1	0

$FED3.0-01 | Potential Sandwich Attacks.

Category	Severity	Location	Status
Security	Medium	FederalReserve.sol: 806,13	Pending

Description

A sandwich attack might happen when an attacker observes a transaction swapping tokens or adding liquidity without setting restrictions on slippage or minimum output amount. The attacker can manipulate the exchange rate by frontrunning (before the transaction being attacked) a transaction to purchase one of the assets and make profits by back running (after the transaction being attacked) a transaction to sell the asset. The following functions are called without setting restrictions on slippage or minimum output amount, so transactions triggering these functions are vulnerable to sandwich attacks, especially when the input amount is large:

- swapExactTokensForETHSupportingFeeOnTransferTokens()
- addLiquidityETH()

Remediation

We recommend setting reasonable minimum output amounts, instead of 0, based on token prices when calling the aforementioned functions.

Referrences:

What Are Sandwich Attacks in DeFi — and How Can You Avoid Them?.

$FED3.0-02 | Function Visibility Optimization.

Category	Severity	Location	Status
Gas Optimization	Informational	FederalReserve.sol: 0,0	Pending

Description

The following functions are declared as public and are not invoked in any of the contracts contained within the projects scope:

Function Name	Parameters	Visibility
name		public
symbol		public
decimals		public
setTaxes		public
setSellTaxes		public

The functions that are never called internally within the contract should have external visibility

Remediation

We advise that the functions' visibility specifiers are set to external and the array-based arguments change their data location from memory to calldata , optimizing the gas cost of the function.

References:

external vs public best practices.

$FED3.0-04 | Centralized Risk In addLiquidity.

Category	Severity	Location	Status
Coding Style	Major	FederalReserve.sol: 720,12	Pending

Description

uniswapV2Router.addLiquidityETH{value: ethAmount}(address(this), tokenAmount, 0, 0, owner(), block.timestamp);

The addLiquidity function calls the uniswapV2Router.addLiquidityETH function with the to address specified as owner() for acquiring the generated LP tokens from the $FED3.0-WBNB pool.
As a result, over time the _owner address will accumulate a significant portion of LP tokens.If the _owner is an EOA (Externally Owned Account), mishandling of its private key can have devastating consequences to the project as a whole.

Remediation

We advise the to address of the uniswapV2Router.addLiquidityETH function call to be replaced by the contract itself, i.e. address(this) , and to restrict the management of the LP tokens within the scope of the contract's business logic. This will also protect the LP tokens from being stolen if the _owner account is compromised. In general, we strongly recommend centralized privileges or roles in the protocol to be improved via a decentralized mechanism or via smart-contract based accounts with enhanced security practices, f.e. Multisignature wallets.

1. Indicatively, here are some feasible solutions that would also mitigate the potential risk:
2. Time-lock with reasonable latency, i.e. 48 hours, for awareness on privileged operations;
3. Assignment of privileged roles to multi-signature wallets to prevent single point of failure due to the private key;

Introduction of a DAO / governance / voting module to increase transparency and user involvement

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

CFGNINJA has conducted an independent audit to verify the integrity of and highlight any vulnerabilities or errors, intentional or unintentional, that may be present in the codes that were provided for the scope of this audit. This audit report does not constitute agreement, acceptance or advocation for the Project that was audited, and users relying on this audit report should not consider this as having any merit for financial advice in any shape, form or nature. The contracts audited do not account for any economic developments that may be pursued by the Project in question, and that the veracity of the findings thus presented in this report relate solely to the proficiency, competence, aptitude and discretion of our independent auditors, who make no guarantees nor assurance that the contracts are completely free of exploits, bugs, vulnerabilities or deprecation of technologies.

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