Cyberscope

Audit Report

# Fitness Token

July 2022

| | |
|---|---|
| Type | BEP20 |
| Network | BSC |
| Address | 0xfd77214b4a1aa6f962972cbe65fb179c501d9094 |
| Audited by | © cyberscope |

# Table of Contents

# Contract Review

| | |
|---|---|
| **Contract Name** | SecondToken |
| **Compiler Version** | v0.8.12+commit.f00d7308 |
| **Optimization** | 20 runs |
| **Licence** | MIT |
| **Explorer** | https://bscscan.com/token/0xfd77214b4a1aa6f962972cbe65fb179c501d9094 |
| **Symbol** | FIT |
| **Decimals** | 18 |
| **Total Supply** | - |
| **Domain** | https://healthfi.app/ |

# Source Files

| **Filename** | **SHA256** |
|---|---|
| **contract.sol** | 7c9049b44dbe5167e13c03a9814cec3fac5e9822c5bac3c5dbce7bfd75eaa898 |

# Audit Updates

| | |
|---|---|
| **Initial Audit** | 7th July 2022 |
| **Corrected** | |

# Contract Analysis

🔴 Critical 🟠 Medium ⚪ Minor 🔵 Pass

| Severity | Code | Description |
|---|---|---|
| 🔵 | ST | Contract Owner is not able to stop or pause transactions |
| ⚪ | OCTD | Contract Owner is not able to transfer tokens from specific address |
| 🔵 | OTUT | Owner Transfer User's Tokens |
| 🔵 | ELFM | Contract Owner is not able to increase fees more than a reasonable percent (25%) |
| ⚪ | ULTW | Contract Owner is not able to increase the amount of liquidity taken by dev wallet more than a reasonable percent |
| 🔴 | MT | Contract Owner is not able to mint new tokens |
| 🔴 | BT | Contract Owner is not able to burn tokens from specific wallet |
| 🔵 | BC | Contract Owner is not able to blacklist wallets from selling |

# OCTD - Owner Contract Tokens Drain

| | |
|---|---|
| **Criticality** | minor |
| **Location** | contract.sol#L1518 |

## Description

The contract owner has the authority to claim all the balance of the contract. The owner may take advantage of it by calling the sweepTokenForBosses function.

```
function sweepTokenForBosses(uint256 tokenAmount)
    external
    onlyRole(SWEEPER_ROLE)
{
    uint256 contractTokenBalance = balanceOf(address(this));
    if (tokenAmount > contractTokenBalance) {
        tokenAmount = contractTokenBalance;
    }
    if (tokenAmount >= tokenForBosses) {
        _swapTokensForEth(tokenForBosses);
    } else {
        _swapTokensForEth(tokenAmount);
    }
}
```

## Recommendation

The team should carefully manage the private keys of the owner’s account. We strongly recommend a powerful security mechanism that will prevent a single user from accessing the contract admin functions. That risk can be prevented by temporarily locking the contract or renouncing ownership.

# ULTW - Unlimited Liquidity to Team Wallet

| | |
|---|---|
| **Criticality** | minor |
| **Location** | contract.sol#L1533 |

## Description

The contract owner has the authority to transfer funds without limit to the team wallet. These funds have been accumulated from fees collected from the contract. The owner may take advantage of it by calling the withDraw method.

```
function withDraw() external onlyRole(BOSS_CONTROL_ROLE) {
    // just in-case swap not work
    uint256 contractTokenBalance = balanceOf(address(this));
    _transfer(address(this), addressForBosses, contractTokenBalance);
}
```

## Recommendation

The contract could embody a check for the maximum amount of funds that can be swapped. Since a huge amount may volatile the token’s price.

The team should carefully manage the private keys of the owner’s account. We strongly recommend a powerful security mechanism that will prevent a single user from accessing the contract admin functions. That risk can be prevented by temporarily locking the contract or renouncing ownership.

# MT - Mint Tokens

| | |
|---|---|
| **Criticality** | critical |
| **Location** | contract.sol#L1504 |

## Description

The contract owner has the authority to mint tokens. The owner may take advantage of it by calling the mint function. As a result the contract tokens will be highly inflated.

```
function mint(address account, uint256 amount)
    external
    onlyRole(MINTER_ROLE)
{
    _mint(account, amount);
}
```

## Recommendation

The owner should carefully manage the credentials of the owner's account. We advised considering an extra-strong security mechanism that the actions may be quarantined by many users instead of one. The owner could also renounce the contract ownership for a period of time or pass the access to the zero address.

# BT - Burn Tokens

| | |
|---|---|
| **Criticality** | critical |
| **Location** | contract.sol#L1511 |

## Description

The contract owner has the authority to burn tokens from a specific address. The owner may take advantage of it by calling the burn function. As a result the targeted contract address will lose the corresponding tokens.

```
function burn(address account, uint256 amount)
    external
    onlyRole(BURNER_ROLE)
{
    _burn(account, amount);
}
```

## Recommendation

The owner should carefully manage the credentials of the owner's account. We advised considering an extra-strong security mechanism that the actions may be quarantined by many users instead of one. The owner could also renounce the contract ownership for a period of time or pass the access to the zero address.

# Contract Diagnostics

🔴 Critical 🟠 Medium ● Minor

| Severity | Code | Description |
|---|---|---|
| ● | FSA | Fixed Swap Address |
| ● | L01 | Public Function could be Declared External |
| ● | L02 | State Variables could be Declared Constant |
| ● | L04 | Conformance to Solidity Naming Conventions |
| ● | L09 | Dead Code Elimination |
| ● | L14 | Uninitialized Variables in Local Scope |

# FSA - Fixed Swap Address

| | |
|---|---|
| **Criticality** | minor |
| **Location** | contract.sol#L1598 |

## Description

The swap address is assigned once in the constructor and it can not be changed. The decentralized swaps sometimes create a new swap version or abandon the current. A contract that cannot change the swap address may not be able to catch-up the upgrade.

```
Fitness Token
IUniswapV2Router02 _uniswapV2Router = IUniswapV2Router02(
    newRouter // address uniswap
);
uniswapV2Pair = IUniswapV2Factory(_uniswapV2Router.factory())
    .createPair(address(this), _uniswapV2Router.WETH());
uniswapV2Router = _uniswapV2Router;
```

## Recommendation

It could be better to allow the swap address mutation in case of future swap updates.

# L01 - Public Function could be Declared External

| | |
|---|---|
| **Criticality** | minor |
| **Location** | contract.sol#L529,458,572,441,484,552,433,1116,1129,465,507,1147 |

## Description

Public functions that are never called by the contract should be declared external to save gas.

```
renounceRole
approve
totalSupply
revokeRole
grantRole
name
increaseAllowance
transfer
symbol
...
```

## Recommendation

Use the external attribute for functions never called from the contract.

# L02 - State Variables could be Declared Constant

| | |
|---|---|
| **Criticality** | minor |
| **Location** | contract.sol#L1482 |

## Description

Constant state variables should be declared constant to save gas.

```
maxSupply
```

## Recommendation

Add the constant attribute to state variables that never change.

# L04 - Conformance to Solidity Naming Conventions

| | |
|---|---|
| **Criticality** | minor |
| **Location** | contract.sol#L1421,1448,1408,1434,1217,1398 |

## Description

Solidity defines a naming convention that should be followed. Rule exceptions:

- Allow constant variable name/symbol/decimals to be lowercase.
- Allow _ at the beginning of the mixed_case match for private variables and unused parameters.

```
_target
WETH
_tokenForBosses
_sellFeeRate
_buyFeeRate
_addressForBosses
```

## Recommendation

Follow the Solidity naming convention.
https://docs.soliditylang.org/en/v0.4.25/style-guide.html#naming-conventions.

# L09 - Dead Code Elimination

| | |
|---|---|
| **Criticality** | minor |
| **Location** | contract.sol#L1180,888,863 |

## Description

Functions that are not used in the contract, and make the code's size bigger.

```
toString
toHexString
_setRoleAdmin
```

## Recommendation

Remove unused functions.

# L14 - Uninitialized Variables in Local Scope

| | |
|---|---|
| **Criticality** | minor |
| **Location** | contract.sol#L1557 |

## Description

The are variables that are defined in the local scope and are not initialized.

```
transferFeeRate
```

## Recommendation

All the local scoped variables should be initialized.

# Contract Functions

| Contract | Type | Bases | | |
|---|---|---|---|---|
| | Function Name | Visibility | Mutability | Modifiers |
| | | | | |
| **SafeMath** | Library | | | |
| | tryAdd | Internal | | |
| | trySub | Internal | | |
| | tryMul | Internal | | |
| | tryDiv | Internal | | |
| | tryMod | Internal | | |
| | add | Internal | | |
| | sub | Internal | | |
| | mul | Internal | | |
| | div | Internal | | |
| | mod | Internal | | |
| | sub | Internal | | |
| | div | Internal | | |
| | mod | Internal | | |
| | | | | |
| **IERC20** | Interface | | | |
| | totalSupply | External | | - |
| | balanceOf | External | | - |
| | transfer | External | ✓ | - |
| | allowance | External | | - |
| | approve | External | ✓ | - |
| | transferFrom | External | ✓ | - |
| | | | | |
| **IERC20Metadata** | Interface | IERC20 | | |
| | name | External | | - |
| | symbol | External | | - |
| | decimals | External | | - |
| | | | | |

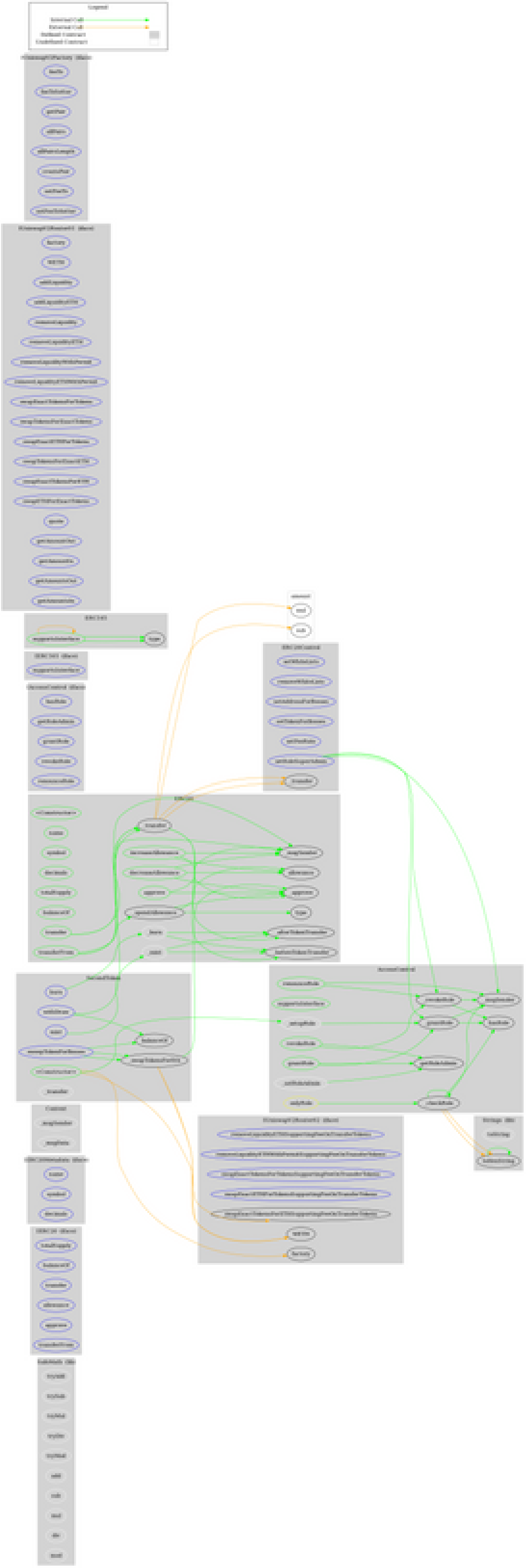
| | | | | |
|---|---|---|---|---|
| **Context** | Implementation | | | |
| | _msgSender | Internal | | |
| | _msgData | Internal | | |
| | | | | |
| **ERC20** | Implementation | Context, IERC20, IERC20Metadata | | |
| | <Constructor> | Public | ✓ | - |
| | name | Public | | - |
| | symbol | Public | | - |
| | decimals | Public | | - |
| | totalSupply | Public | | - |
| | balanceOf | Public | | - |
| | transfer | Public | ✓ | - |
| | allowance | Public | | - |
| | approve | Public | ✓ | - |
| | transferFrom | Public | ✓ | - |
| | increaseAllowance | Public | ✓ | - |
| | decreaseAllowance | Public | ✓ | - |
| | _transfer | Internal | ✓ | |
| | _mint | Internal | ✓ | |
| | _burn | Internal | ✓ | |
| | _approve | Internal | ✓ | |
| | _spendAllowance | Internal | ✓ | |
| | _beforeTokenTransfer | Internal | ✓ | |
| | _afterTokenTransfer | Internal | ✓ | |
| | | | | |
| **IAccessControl** | Interface | | | |
| | hasRole | External | | - |
| | getRoleAdmin | External | | - |
| | grantRole | External | ✓ | - |
| | revokeRole | External | ✓ | - |
| | renounceRole | External | ✓ | - |
| | | | | |

| | | | | |
|---|---|---|---|---|
| **Strings** | Library | | | |
| | toString | Internal | | |
| | toHexString | Internal | | |
| | toHexString | Internal | | |
| | | | | |
| **IERC165** | Interface | | | |
| | supportsInterface | External | | - |
| | | | | |
| **ERC165** | Implementation | IERC165 | | |
| | supportsInterface | Public | | - |
| | | | | |
| **AccessControl** | Implementation | Context, IAccessControl, ERC165 | | |
| | supportsInterface | Public | | - |
| | hasRole | Public | | - |
| | _checkRole | Internal | | |
| | _checkRole | Internal | | |
| | getRoleAdmin | Public | | - |
| | grantRole | Public | ✓ | onlyRole |
| | revokeRole | Public | ✓ | onlyRole |
| | renounceRole | Public | ✓ | - |
| | _setupRole | Internal | ✓ | |
| | _setRoleAdmin | Internal | ✓ | |
| | _grantRole | Internal | ✓ | |
| | _revokeRole | Internal | ✓ | |
| | | | | |
| **IUniswapV2Router01** | Interface | | | |
| | factory | External | | - |
| | WETH | External | | - |
| | addLiquidity | External | ✓ | - |
| | addLiquidityETH | External | Payable | - |
| | removeLiquidity | External | ✓ | - |
| | removeLiquidityETH | External | ✓ | - |

| | | | | |
|---|---|---|---|---|
| | removeLiquidityWithPermit | External | ✓ | - |
| | removeLiquidityETHWithPermit | External | ✓ | - |
| | swapExactTokensForTokens | External | ✓ | - |
| | swapTokensForExactTokens | External | ✓ | - |
| | swapExactETHForTokens | External | Payable | - |
| | swapTokensForExactETH | External | ✓ | - |
| | swapExactTokensForETH | External | ✓ | - |
| | swapETHForExactTokens | External | Payable | - |
| | quote | External | | - |
| | getAmountOut | External | | - |
| | getAmountIn | External | | - |
| | getAmountsOut | External | | - |
| | getAmountsIn | External | | - |
| | | | | |
| **IUniswapV2Router02** | Interface | IUniswapV2Router01 | | |
| | removeLiquidityETHSupportingFeeOnTransferTokens | External | ✓ | - |
| | removeLiquidityETHWithPermitSupportingFeeOnTransferTokens | External | ✓ | - |
| | swapExactTokensForTokensSupportingFeeOnTransferTokens | External | ✓ | - |
| | swapExactETHForTokensSupportingFeeOnTransferTokens | External | Payable | - |
| | swapExactTokensForETHSupportingFeeOnTransferTokens | External | ✓ | - |
| | | | | |
| **IUniswapV2Factory** | Interface | | | |
| | feeTo | External | | - |
| | feeToSetter | External | | - |
| | getPair | External | | - |
| | allPairs | External | | - |
| | allPairsLength | External | | - |
| | createPair | External | ✓ | - |
| | setFeeTo | External | ✓ | - |
| | setFeeToSetter | External | ✓ | - |

| | | | | |
|---|---|---|---|---|
| | | | | |
| **ERC20Control** | Implementation | AccessControl | | |
| | setWhiteLists | External | ✓ | onlyRole |
| | removeWhiteLists | External | ✓ | onlyRole |
| | setAddressForBosses | External | ✓ | onlyRole |
| | setTokenForBosses | External | ✓ | onlyRole |
| | setFeeRate | External | ✓ | onlyRole |
| | setRoleSuperAdmin | External | ✓ | onlyRole |
| | | | | |
| **SecondToken** | Implementation | ERC20, ERC20Control | | |
| | <Constructor> | Public | ✓ | ERC20 |
| | mint | External | ✓ | onlyRole |
| | burn | External | ✓ | onlyRole |
| | sweepTokenForBosses | External | ✓ | onlyRole |
| | withDraw | External | ✓ | onlyRole |
| | _swapTokensForEth | Private | ✓ | |
| | _transfer | Internal | ✓ | |

# Contract Flow



# Domain Info

| | |
|---|---|
| **Domain Name** | healthfi.app |
| **Registry Domain ID** | 48E38B29B-APP |
| **Creation Date** | 2022-05-03T12:10:51Z |
| **Updated Date** | 2022-05-08T12:10:51Z |
| **Registry Expiry Date** | 2024-05-03T12:10:51Z |
| **Registrar WHOIS Server** | whois.godaddy.com |
| **Registrar URL** | https://www.godaddy.com/ |
| **Registrar** | GoDaddy.com, LLC |
| **Registrar IANA ID** | 146 |

The domain has been created in almost 2 years before the creation of the audit.

There is no public billing information, the creator is protected by the privacy settings.

# Summary

There are some functions that can be abused by the owner like transferring tokens to the team’s wallet, transferring funds to the team’s wallet, minting tokens and burning tokens. if the contract owner abuse the mint functionality, then the contract will be highly inflated. The users could lost their tokens. A multi-wallet signing pattern will provide security against potential hacks. Temporarily locking the contract or renouncing ownership will eliminate all the contract threats.There is also a limit of max 20% fees.

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# About Cyberscope

Coinscope audit and K.Y.C. service has been rebranded to Cyberscope.

Coinscope is the leading early coin listing, voting and auditing authority firm. The audit process is analyzing and monitoring many aspects of the project. That way, it gives the community a good sense of security using an informative report and a generic score.

Cyberscope and Coinscope are aiming to make crypto discoverable and efficient globally. They provide all the essential tools to assist users draw their own conclusions.

The Cyberscope team

https://www.cyberscope.io