

Assure DeFi[®]

THE VERIFICATION **GOLD STANDARD**



Security Assessment

SparkStarter



Date: 05/04/2025

Audit Status: PASS

Audit Edition: Advanced+



Risk Analysis

Vulnerability summary

Classification	Description
 High	High-level vulnerabilities can result in the loss of assets or manipulation of data.
 Medium	Medium-level vulnerabilities can be challenging to exploit, but they still have a considerable impact on smart contract execution, such as allowing public access to critical functions.
 Low	Low-level vulnerabilities are primarily associated with outdated or unused code snippets that generally do not significantly impact execution, sometimes they can be ignored.
 Informational	Informational vulnerabilities, code style violations, and informational statements do not affect smart contract execution and can typically be disregarded.

Executive Summary

According to the Assure assessment, the Customer's smart contract is **Secured**.



Scope

Target Code And Revision

For this audit, we performed research, investigation, and review of the SparkStarter contracts followed by issue reporting, along with mitigation and remediation instructions outlined in this report.

Target Code And Revision

Project	Assure
Language	Solidity
Codebase	SparkStarter.sol [SHA256] 1db10b63a7159f1c12e67c606924194a35419592dd594b67fe5972dd44a9a718 SparkStarterfix.sol [SHA256] e2506462171261070d1df68da3a408ec8345bf7ebc2b2607c86ed2bd72ef775f SparkStarterv2.sol [SHA256] 4e9fc9c2314a561eb09a74794b016fbdc1b6bcd07ba6a17f820b632e329f89e2
Audit Methodology	Static, Manual

Attacks made to the contract

In order to check for the security of the contract, we tested several attacks in order to make sure that the contract is secure and follows best practices.

Category	Item
Code review & Functional Review	<ul style="list-style-type: none">• Compiler warnings.• Race conditions and Reentrancy. Cross-function race conditions.• Possible delays in data delivery.• Oracle calls.• Front running.• Timestamp dependence.• Integer Overflow and Underflow.• DoS with Revert.• DoS with block gas limit.• Methods execution permissions.• Economy model.• Private user data leaks.• Malicious Event log.• Scoping and Declarations.• Uninitialized storage pointers.• Arithmetic accuracy.• Design Logic.• Cross-function race conditions.• Safe Zeppelin module.• Fallback function security.• Overpowered functions / Owner privileges

AUDIT OVERVIEW



1. Dynamic Tax Misconfiguration Bug [Fixed ✓]

Issue: In the function that updates the tax parameters over time—`setInternalTaxes`—both the buy and sell taxes are set using the `_buyTaxes` array from `tokenInfo` rather than using the corresponding `_sellTaxes` array for sell transactions. This logic error means that, as time passes, sell tax rates will follow the buy tax schedule rather than their intended schedule.

```
if(timeSinceLaunch >= 15 minutes){
    dynamicTaxOn = false;
    buyTax = tokenInfo._buyTaxes[4];
    sellTax = tokenInfo._buyTaxes[4]; // ✗ Should be tokenInfo._sellTaxes[4]
    maxWallet = uint128(totalSupply());
    limited = false;
} else if(timeSinceLaunch >= 10 minutes){
    buyTax = tokenInfo._buyTaxes[3];
    sellTax = tokenInfo._buyTaxes[3]; // ✗ Should be tokenInfo._sellTaxes[3]
    maxWallet = uint128(totalSupply() * tokenInfo._maxWallets[3] / FEE_DIVISOR);
} else if(timeSinceLaunch >= 5 minutes){
    buyTax = tokenInfo._buyTaxes[2];
    sellTax = tokenInfo._buyTaxes[2]; // ✗ Should be tokenInfo._sellTaxes[2]
    maxWallet = uint128(totalSupply() * tokenInfo._maxWallets[2] / FEE_DIVISOR);
}
```

Recommendation:

Update the `setInternalTaxes` function so that the sell tax is drawn from the `_sellTaxes` array.

2. Low-Level ETH Transfers Without Proper Revert Handling [Acknowledge ✓]

Issue: In `convertTaxes`, after swapping tokens for ETH, the contract sends ETH to various addresses (incubator, platform, tax wallets) using low-level call but only captures the return value in a local variable (`success`) without checking it. If any of these transfers fail (e.g., because the recipient's fallback function reverts), the failure is silently ignored and may lead to ETH being locked in the contract or funds being misallocated.

Recommendation:

Check the success flag immediately after each low-level call, and revert the transaction if the transfer fails.

3. Liquidity Risk from Contract Minting [Acknowledge ✓]

Issue: When the contract mints a large quantity of tokens to its own address, a situation may arise where the `convertTaxes()` function calls `swapTokensForETH` and attempts to swap an amount that exceeds the available liquidity. If insufficient liquidity is available, this swap will revert, potentially disrupting trading when a wallet sends tokens.

Recommendation: Instead of minting the tokens intended for trading directly to the contract address, consider minting them to the owner's address (or a designated distribution wallet).

Alternatively, add pre-swap checks within `convertTaxes()` to verify that sufficient liquidity exists before attempting the token swap.

4. Potential Reentrancy in Tax Conversion Flow [Acknowledge ✓]

Issue: The function `convertTaxes` is triggered during a token transfer when the contract's token balance exceeds a threshold. It calls an external DEX router to swap tokens for ETH and then distributes ETH via several low-level calls. No reentrancy guard is present, and although a block check (`lastSwapBackBlock`) is used to limit multiple swaps per block, the external calls (especially the ETH transfers) could potentially be exploited by a malicious recipient.

Recommendation: Incorporate a reentrancy protection mechanism.



1. Excessively High Tax Values [Acknowledge ✓]

Issue: The constructor does not enforce an upper bound on the values provided in the `_buyTaxes` and `_sellTaxes` arrays. This absence of limits may allow setting extremely high tax rates, which could disrupt normal trading behavior or discourage participation.

Recommendation: Introduce `require()` statements to validate that each element in the `_buyTaxes` and `_sellTaxes` arrays is below a predefined maximum threshold.

2. Use of tx.origin in LP Minting [Fixed ✓]

Issue: In the `addLp` function, the contract uses `tx.origin` as the recipient when minting liquidity pool (LP) tokens. The use of `tx.origin` is generally discouraged because it may lead to unintended behavior when the transaction originates from another contract.

Recommendation: Use `msg.sender` instead of `tx.origin`.



1. Unbounded Array Iteration Risk [Acknowledge ✓]

Issue: The `whitelistWallets()` function processes an input array of wallet addresses without checking its size. If the array is excessively large, the transaction might run out of gas, causing the function to fail.

Recommendation: Add a `require()` statement to limit the maximum allowed size of the input array.



1. Lack of Descriptive Revert Messages for Array Length [Acknowledge ✓]

Issue: Although the constructor checks that the arrays `_buyTaxes`, `_sellTaxes`, and `_maxWallets` have the expected length (5), it currently does not provide clear error messages if these checks fail. This absence makes it more difficult to diagnose issues during deployment.

Recommendation: Enhance each `require()` check with a descriptive error message.

2. Lack of Event Emission for Dynamic Tax Changes [Acknowledge ✓]

Issue: The `setInternalTaxes()` function updates tax rates and max wallet limits over time without emitting any events. This lack of on-chain logging makes it harder to track tax parameter changes, reducing transparency.

Recommendation: Emit events whenever tax rates or wallet limits change, e.g., after each update in `setInternalTaxes()`.

3. Redundant ABIEncoderV2 Pragma [Acknowledge ✓]

Issue: The contract includes `pragma experimental ABIEncoderV2`; even though ABIEncoderV2 is the default and no longer experimental in Solidity 0.8.25.

Recommendation: Remove the redundant experimental pragma to clean up the code and avoid confusion.

Testing coverage

During the testing phase, custom use cases were written to cover all the logic of contracts. **Check “Annexes” to see the testing code.*

SparkStarter contract tests:

```
tests/test_spark_starter.py::test_constructor RUNNING
Transaction sent: 0x39e60746b9c2e540adef0b00ec586757810fa861628f6cfa8aadba71cebe935a
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 0
WETH9.constructor confirmed Block: 1 Gas used: 476546 (3.97%)
WETH9 deployed at: 0x3194c80C3dbcd3E11a07892e7bA5c3394048Cc87

Transaction sent: 0x7bae2624e4397b7e8bf657828e1e07435f469ad759872b75091dcfb92e64b42d
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 1
UniswapV2Factory.constructor confirmed Block: 2 Gas used: 2412730 (20.11%)
UniswapV2Factory deployed at: 0x602C71e4DAC47a042Ee7f46E0aeel7F94A3bA086

Transaction sent: 0xfe6097b03e1a1a43331440c45f0d3c463a215b9ce3bb912ceff4521bea2b5fc7
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 2
UniswapV2Router02.constructor confirmed Block: 3 Gas used: 3895430 (32.46%)
UniswapV2Router02 deployed at: 0xE7eD6747FaC5360f88a2EFC03E00d25789F69291

Transaction sent: 0xd7a69c87169bc658e56b4a210510d251531482bb153821b8283795c7fc9d08dd
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 3
PriceFeedMock.constructor confirmed Block: 4 Gas used: 79123 (0.66%)
PriceFeedMock deployed at: 0x6951b58d815043E3F842c1b026b0Fa888Cc20D85

Transaction sent: 0x2032d2e3331da8548c4e59ae9e9d039c1d8abd0c15392b341b06b4ff051bca3f
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 4
SparkStarterToken.constructor confirmed (Cannot mint 100% to team wallet) Block: 5 Gas used: 414731 (3.46%)

Transaction sent: 0x144e5e0b28aca8983c587e6dc826f9939cae4e2b9a89ecb148bcd5163c55be50
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 5
PriceFeedMock.constructor confirmed Block: 6 Gas used: 79123 (0.66%)
PriceFeedMock deployed at: 0x6b480e1086912A6Cb24ce3d843b3466e6c72AFd3

Transaction sent: 0xf7bbd8a5fc263f2552c2aa21421d6b9b0d22de1d02e3bd5c0e5999bb6cd3b6f6
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 6
SparkStarterToken.constructor confirmed (Cannot increase buy tax over time) Block: 7 Gas used: 952021 (7.93%)

Transaction sent: 0x455b6b747c2adbebd544b1ab11e010360bed7867c04048450b933878c3d5c022
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 7
PriceFeedMock.constructor confirmed Block: 8 Gas used: 79123 (0.66%)
PriceFeedMock deployed at: 0xcCB53c9429d32594F404d01fbc9E65ED10Cda8D9

Transaction sent: 0xf0833e9705b0415256ae7cc8ef6b2cd3e9fcf75716b54e41a6cd49cc266aba33
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 8
SparkStarterToken.constructor confirmed (Cannot increase sell tax over time) Block: 9 Gas used: 954309 (7.95%)

Transaction sent: 0xa9da7010873db423eaab4fd4c890e3efbfcd33c6f8ae67d8d11cf4c56d6d337
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 9
PriceFeedMock.constructor confirmed Block: 10 Gas used: 79123 (0.66%)
PriceFeedMock deployed at: 0xa3853d0Cd2E3fC28e8E130288F2a8D8d5EE37472

Transaction sent: 0xb668373a0bea35b269d235d10d44e654490d68e672a153d3d1535fc76e200bc8
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 10
SparkStarterToken.constructor confirmed (Cannot decrease max wallet over time) Block: 11 Gas used: 975622 (8.13%)

Transaction sent: 0x65e26c721cde94f6a5a869c61971041b3ddefbd9ed7c7e28e34358916e0932e3
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 11
PriceFeedMock.constructor confirmed Block: 12 Gas used: 79123 (0.66%)
PriceFeedMock deployed at: 0x7a3d735ee6873f17Dbdcab1d51B604928dc10d92

Transaction sent: 0xd3086df7ed83c4598c57fb0feefb8891653d3cb313c83ed3f2c95180ac68c56c
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 12
SparkStarterToken.constructor confirmed (Cannot exceed 100% for tax split) Block: 13 Gas used: 977620 (8.15%)

Transaction sent: 0xb3c4047d98a2831e7a57b46755b51b7522770b1272f9396965f0661aabe99f7f
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 13
PriceFeedMock.constructor confirmed Block: 14 Gas used: 79123 (0.66%)
PriceFeedMock deployed at: 0xe692Cf21B12e0B2717C4bF647F9768Fa58861c8b

Transaction sent: 0x04dc899b53a35d84fb37f0eb5af2a22ee57de508b8fbcd103dd38f10420dd56
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 14
SparkStarterToken.constructor confirmed Block: 15 Gas used: 5388293 (44.90%)
SparkStarterToken deployed at: 0xe65A7a341978d59d40d30FC23F5014FACB4f575A

tests/test_spark_starter.py::test_constructor PASSED
```



```
tests/test_spark_starter.py::test_constructor PASSED
tests/test_spark_starter.py::test_enable_trading RUNNING
Transaction sent: 0x9f469bb019da26fe2815a606cc98ae6582e673979541ae2a20f12d04b104d9f1
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 15
WETH9.constructor confirmed Block: 16 Gas used: 476546 (3.97%)
WETH9 deployed at: 0x303758532345801c88c2AD12541b09E9Aa53A93d

Transaction sent: 0x7acf4a9e3edf83daa9409d625c9b50011742893d8fe7efa289c238c0b73a6cd4
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 16
UniswapV2Factory.constructor confirmed Block: 17 Gas used: 2412730 (20.11%)
UniswapV2Factory deployed at: 0x26f153358B1C6a4C08660eDd694a0555A9F1cce3

Transaction sent: 0xa0d0a9219504d08c048293ea7cc4e6a229a899a6b8e3f5945351863173be3708
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 17
UniswapV2Router02.constructor confirmed Block: 18 Gas used: 3895430 (32.46%)
UniswapV2Router02 deployed at: 0xFb0588c72B438fa04Cf7c0879c8F730Faa2130a0

Transaction sent: 0x21068ecfed01e21a099d521c330f27b8f936151f7cdf2492f3c400d70913a71a
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 18
PriceFeedMock.constructor confirmed Block: 19 Gas used: 79123 (0.66%)
PriceFeedMock deployed at: 0xed00238F9A0F7b4d93842033cdf56cCB32C781c2

Transaction sent: 0xedfeaa37d85d3166fdbee11335dd6d1lee7e5306d3c75aeaf40185be7c7b657e
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 19
SparkStarterToken.constructor confirmed Block: 20 Gas used: 5388293 (44.90%)
SparkStarterToken deployed at: 0xDae02e4fE488952cFB8c951771540188647a0146

Transaction sent: 0x77506344f41e8472b90b513e690e05eefe06dfcd8695209e80db9c7f5f278d71
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 0
SparkStarterToken.enableTrading confirmed (Ownable: caller is not the owner) Block: 21 Gas used: 22241 (0.19%)

Transaction sent: 0xb2e5c381b755247d545b75296be40712b1478e5c92cdaae938713a62bc9bb378
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 20
SparkStarterToken.enableTrading confirmed Block: 22 Gas used: 69277 (0.58%)

Transaction sent: 0x81488970305370033ef26d178a3db4760182eb218337e95f6421f32892ddff36
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 0
SparkStarterToken.enableTrading confirmed (Trading already enabled) Block: 23 Gas used: 23049 (0.19%)

tests/test_spark_starter.py::test_enable_trading PASSED
```

```

tests/test_spark_starter.py::test_transfer RUNNING
Transaction sent: 0x2b938135887e99ff66900749a69e12af0f230b2ee8513c292cf92fdbc11533bc
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 21
WETH9.constructor confirmed Block: 24 Gas used: 476546 (3.97%)
WETH9 deployed at: 0x8cb61491f1859f53438918f1A5aFCA542A90397

Transaction sent: 0x4025830abff8e2ffa9c389bbab94519b0b8cf25f9ce2855f5be0d506ae075c
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 22
UniswapV2Factory.constructor confirmed Block: 25 Gas used: 2412730 (20.11%)
UniswapV2Factory deployed at: 0xd22363efee93190f82b52fcd6287dbcb920ef658

Transaction sent: 0xd31537db5fa662d7fae898896bbe236df2693a39a72267d029aeafb3318836f7
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 23
UniswapV2Router02.constructor confirmed Block: 26 Gas used: 3895430 (32.46%)
UniswapV2Router02 deployed at: 0x4018781ce5988c184f63899039d6719A522f4685

Transaction sent: 0x1ebc5ad7100fc996352b8495fd954d16db5ae52d03b525055674503cea7f0ccd
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 24
PriceFeedMock.constructor confirmed Block: 27 Gas used: 79123 (0.66%)
PriceFeedMock deployed at: 0xf9c8cf55f2E520808d869df7bc76aa3d3dd0F913

Transaction sent: 0xe6ad1ee42faef7bfff47b5ecc1db3e2083819ff9091b7932948e59c7ffd5dc431
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 25
SparkStarterToken.constructor confirmed Block: 28 Gas used: 5388295 (44.90%)
SparkStarterToken deployed at: 0x654f70d8442EA18904FA1AD79114f7250f7E9336

Transaction sent: 0x01d4456aaca688102427557edfd50550cd7173aa09646832f07d7341d041b595
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 0
SparkStarterToken.transfer confirmed (Trading not active) Block: 29 Gas used: 24883 (0.21%)

Transaction sent: 0xdf3e55eacd7ef214ac14627a28cacal9df7910a45ab582d47a02acf2064875cc
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 1
SparkStarterToken.transfer confirmed Block: 30 Gas used: 57758 (0.48%)

Transaction sent: 0x893df23de87a83f66cb654fff8350ff1d9e1e9359b23b77322ba552a5064e4f
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 26
SparkStarterToken.transfer confirmed Block: 31 Gas used: 56857 (0.47%)

Transaction sent: 0x7c14eee59a3f0b1210f01aba71761f47ed2cece12abb44f72aaa65af4b49ec71
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 27
SparkStarterToken.enableTrading confirmed Block: 32 Gas used: 69277 (0.58%)

Transaction sent: 0x8a762064bfd1b6befcffe43eff57f5758e5bc5ebd22b129adc53d59b4492b01
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 1
SparkStarterToken.transfer confirmed Block: 33 Gas used: 72902 (0.61%)

Transaction sent: 0xfe8c7a7c7eff67ed5elb1581b6877a0106fb9e45d05a231831f6ff42cf434e42
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 2
SparkStarterToken.transfer confirmed Block: 34 Gas used: 83161 (0.69%)

Transaction sent: 0x563d2cb4be7b47fcea5f6aec85eadb489b641c1249b28fa88c5fecde343f4380
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 1
SparkStarterToken.transfer confirmed Block: 35 Gas used: 52649 (0.44%)

tests/test_spark_starter.py::test_transfer PASSED

```

```

tests/test_authorized_checker.py::test_update_incubator RUNNING
Transaction sent: 0x140100e0ce01811985917e4d4bc65bdb16c330c0b99ddde18a54f637f206db87
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 0
AuthorizedChecker.constructor confirmed Block: 1 Gas used: 406782 (3.39%)
AuthorizedChecker deployed at: 0x3194c8DC3dbcd3E11a07892e7bA5c3394048Cc87

Transaction sent: 0x1f63911511bd7e82c5d5f565cae155fc49b4f4ff2b06e4bd38c86692c163ddf8
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 0
AuthorizedChecker.updateIncubator confirmed (Ownable: caller is not the owner) Block: 2 Gas used: 22965 (0.19%)

Transaction sent: 0xc365e07eb835c4fe798eca6cca02cbacce62b3e2d3eeca58055b725db6fa197f
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 1
AuthorizedChecker.updateIncubator confirmed Block: 3 Gas used: 43772 (0.36%)

tests/test_authorized_checker.py::test_update_incubator PASSED
tests/test_authorized_checker.py::test_update_deployer_addr RUNNING
Transaction sent: 0xbfbcd5c5787fb1c3935abc28c1ac762fa44d9166a94090dfe8cd96b293976ab7
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 2
AuthorizedChecker.constructor confirmed Block: 4 Gas used: 406782 (3.39%)
AuthorizedChecker deployed at: 0xE7eD6747FaC5360f88a2EFC03E00d25789F69291

Transaction sent: 0x574da35fddbf9cd28d5af409cf804e6e59ef21573feec2fbae9e929dea78a29f
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 1
AuthorizedChecker.updateDeployerAddress confirmed (Not Authorized) Block: 5 Gas used: 22928 (0.19%)

Transaction sent: 0xe2a0672e470ddb557cf007942d0e17c2a099385a898a2ba3ee4c202346470d1d
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 3
AuthorizedChecker.updateDeployerAddress confirmed Block: 6 Gas used: 65601 (0.55%)

Transaction sent: 0x1d69c18069475f14ee23ddc4c56b11ab56d37511c567e59e8a9916d09a4700ff
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 4
AuthorizedChecker.updateIncubator confirmed Block: 7 Gas used: 43760 (0.36%)

Transaction sent: 0x3f6634730a844a50ff8c61f573d04335d760a267fedbd3a7abbae709c37a1b6
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 0
AuthorizedChecker.updateDeployerAddress confirmed (reverted) Block: 8 Gas used: 24635 (0.21%)

tests/test_authorized_checker.py::test_update_deployer_addr PASSED

```

```

tests/test_spark_starter_factory.py::test_generate_token RUNNING
Transaction sent: 0x9bd5dac114ceb6b30cd466a994ba44594068090343b5a1fc5779fb7d4b6b3ac1
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 5
WETH9.constructor confirmed Block: 9 Gas used: 476546 (3.97%)
WETH9 deployed at: 0x6b48De1086912A6Cb24ce3d843b3466e6c72AFd3

Transaction sent: 0xb407585473ea7bb1172c7d8c764a9883cdc97e12f4798d657afd34c07d7a7e4
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 6
UniswapV2Factory.constructor confirmed Block: 10 Gas used: 2412730 (20.11%)
UniswapV2Factory deployed at: 0x9E4c14403d7d9A8A782044E86a93CAE09D782ac9

Transaction sent: 0x8ad16371ec92e6bb38641ab7caa448e2094a9767d4a9b8415915d3741d91d844
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 7
UniswapV2Router02.constructor confirmed Block: 11 Gas used: 3895430 (32.46%)
UniswapV2Router02 deployed at: 0xcB53c9429d32594F404d01fBe9E65ED10Cda8D9

Transaction sent: 0x88481cfd5273e0e8569c4783bf542ea7d38beecd9510aa704a8a84899edbb5d1
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 8
PriceFeedMock.constructor confirmed Block: 12 Gas used: 79123 (0.66%)
PriceFeedMock deployed at: 0x420b109989eF5baba6092029594eF45E19A04A4A

Transaction sent: 0xda4f9e9415f48b1272dc5805b76a429fe2bce5f5cf2348dc45c548578caceaf9
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 9
AuthorizedChecker.constructor confirmed Block: 13 Gas used: 406782 (3.39%)
AuthorizedChecker deployed at: 0xa3853d0Cd2E3fC28e8E130288F2a808d5EE37472

Transaction sent: 0x9b5b10702c09db8818fddd3c7bbdab0c1a5fff741995b210ca94b55023fd7ee9
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 10
SparkStarterTokenFactory.constructor confirmed Block: 14 Gas used: 4313206 (35.94%)
SparkStarterTokenFactory deployed at: 0xb6286fAFd0451320ad6A8143089b216C2152c025

Transaction sent: 0xfcd3b0315b3c6052a613874c552459e942c1a98e4513623d84425e1df8518fb6
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 11
SparkStarterTokenFactory.generateToken confirmed (not a valid deployer) Block: 15 Gas used: 37626 (0.31%)

Transaction sent: 0x811cc24ea3504c2c8f5253291cadd1e7dd3fd290d9334299a3eea0636a6e7774
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 12
SparkStarterTokenFactory.generateToken confirmed Block: 16 Gas used: 5336873 (44.47%)

Transaction sent: 0x6dae4dc088a552d343b300135d5e33dcd4dec5e2421b7c2ed091c4da06acee42
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 13
SparkStarterTokenFactory.generateToken confirmed (reverted) Block: 17 Gas used: 5131365 (42.76%)

tests/test_spark_starter_factory.py::test_generate_token PASSED

```

Sparkstarter v2 Testing:

```

tests/test_authorized_checker.py::test_update_incubator RUNNING
Transaction sent: 0x949fde7ff01ce20b0f296302b2f8cb49971c8fd96157c03434050ba7cb1ec325
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 0
AuthorizedChecker.constructor confirmed Block: 1 Gas used: 408723 (3.41%)
AuthorizedChecker deployed at: 0x3194c8DC3dbcd3E11a07B92e7bA5c3394048Cc87

Transaction sent: 0x1f63911511bd7e82c5d5f565cae155fc49b4f4ff2b06e4bd38c86692c163ddf8
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 0
AuthorizedChecker.updateIncubator confirmed (Ownable: caller is not the owner) Block: 2 Gas used: 22965 (0.19%)

Transaction sent: 0xc365e07eb835c4fe798eca6cca02cbacce62b3e2d3eeeca58055b725db6fa197f
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 1
AuthorizedChecker.updateIncubator confirmed Block: 3 Gas used: 43772 (0.36%)

tests/test_authorized_checker.py::test_update_incubator PASSED
tests/test_authorized_checker.py::test_update_deployer_addr RUNNING
Transaction sent: 0xf26546f09a39b440ba8293ec836a3ff63f55bbff9bc95163baed3531a7c4e520
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 2
AuthorizedChecker.constructor confirmed Block: 4 Gas used: 408723 (3.41%)
AuthorizedChecker deployed at: 0xE7eD6747FaC5360f88a2EFC03E00d25789F69291

Transaction sent: 0x574da35fddbfc9d28d5af409cf804e6e59ef21573feec2fbae9e929dea78a29f
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 1
AuthorizedChecker.updateDeployerAddress confirmed (Not Authorized) Block: 5 Gas used: 22928 (0.19%)

Transaction sent: 0xe2a0672e470ddb557cf007942d0e17c2a099385a898a2ba3ee4c202346470d1d
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 3
AuthorizedChecker.updateDeployerAddress confirmed Block: 6 Gas used: 65601 (0.55%)

Transaction sent: 0x1d69c18069475f14ee23ddc4c56b11ab56d37511c567e59e8a9916d09a4700ff
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 4
AuthorizedChecker.updateIncubator confirmed Block: 7 Gas used: 43760 (0.36%)

Transaction sent: 0x3f6634738a844da50ff8c61f573d04335d760a267fedbd3a7abbae709c37a1b6
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 0
AuthorizedChecker.updateDeployerAddress confirmed (reverted) Block: 8 Gas used: 24635 (0.21%)

tests/test_authorized_checker.py::test_update_deployer_addr PASSED

```

```
tests/test_spark_starter_factory.py::test_generate_token RUNNING
Transaction sent: 0x39e60746b9c2e540adef0b00ec586757810fa861628f6cfa8aadba71cebe935a
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 0
WETH9.constructor confirmed Block: 1 Gas used: 476546 (3.97%)
WETH9 deployed at: 0x3194c80C3dbcd3E11a07892e7bA5c3394048Cc87

Transaction sent: 0x7bae2624e4397b7e8bf657828e1e07435f469ad759872b75091dcfb92e64b42d
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 1
UniswapV2Factory.constructor confirmed Block: 2 Gas used: 2412730 (20.11%)
UniswapV2Factory deployed at: 0x602C71e40AC47a042Ee7f46E0ae17F94A3bA086

Transaction sent: 0xfe6097b03e1a1a43331440c45f0d3c463a215b9ce3bb912ceff4521bea2b5fc7
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 2
UniswapV2Router02.constructor confirmed Block: 3 Gas used: 3895430 (32.46%)
UniswapV2Router02 deployed at: 0xE7eD6747FaC5360f88a2EFC03E00d25789F69291

Transaction sent: 0xd7a69c87169bc658e56b4a210510d251531482bb153821b0283795c7fc9d08dd
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 3
PriceFeedMock.constructor confirmed Block: 4 Gas used: 79123 (0.66%)
PriceFeedMock deployed at: 0x6951b58d815043E3F842c1b026b0Fa888Cc2D085

Transaction sent: 0x7bda2e00eb536170f8e60d51fd029cc8d1187a78cacb573f6d2a50e365341b2
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 4
AuthorizedChecker.constructor confirmed Block: 5 Gas used: 408723 (3.41%)
AuthorizedChecker deployed at: 0xe0aA552A10d7EC8760Fc6c246D391E698a82d0f9

Transaction sent: 0xde09d9e0beadc50afcca3a97be04086823464a108b8ae73c6d0464cd3982775a
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 5
VaultFactory.constructor confirmed Block: 6 Gas used: 909135 (7.58%)
VaultFactory deployed at: 0x6b480e1086912A6Cb24ce3d843b3466e6c72AFd3

Transaction sent: 0xc8ac4bc56cc115c764f3bb254ad550412916c27baf51f6bc09fb6adf4fc3b5b4
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 6
SparkStarterTokenFactory.constructor confirmed Block: 7 Gas used: 4520399 (37.67%)
SparkStarterTokenFactory deployed at: 0x9E4c14403d7d9A8A782044E86a93CAE0907B2ac9

Transaction sent: 0x625653e623f4cb3b758367cd4f4fcac8013713cdc69e052a2e63a72f5d39a767
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 0
SparkStarterTokenFactory.generateToken confirmed (invalid deployer) Block: 8 Gas used: 36868 (0.31%)

Transaction sent: 0x35f15eb99d699bb1615ebe9490b5272c0fc6f348427d5a01c843e62390454f4b
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 7
SparkStarterTokenFactory.generateToken confirmed Block: 9 Gas used: 6235589 (51.96%)

Transaction sent: 0x3bb0a5f5767506034020663c281785cb3c702a1487c51b0c3bffe052bfc744b1
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 8
SparkStarterTokenFactory.generateToken confirmed (reverted) Block: 10 Gas used: 6030107 (50.25%)

tests/test_spark_starter_factory.py::test_generate_token PASSED
```



```
tests/test_spark_starter.py::test_constructor RUNNING
Transaction sent: 0x39e60746b9c2e540adef0b00ec586757810fa861628f6cfa8aadba71cebe935a
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 0
WETH9.constructor confirmed Block: 1 Gas used: 476546 (3.97%)
WETH9 deployed at: 0x3194c8DC3dbcd3E11a07892e7bA5c3394048Cc87

Transaction sent: 0x7bae2624e4397b7e8bf657828e1e07435f469ad759872b75091dcfb92e64b42d
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 1
UniswapV2Factory.constructor confirmed Block: 2 Gas used: 2412730 (20.11%)
UniswapV2Factory deployed at: 0x602C71e40AC47a042Ee7f46E0aee17F94A3bA086

Transaction sent: 0xfe6097b03e1a1a43331440c45f0d3c463a215b9ce3bb912ceff4521bea2b5fc7
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 2
UniswapV2Router02.constructor confirmed Block: 3 Gas used: 3895430 (32.46%)
UniswapV2Router02 deployed at: 0xE7eD6747FaC5360f88a2EFC03E00d25789F69291

Transaction sent: 0xd7a69c87169bc658e56b4a210510d251531482bb153821b8283795c7fc9d08dd
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 3
PriceFeedMock.constructor confirmed Block: 4 Gas used: 79123 (0.66%)
PriceFeedMock deployed at: 0x6951b58d815043E3F842c1b026b0Fa888Cc2D085

Transaction sent: 0x5e17ab5f43f678a92453b5211dc02cf0d251f39a48c98bc7a9afa6959b2c6ca3
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 4
VaultFactory.constructor confirmed Block: 5 Gas used: 909135 (7.58%)
VaultFactory deployed at: 0xe0aA552A10d7EC8760Fc6c246D391E698a82d0f9

Transaction sent: 0xd0809da608d82576e9e0834ed8e8886bff8f1ad71f26d287ade6644f7d985b27
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 5
SparkStarterToken.constructor confirmed (reverted) Block: 6 Gas used: 1139654 (9.50%)

Transaction sent: 0x0df9c4681cb940c3335d939f2915c383267fee24b602a57b576989e572f2adaa
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 6
PriceFeedMock.constructor confirmed Block: 7 Gas used: 79123 (0.66%)
PriceFeedMock deployed at: 0x9E4c14403d7d9A8A782044E86a93CAE09D7B2ac9

Transaction sent: 0x17091524225e8f3f161c51decf2a88c44907088bcc8254f95274677da34476fe
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 7
VaultFactory.constructor confirmed Block: 8 Gas used: 909135 (7.58%)
VaultFactory deployed at: 0xcCB53c9429d32594F404d01fbc9E65ED1DCda8D9

Transaction sent: 0x0b6c0e59628bc9890cb9e9e41c73d8bd3c0af19f7af571572bc95b15a2ac1634
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 8
SparkStarterToken.constructor confirmed (Cannot increase buy tax over time) Block: 9 Gas used: 1679068 (13.99%)

Transaction sent: 0xa9da7010873db423eaab4fd4c890e3efbfcd33c6f8ae67d8d11cf4c56d6d337
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 9
PriceFeedMock.constructor confirmed Block: 10 Gas used: 79123 (0.66%)
PriceFeedMock deployed at: 0xa3B53d0Cd2E3fC28e8E130288F2a8D0d5EE37472

Transaction sent: 0x06cfb827e9e3a37d2acb992e360887d43b0c71a6e6938a4f6446d6ea9641c8db
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 10
VaultFactory.constructor confirmed Block: 11 Gas used: 909135 (7.58%)
VaultFactory deployed at: 0xb6286fAFd0451320ad6A8143089b216C2152c025

Transaction sent: 0x4a350e0fc951ee98eb172f3c45f532b4a2b403ab23b64c0d65d8e4e576b0b02b
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 11
SparkStarterToken.constructor confirmed (Cannot increase sell tax over time) Block: 12 Gas used: 1681367 (14.01%)

Transaction sent: 0x9e94beec26bc74124f05a712c0f6010adcc82ee0b32c8dc07a04eb23812ade6c
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 12
PriceFeedMock.constructor confirmed Block: 13 Gas used: 79123 (0.66%)
PriceFeedMock deployed at: 0x2c15A315610Bfa5248E4CbCbd693320e9D8E03Cc

Transaction sent: 0x35b39dc853576aae98dc23f212897214aace80ac4b063f6fc64486499aad21a3
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 13
VaultFactory.constructor confirmed Block: 14 Gas used: 909135 (7.58%)
VaultFactory deployed at: 0xe692Cf21B12e082717C4bF647F9768Fa58861c8b
```



```
tests/test_spark_starter.py::test_transfer RUNNING
Transaction sent: 0xc2438e3d56967c01d95a5d9c624bab49dabe7bea87444459f40fb38897d3a398
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 28
WETH9.constructor confirmed Block: 31 Gas used: 476546 (3.97%)
WETH9 deployed at: 0xA95916C30979400C7443961330b3092510a2298a

Transaction sent: 0x688d89d4f3c1a22fb2d1e5bcc95ac6bd7ee1af320d560662f6535aff5c333ae5
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 29
UniswapV2Factory.constructor confirmed Block: 32 Gas used: 2412730 (20.11%)
UniswapV2Factory deployed at: 0x42E8D004c84E6B58ad55903b5CE7947AADb9E0bc

Transaction sent: 0x61d14339a382e49c3fe12ce47a3a0c69acc185c90b1cb26bce5ab4ffd844a21e
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 30
UniswapV2Router02.constructor confirmed Block: 33 Gas used: 3895430 (32.46%)
UniswapV2Router02 deployed at: 0xF06D5f5BfFFC86a52c84cfabc03A035637728E73

Transaction sent: 0x388f3386018ac83220a4519b610f9e19b60f8407d82d138454d38e40ca762781
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 31
PriceFeedMock.constructor confirmed Block: 34 Gas used: 79123 (0.66%)
PriceFeedMock deployed at: 0x82c83b7f88aef2eD99d4869D547b6ED28e69C8df

Transaction sent: 0x0825abd0bb55cc985c5c640864ded332dcc7a878820cf2be610ce938345c5eea
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 32
VaultFactory.constructor confirmed Block: 35 Gas used: 909135 (7.58%)
VaultFactory deployed at: 0x724Ca58E1e6e648FB1E15d7EEc0fe1E5f581c7b0

Transaction sent: 0xb8d4028f6ce59adfe3d5613cd3fd901fde0f66c07ba43580850f97da06c4f3f3
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 33
SparkStarterToken.constructor confirmed Block: 36 Gas used: 6299928 (52.50%)
SparkStarterToken deployed at: 0x34b97ffa01dc00C959c5f1176273D0de3be914C1

Transaction sent: 0x6066a66c97bb020491e0e7960898749cbafe9653767c629173a60f56a6a9814c
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 0
SparkStarterToken.transfer confirmed (Trading not active) Block: 37 Gas used: 24878 (0.21%)

Transaction sent: 0x648862941335c2715a4303003a5f03cd8a5c9517ceed085d56417bd84c6c0c16
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 1
SparkStarterToken.transfer confirmed Block: 38 Gas used: 57736 (0.48%)

Transaction sent: 0xd95dc35aaf92cf3d128c669d08263bfbfa73417d85ca4ce5016c76f8ec0225c1
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 34
SparkStarterToken.transfer confirmed Block: 39 Gas used: 56835 (0.47%)

Transaction sent: 0x9462345b8a9b11d38ef2e47e76b0d2148bfc78bf64b4ec9dcc0dafae8b85c184
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 35
SparkStarterToken.enableTrading confirmed Block: 40 Gas used: 54328 (0.45%)

Transaction sent: 0xe50ac026e953086629e6a04a6daa13576958058elfcdd31eb1d84d6d43a172f4
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 1
SparkStarterToken.transfer confirmed Block: 41 Gas used: 72897 (0.61%)

Transaction sent: 0x5a4d0f60acd57f19cd3a5ddae42bdd5c622f2744b3b27a35eb9a339ce3b2ac7
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 2
SparkStarterToken.transfer confirmed Block: 42 Gas used: 83156 (0.69%)

Transaction sent: 0x5c1f2f1b1e47a58c4946de3316e5986994cb9772ae58b308ee521c9fdd2ef64b
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 1
SparkStarterToken.transfer confirmed Block: 43 Gas used: 52644 (0.44%)

tests/test_spark_starter.py::test_transfer PASSED
```

```
tests/test_spark_starter.py::test_vault RUNNING
Transaction sent: 0x174deb8162511a3ef026f8dd30a17d8d491534c4e0ee4f9140719af754be01f6
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 36
WETH9.constructor confirmed Block: 44 Gas used: 476546 (3.97%)
WETH9 deployed at: 0x741e3E1f81041c62C2A97d0b6E567AcaB09A6232

Transaction sent: 0xe57b32f725a9257ccfc8d9a5a91e71768ffbe22dc9be279bcc3511040a51b5a8
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 37
UniswapV2Factory.constructor confirmed Block: 45 Gas used: 2412730 (20.11%)
UniswapV2Factory deployed at: 0x480FccF53589c1F185835db88b8315a0b8F9a3e0

Transaction sent: 0xc7172096efa028493a4bd51347c2a837ce4efc970623e74fbae1e00b1a5802
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 38
UniswapV2Router02.constructor confirmed Block: 46 Gas used: 3895430 (32.46%)
UniswapV2Router02 deployed at: 0xFE0F4Cf81B5c0a6Fd65a610FD9488F33aE9095c8

Transaction sent: 0x343c90b5e619b0e5137d165a706ed00e9f7587ada9932629d8e7f27f2523d6f8
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 39
PriceFeedMock.constructor confirmed Block: 47 Gas used: 79123 (0.66%)
PriceFeedMock deployed at: 0x4e3E7dC9084dA7BE8f017f4C36153A61341736d4

Transaction sent: 0x7df9d2902c7eb03e92304f765d0c4d9a2e973ceb11c97234c50891a458942c3f
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 40
VaultFactory.constructor confirmed Block: 48 Gas used: 909135 (7.58%)
VaultFactory deployed at: 0x0AC45e945A008D3fc19da8f591be8601C1F63130

Transaction sent: 0x4744ebb1f5894f6f93508fee0dbec36e3c1bbeb0d673584602fff8463c240e91f
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 41
SparkStarterToken.constructor confirmed Block: 49 Gas used: 6320713 (52.67%)
SparkStarterToken deployed at: 0x5847798CE8c89e3Fff59AE5fA308EC0d406b5687

0x332c8E1E7fD160fa03c248CF8DFD620309621683
Transaction sent: 0x0e897b36c7bc53d9cd36c167a50b97913fcadd0d057eb36780eff393e1a66a55
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 2
Transaction confirmed (Not Incubator) Block: 50 Gas used: 21450 (0.18%)

Transaction sent: 0xbff29221287f68f6a58a2cdd32af2f505a744483bf50a305db0019445c9b91320
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 0
Transaction confirmed (ERC20: transfer amount exceeds balance) Block: 51 Gas used: 27210 (0.23%)

Transaction sent: 0x884c91e3d1f5cee1d9b586cd8341e2b18216def149a22e81877ed4c4473ebc9c
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 1
Transaction confirmed Block: 52 Gas used: 71092 (0.59%)

Transaction sent: 0xb584718de091aa5e9e7c2bf77408e58af4479ce554e681d2f34862f7b7b7a6c7
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 2
Transaction confirmed (Taxes already approved) Block: 53 Gas used: 22749 (0.19%)

Transaction sent: 0xbce0742fce3527f9de897b4735d7e1f98b394038712a9239c42a78f267851ec2
Gas price: 0.0 gwei Gas limit: 12000000 Nonce: 3
Transaction confirmed (Not enough ETH) Block: 54 Gas used: 21752 (0.18%)

tests/test_spark_starter.py::test_vault PASSED
```

Annexes

Testing code:

SparkStarter:

```
from brownie import (
    reverts,
)

from scripts.helpful_scripts import (
    ZERO_ADDRESS,
    get_account,
    get_timestamp,
    get_chain_number,
    increase_timestamp
)

from scripts.deploy import (
    deploy_weth,
    deploy_factory,
    deploy_router,
    deploy_spark_starter_token,
)

...

struct TokenInfo {
    string _name;
    string _symbol;
```

```

uint256 _supply;

uint256 _teamTokenPercent;

address _teamTokensWallet;

uint32[] _maxWallets;

uint24[] _buyTaxes;

uint24[] _sellTaxes;

address _incubatorWallet;

address _taxWallet1;

uint24 _taxWallet1Split;

address _taxWallet2;

bool _isWhitelistLaunch;

uint8 lpLockDurationInMonths;

string jsonPayload;
}

...

```

```

def test_constructor(only_local):

    # Arrange

    owner = get_account(0)

    other = get_account(1)

    extra = get_account(2)

    team_wallet = get_account(3)

    incubator_addr = get_account(4)

    tax_addr = get_account(5)

    tax_addr_2 = get_account(6)

    platform_addr = get_account(8)

    weth = deploy_weth(owner)

```



```

factory = deploy_factory(owner, owner)

router = deploy_router(owner, factory.address, weth.address)

params = [
    "token", "tkn", 1000000,
    1000, team_wallet,
    [1000, 1000, 1000, 1000, 1000], # _maxWallets
    [1000, 1000, 1000, 1000, 1000], # buyTaxes
    [1000, 1000, 1000, 1000, 1000], # sellTaxes
    incubator_addr, tax_addr, 1000,
    tax_addr_2, False, 0, 'payload'
]

with reverts("Cannot mint 100% to team wallet"):
    deploy_spark_starter_token(owner,
        [
            "token", "tkn", 1000000,
            10000, team_wallet,
            [1000, 1000, 1000, 1000, 1000], # _maxWallets
            [1000, 1000, 1000, 1000, 1000], # buyTaxes
            [1000, 1000, 1000, 1000, 1000], # sellTaxes
            incubator_addr, tax_addr, 1000,
            tax_addr_2, False, 0, 'payload'
        ],
        platform_addr, router.address)

with reverts("Cannot increase buy tax over time"):
    deploy_spark_starter_token(owner,

```

```

[
    "token", "tkn", 1000000,
    1000, team_wallet,
    [1000, 1000, 1000, 1000, 1000], # _maxWallets
    [1000, 1000, 1000, 1000, 10000], # buyTaxes
    [1000, 1000, 1000, 1000, 1000], # sellTaxes
    incubator_addr, tax_addr, 1000,
    tax_addr_2, False, 0, 'payload'
],
platform_addr, router.address)

```

```

with reverts("Cannot increase sell tax over time"):

```

```

    deploy_spark_starter_token(owner,
    [
        "token", "tkn", 1000000,
        1000, team_wallet,
        [1000, 1000, 1000, 1000, 1000], # _maxWallets
        [1000, 1000, 1000, 1000, 1000], # buyTaxes
        [1000, 1000, 1000, 1000, 10000], # sellTaxes
        incubator_addr, tax_addr, 1000,
        tax_addr_2, False, 0, 'payload'
    ],
    platform_addr, router.address)

```

```

with reverts("Cannot decrease max wallet over time"):

```

```

    deploy_spark_starter_token(owner,
    [
        "token", "tkn", 1000000,

```

```

        1000, team_wallet,

        [1000, 10000, 1000, 1000, 1000], # _maxWallets

        [1000, 1000, 1000, 1000, 1000], # buyTaxes

        [1000, 1000, 1000, 1000, 1000], # sellTaxes

        incubator_addr, tax_addr, 1000,

        tax_addr_2, False, 0, 'payload'

    ],

    platform_addr, router.address)

```

```

with reverts("Cannot exceed 100% for tax split"):

```

```

    deploy_spark_starter_token(owner,

        [

            "token", "tkn", 1000000,

            1000, team_wallet,

            [1000, 1000, 1000, 1000, 1000], # _maxWallets

            [1000, 1000, 1000, 1000, 1000], # buyTaxes

            [1000, 1000, 1000, 1000, 1000], # sellTaxes

            incubator_addr, tax_addr, 100000,

            tax_addr_2, False, 0, 'payload'

        ],

        platform_addr, router.address)

```

```

token = deploy_spark_starter_token(owner, params, platform_addr, router.address)

```

```

def test_enable_trading(only_local):

```

```

    # Arrange

```

```

    owner = get_account(0)

```

```

    other = get_account(1)

```

```

extra = get_account(2)

team_wallet = get_account(3)

incubator_addr = get_account(4)

tax_addr = get_account(5)

tax_addr_2 = get_account(6)

platform_addr = get_account(8)


weth = deploy_weth(owner)

factory = deploy_factory(owner, owner)

router = deploy_router(owner, factory.address, weth.address)


params = [

    "token", "tkn", 1000000,

    1000, team_wallet,

    [1000, 1000, 1000, 1000, 1000], # _maxWallets

    [1000, 1000, 1000, 1000, 1000], # buyTaxes

    [1000, 1000, 1000, 1000, 1000], # sellTaxes

    incubator_addr, tax_addr, 1000,

    tax_addr_2, False, 0, 'payload'

]


token = deploy_spark_starter_token(owner, params, platform_addr, router.address)

with reverts("Ownable: caller is not the owner"):

    token.enableTrading({"from": other})


tx = token.enableTrading({"from": owner})

assert tx.events['OwnershipTransferred'][0]['previousOwner'] == owner

assert tx.events['OwnershipTransferred'][0]['newOwner'] == ZERO_ADDRESS

```

```
with reverts("Trading already enabled"):

    token.enableTrading({"from": ZERO_ADDRESS})
```

```
def test_transfer(only_local):
```

```
    # Arrange
```

```
    owner = get_account(0)
```

```
    other = get_account(1)
```

```
    extra = get_account(2)
```

```
    team_wallet = get_account(3)
```

```
    incubator_addr = get_account(4)
```

```
    tax_addr = get_account(5)
```

```
    tax_addr_2 = get_account(6)
```

```
    platform_addr = get_account(8)
```

```
    weth = deploy_weth(owner)
```

```
    factory = deploy_factory(owner, owner)
```

```
    router = deploy_router(owner, factory.address, weth.address)
```

```
    params = [
```

```
        "token", "tkn", 1000000,
```

```
        1000, team_wallet,
```

```
        [1000, 1000, 1000, 1000, 1000], # _maxWallets
```

```
        [1000, 1000, 1000, 1000, 1000], # buyTaxes
```

```
        [1000, 1000, 1000, 1000, 1000], # sellTaxes
```

```
        incubator_addr, tax_addr, 1000,
```

```
        tax_addr_2, False, 0, 'payload'
```

```
    ]
```



```
token = deploy_spark_starter_token(owner, params, platform_addr, router.address)

with reverts("Trading not active"):

    token.transfer(other, 5e18, {"from": team_wallet})

tx = token.transfer(owner, 15e18, {"from": team_wallet})

assert tx.events['Transfer'][0]['from'] == team_wallet
assert tx.events['Transfer'][0]['to'] == owner
assert tx.events['Transfer'][0]['value'] == 15e18

tx = token.transfer(other, 5e18, {"from": owner})

assert tx.events['Transfer'][0]['from'] == owner
assert tx.events['Transfer'][0]['to'] == other
assert tx.events['Transfer'][0]['value'] == 5e18

token.enableTrading({"from": owner})

tx = token.transfer(extra, 1e18, {"from": other})

assert tx.events['Transfer'][0]['from'] == other
assert tx.events['Transfer'][0]['to'] == extra
assert tx.events['Transfer'][0]['value'] == 1e18

lp_addr = token.lpPair()

tx = token.transfer(lp_addr, 1e18, {"from": other})

assert tx.events['Transfer'][0]['from'] == other
assert tx.events['Transfer'][0]['to'] == token.address
assert tx.events['Transfer'][0]['value'] == 0.1e18
assert tx.events['Transfer'][1]['from'] == other
```

```

assert tx.events['Transfer'][1]['to'] == lp_addr

assert tx.events['Transfer'][1]['value'] == 0.9e18

tx = token.transfer(extra, 0.9e18, {"from": lp_addr})

assert tx.events['Transfer'][0]['from'] == lp_addr
assert tx.events['Transfer'][0]['to'] == token.address
assert tx.events['Transfer'][0]['value'] == 0.09e18

assert tx.events['Transfer'][1]['from'] == lp_addr
assert tx.events['Transfer'][1]['to'] == extra
assert tx.events['Transfer'][1]['value'] == 0.81e18

```

Spark Starter Factory:

```

from brownie import (
    reverts,
)

from scripts.helpful_scripts import (
    ZERO_ADDRESS,
    get_account,
    get_timestamp,
    get_chain_number,
    increase_timestamp
)

from scripts.deploy import (
    deploy_weth,
    deploy_factory,

```

```

        deploy_router,

        deploy_price_feed,

        deploy_authorized_checker,

        deploy_spark_starter_factory
    )

    ...

struct TokenInfo {
    string _name;

    string _symbol;

    uint256 _supply;

    uint256 _teamTokenPercent;

    address _teamTokensWallet;

    uint32[] _maxWallets;

    uint24[] _buyTaxes;

    uint24[] _sellTaxes;

    address _incubatorWallet;

    address _taxWallet1;

    uint24 _taxWallet1Split;

    address _taxWallet2;

    bool _isWhitelistLaunch;

    uint8 lpLockDurationInMonths;

    string jsonPayload;
}

...

def test_generate_token(only_local):

```

```
# Arrange

owner = get_account(0)

other = get_account(1)

extra = get_account(2)

team_wallet = get_account(3)

incubator_addr = get_account(4)

tax_addr = get_account(5)

tax_addr_2 = get_account(6)

platform_addr = get_account(8)


weth = deploy_weth(owner)

factory = deploy_factory(owner, owner)

router = deploy_router(owner, factory.address, weth.address)

mock_price_feed = deploy_price_feed(owner)

checker = deploy_authorized_checker(owner)

factory = deploy_spark_starter_factory(owner, platform_addr, checker.address)


params = [

    "token", "tkn", 1000000,

    1000, team_wallet,

    [1000, 1000, 1000, 1000, 1000], # _maxWallets

    [1000, 1000, 1000, 1000, 1000], # buyTaxes

    [1000, 1000, 1000, 1000, 1000], # sellTaxes

    incubator_addr, tax_addr, 1000,

    tax_addr_2, False, 0, 'payload'

]
```

```

with reverts("not a valid deployer"):

    factory.generateToken(

        params, router.address, mock_price_feed.address, {"from": other})

tx = factory.generateToken(

    params, router.address, mock_price_feed.address, {"from": owner, "value": 1e18})

assert tx.events['OwnershipTransferred'][0]['previousOwner'] == ZERO_ADDRESS
assert tx.events['OwnershipTransferred'][0]['newOwner'] == factory.address
assert tx.events['OwnershipTransferred'][1]['previousOwner'] == factory.address
assert tx.events['OwnershipTransferred'][1]['newOwner'] == owner

assert tx.events['NewTokenCreated'][0]['newToken'] is not None

with reverts(): # no value

    factory.generateToken(

        params, router.address, mock_price_feed.address, {"from": owner})

```

Authorized Checker:

```

from brownie import (

    reverts,

)

from scripts.helpful_scripts import (

    ZERO_ADDRESS,

    DAY_TIMESTAMP,

    get_account,

    get_timestamp,

    get_chain_number,

```



```

        increase_timestamp

    )

from scripts.deploy import (

    deploy_authorized_checker

)

def test_update_incubator(only_local):

    # Arrange

    owner = get_account(0)

    other = get_account(1)

    extra = get_account(2)

    checker = deploy_authorized_checker(owner)

    with reverts("Ownable: caller is not the owner"):

        checker.updateIncubator(other, True, {"from": other})

    assert checker.incubatorAddress(other) == False

    checker.updateIncubator(other, True, {"from": owner})

    assert checker.incubatorAddress(other) == True

def test_update_deployer_addr(only_local):

    # Arrange

    owner = get_account(0)

    other = get_account(1)

    extra = get_account(2)

    checker = deploy_authorized_checker(owner)

```

```

with reverts("Not Authorized"):

    checker.updateDeployerAddress(other, True, {"from": other})

    assert checker.deployersIncubatorAddress(other) == ZERO_ADDRESS
    assert checker.deployerAddress(other) == False

    checker.updateDeployerAddress(other, True, {"from": owner})

    assert checker.deployersIncubatorAddress(other) == owner
    assert checker.deployerAddress(other) == True

    checker.updateIncubator(extra, True, {"from": owner})

    with reverts():

        checker.updateDeployerAddress(other, False, {"from": extra})

```

V2 - TestAuthorizedChecker:

```

from brownie import (
    reverts,
)

from scripts.helpful_scripts import (
    ZERO_ADDRESS,
    DAY_TIMESTAMP,
    get_account,
    get_timestamp,
    get_chain_number,
    increase_timestamp
)

from scripts.deploy import (

```

```

    deploy_authorized_checker
)

def test_update_incubator(only_local):
    # Arrange

    owner = get_account(0)

    other = get_account(1)

    extra = get_account(2)

    checker = deploy_authorized_checker(owner)

    with reverts("Ownable: caller is not the owner"):
        checker.updateIncubator(other, True, {"from": other})

    assert checker.incubatorAddress(other) == False

    checker.updateIncubator(other, True, {"from": owner})

    assert checker.incubatorAddress(other) == True

def test_update_deployer_addr(only_local):
    # Arrange

    owner = get_account(0)

    other = get_account(1)

    extra = get_account(2)

    checker = deploy_authorized_checker(owner)

    with reverts("Not Authorized"):
        checker.updateDeployerAddress(other, True, {"from": other})

    assert checker.deployersIncubatorAddress(other) == ZERO_ADDRESS

```

```

assert checker.deployerAddress(other) == False

checker.updateDeployerAddress(other, True, {"from": owner})

assert checker.deployersIncubatorAddress(other) == owner

assert checker.deployerAddress(other) == True


checker.updateIncubator(extra, True, {"from": owner})

with reverts():

    checker.updateDeployerAddress(other, False, {"from": extra})

```

V2- Sparkstarter:

```

from brownie import (

    reverts,

    Vault

)

from brownie.network.contract import Contract


from scripts.helpful_scripts import (

    ZERO_ADDRESS,

    get_account,

    get_timestamp,

    get_chain_number,

    increase_timestamp

)


from scripts.deploy import (

    deploy_weth,

    deploy_factory,

```

```

        deploy_router,

        deploy_spark_starter_token,

    )

    ...

struct TokenInfo {
    string _name;

    string _symbol;

    uint256 _supply;

    uint256 _teamTokenPercent;

    address _teamTokensWallet;

    uint32[] _maxWallets;

    uint24[] _buyTaxes;

    uint24[] _sellTaxes;

    address _incubatorWallet;

    address _taxWallet1;

    uint24 _taxWallet1Split;

    address _taxWallet2;

    bool _isWhitelistLaunch;

    uint8 lpLockDurationInMonths;

    bool _vestTeamTokens;
}

...

def test_constructor(only_local):

    # Arrange

    owner = get_account(0)

```

```
other = get_account(1)

extra = get_account(2)

team_wallet = get_account(3)

incubator_addr = get_account(4)

tax_addr = get_account(5)

tax_addr_2 = get_account(6)

platform_addr = get_account(8)


weth = deploy_weth(owner)

factory = deploy_factory(owner, owner)

router = deploy_router(owner, factory.address, weth.address)


params = [

    "token", "tkn", 1000000,

    1000, team_wallet,

    [1000, 1000, 1000, 1000, 1000], # _maxWallets

    [1000, 1000, 1000, 1000, 1000], # buyTaxes

    [1000, 1000, 1000, 1000, 1000], # sellTaxes

    incubator_addr, tax_addr, 1000,

    tax_addr_2, False, 0, False

]


with reverts():

    deploy_spark_starter_token(owner,

        [

            "token", "tkn", 1000000,

            10000, team_wallet,

            [1000, 1000, 1000, 1000, 1000], # _maxWallets
```

```

        [1000, 1000, 1000, 1000, 1000], # buyTaxes

        [1000, 1000, 1000, 1000, 1000], # sellTaxes

        incubator_addr, tax_addr, 1000,

        tax_addr_2, False, 0, False

    ],

    platform_addr, router.address)

```

```

with reverts("Cannot increase buy tax over time"):

```

```

    deploy_spark_starter_token(owner,

    [

        "token", "tkn", 1000000,

        1000, team_wallet,

        [1000, 1000, 1000, 1000, 1000], # _maxWallets

        [1000, 1000, 1000, 1000, 10000], # buyTaxes

        [1000, 1000, 1000, 1000, 1000], # sellTaxes

        incubator_addr, tax_addr, 1000,

        tax_addr_2, False, 0, False

    ],

    platform_addr, router.address)

```

```

with reverts("Cannot increase sell tax over time"):

```

```

    deploy_spark_starter_token(owner,

    [

        "token", "tkn", 1000000,

        1000, team_wallet,

        [1000, 1000, 1000, 1000, 1000], # _maxWallets

        [1000, 1000, 1000, 1000, 1000], # buyTaxes

        [1000, 1000, 1000, 1000, 10000], # sellTaxes

```



```

        incubator_addr, tax_addr, 1000,

        tax_addr_2, False, 0, False

    ],

    platform_addr, router.address)

with reverts("Cannot decrease max wallet over time"):

    deploy_spark_starter_token(owner,

        [

            "token", "tkn", 1000000,

            1000, team_wallet,

            [1000, 10000, 1000, 1000, 1000], # _maxWallets

            [1000, 1000, 1000, 1000, 1000], # buyTaxes

            [1000, 1000, 1000, 1000, 1000], # sellTaxes

            incubator_addr, tax_addr, 1000,

            tax_addr_2, False, 0, False

        ],

        platform_addr, router.address)

with reverts("Cannot exceed 100%"):

    deploy_spark_starter_token(owner,

        [

            "token", "tkn", 1000000,

            1000, team_wallet,

            [1000, 1000, 1000, 1000, 1000], # _maxWallets

            [1000, 1000, 1000, 1000, 1000], # buyTaxes

            [1000, 1000, 1000, 1000, 1000], # sellTaxes

            incubator_addr, tax_addr, 100000,

            tax_addr_2, False, 0, False

```

```

        ],

        platform_addr, router.address)

token = deploy_spark_starter_token(

    owner,

    params,

    platform_addr,

    router.address)

def test_enable_trading(only_local):

    # Arrange

    owner = get_account(0)

    other = get_account(1)

    extra = get_account(2)

    team_wallet = get_account(3)

    incubator_addr = get_account(4)

    tax_addr = get_account(5)

    tax_addr_2 = get_account(6)

    platform_addr = get_account(8)

    weth = deploy_weth(owner)

    factory = deploy_factory(owner, owner)

    router = deploy_router(owner, factory.address, weth.address)

    params = [

        "token", "tkn", 1000000,

        1000, team_wallet,

        [1000, 1000, 1000, 1000, 1000], # _maxWallets

```

```
    [1000, 1000, 1000, 1000, 1000], # buyTaxes

    [1000, 1000, 1000, 1000, 1000], # sellTaxes

    incubator_addr, tax_addr, 1000,

    tax_addr_2, False, 0, False

]
```

```
token = deploy_spark_starter_token(owner, params, platform_addr, router.address)

with reverts("Ownable: caller is not the owner"):

    token.enableTrading({"from": other})

tx = token.enableTrading({"from": owner})

assert tx.events['OwnershipTransferred'][0]['previousOwner'] == owner

assert tx.events['OwnershipTransferred'][0]['newOwner'] == ZERO_ADDRESS

with reverts("Trading already enabled"):

    token.enableTrading({"from": ZERO_ADDRESS})
```

```
def test_transfer(only_local):

    # Arrange

    owner = get_account(0)

    other = get_account(1)

    extra = get_account(2)

    team_wallet = get_account(3)

    incubator_addr = get_account(4)

    tax_addr = get_account(5)

    tax_addr_2 = get_account(6)

    platform_addr = get_account(8)
```

```

weth = deploy_weth(owner)

factory = deploy_factory(owner, owner)

router = deploy_router(owner, factory.address, weth.address)

params = [
    "token", "tkn", 1000000,
    1000, team_wallet,
    [1000, 1000, 1000, 1000, 1000], # _maxWallets
    [1000, 1000, 1000, 1000, 1000], # buyTaxes
    [1000, 1000, 1000, 1000, 1000], # sellTaxes
    incubator_addr, tax_addr, 1000,
    tax_addr_2, False, 0, False
]

token = deploy_spark_starter_token(owner, params, platform_addr, router.address)

with reverts("Trading not active"):
    token.transfer(other, 5e18, {"from": team_wallet})

tx = token.transfer(owner, 15e18, {"from": team_wallet})
assert tx.events['Transfer'][0]['from'] == team_wallet
assert tx.events['Transfer'][0]['to'] == owner
assert tx.events['Transfer'][0]['value'] == 15e18

tx = token.transfer(other, 5e18, {"from": owner})
assert tx.events['Transfer'][0]['from'] == owner
assert tx.events['Transfer'][0]['to'] == other
assert tx.events['Transfer'][0]['value'] == 5e18

```

```

token.enableTrading({"from": owner})

tx = token.transfer(extra, 1e18, {"from": other})

assert tx.events['Transfer'][0]['from'] == other
assert tx.events['Transfer'][0]['to'] == extra
assert tx.events['Transfer'][0]['value'] == 1e18

lp_addr = token.lpPair()

tx = token.transfer(lp_addr, 1e18, {"from": other})

assert tx.events['Transfer'][0]['from'] == other
assert tx.events['Transfer'][0]['to'] == token.address
assert tx.events['Transfer'][0]['value'] == 0.1e18
assert tx.events['Transfer'][1]['from'] == other
assert tx.events['Transfer'][1]['to'] == lp_addr
assert tx.events['Transfer'][1]['value'] == 0.9e18

tx = token.transfer(extra, 0.9e18, {"from": lp_addr})

assert tx.events['Transfer'][0]['from'] == lp_addr
assert tx.events['Transfer'][0]['to'] == token.address
assert tx.events['Transfer'][0]['value'] == 0.09e18
assert tx.events['Transfer'][1]['from'] == lp_addr
assert tx.events['Transfer'][1]['to'] == extra
assert tx.events['Transfer'][1]['value'] == 0.81e18

```

```

def test_vault(only_local):

```

```

    # Arrange

```

```

    owner = get_account(0)

```

```

    other = get_account(1)

```

```

extra = get_account(2)

team_wallet = get_account(3)

incubator_addr = get_account(4)

tax_addr = get_account(5)

tax_addr_2 = get_account(6)

platform_addr = get_account(8)


weth = deploy_weth(owner)

factory = deploy_factory(owner, owner)

router = deploy_router(owner, factory.address, weth.address)


params = [

    "token", "tkn", 1000000,

    1000, team_wallet,

    [1000, 1000, 1000, 1000, 1000], # _maxWallets

    [1000, 1000, 1000, 1000, 1000], # buyTaxes

    [1000, 1000, 1000, 1000, 1000], # sellTaxes

    incubator_addr, tax_addr, 1000,

    tax_addr_2, False, 0, True

]


token = deploy_spark_starter_token(owner, params, platform_addr, router.address)

print(token.vaultAddress())


vault = Contract.from_abi("Vault", token.vaultAddress(), Vault.abi)

with reverts("Not Incubator"):

    vault.approveTaxesFullyForTeam({"from": team_wallet})

```

```

with reverts("ERC20: transfer amount exceeds balance"):

    vault.tokenRelease(150000e18, {"from": incubator_addr})

tx = vault.approveTaxesFullyForTeam({"from": incubator_addr})

assert tx.events['Transfer'][0]['from'] == vault.address
assert tx.events['Transfer'][0]['to'] == team_wallet
assert tx.events['Transfer'][0]['value'] == 100000e18

with reverts("Taxes already approved"):

    vault.forceBuyBack(1e18, 1e17, {"from": incubator_addr})

with reverts("Not enough ETH"):

    vault.ethRelease(1e18, {"from": incubator_addr})

```

V2 - SparkStarterFactory:

```

from brownie import (
    reverts,
)

from scripts.helpful_scripts import (
    ZERO_ADDRESS,
    get_account,
    get_timestamp,
    get_chain_number,
    increase_timestamp
)

from scripts.deploy import (

```



```

    deploy_weth,

    deploy_factory,

    deploy_router,

    deploy_price_feed,

    deploy_authorized_checker,

    deploy_spark_starter_factory
)

...

struct TokenInfo {
    string _name;

    string _symbol;

    uint256 _supply;

    uint256 _teamTokenPercent;

    address _teamTokensWallet;

    uint32[] _maxWallets;

    uint24[] _buyTaxes;

    uint24[] _sellTaxes;

    address _incubatorWallet;

    address _taxWallet1;

    uint24 _taxWallet1Split;

    address _taxWallet2;

    bool _isWhitelistLaunch;

    uint8 lpLockDurationInMonths;

    bool _vestTeamTokens;
}

...

```

```

def test_generate_token(only_local):

    # Arrange

    owner = get_account(0)

    other = get_account(1)

    extra = get_account(2)

    team_wallet = get_account(3)

    incubator_addr = get_account(4)

    tax_addr = get_account(5)

    tax_addr_2 = get_account(6)

    platform_addr = get_account(8)


    weth = deploy_weth(owner)

    factory = deploy_factory(owner, owner)

    router = deploy_router(owner, factory.address, weth.address)

    mock_price_feed = deploy_price_feed(owner)

    checker = deploy_authorized_checker(owner)

    factory = deploy_spark_starter_factory(owner, platform_addr, checker.address)


    params = [

        "token", "tkn", 1000000,

        1000, team_wallet,

        [1000, 1000, 1000, 1000, 1000], # _maxWallets

        [1000, 1000, 1000, 1000, 1000], # buyTaxes

        [1000, 1000, 1000, 1000, 1000], # sellTaxes

        incubator_addr, tax_addr, 1000,

        tax_addr_2, False, 0, False

```

```
]
```

```
with reverts("invalid deployer"):
```

```
    factory.generateToken(
```

```
        params, router.address, mock_price_feed.address, {"from": other})
```

```
tx = factory.generateToken(
```

```
    params, router.address, mock_price_feed.address, {"from": owner, "value": 1e18})
```

```
assert tx.events['OwnershipTransferred'][0]['previousOwner'] == ZERO_ADDRESS
```

```
assert tx.events['OwnershipTransferred'][0]['newOwner'] == factory.address
```

```
assert tx.events['OwnershipTransferred'][1]['previousOwner'] == factory.address
```

```
assert tx.events['OwnershipTransferred'][1]['newOwner'] == owner
```

```
assert tx.events['NewTokenCreated'][0]['newToken'] is not None
```

```
with reverts(): # no value
```

```
    factory.generateToken(
```

```
        params, router.address, mock_price_feed.address, {"from": owner})
```

Technical Findings Summary

Findings

Vulnerability Level	Total	Pending	Not Apply	Acknowledged	Partially Fixed	Fixed
<div><div></div>High</div>	4			3		1
<div><div></div>Medium</div>	2			1		1
<div><div></div>Low</div>	1			1		
<div><div></div>Informational</div>	3			3		

Assessment Results

Score Results

Review	Score
Global Score	90/100
Assure KYC	Not completed
Audit Score	90/100

The Following Score System Has been Added to this page to help understand the value of the audit, the maximum score is 100, however to attain that value the project must pass and provide all the data needed for the assessment. Our Passing Score has been changed to 84 Points for a higher standard, if a project does not attain 85% is an automatic failure. Read our notes and final assessment below. The Global Score is a combination of the evaluations obtained between having or not having KYC and the type of contract audited together with its manual audit.

Audit PASS

Following our comprehensive security audit of the token contract for the SparkStarter project, the project did meet the necessary criteria required to pass the security audit.

V2: Overall, the codebase is clean, follows known patterns, and exhibits no high-impact vulnerabilities at the time of audit, the project did meet the necessary criteria required to pass the security audit.

Disclaimer

Assure Defi has conducted an independent security assessment to verify the integrity of and highlight any vulnerabilities or errors, intentional or unintentional, that may be present in the reviewed code for the scope of this assessment. This report does not constitute agreement, acceptance, or advocating for the Project, and users relying on this report should not consider this as having any merit for financial adSparkStarter in any shape, form, or nature. The contracts audited do not account for any economic developments that the Project in question may pursue, and 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 entirely free of exploits, bugs, vulnerabilities or deprecation of technologies.

All information provided in this report does not constitute financial or investment adSparkStarter, nor should it be used to signal that any person reading this report should invest their funds without sufficient individual due diligence, regardless of the findings presented. Information is provided 'as is, and Assure Defi is under no covenant to audit completeness, accuracy, or solidity of the contracts. In no event will Assure Defi or its partners, employees, agents, or parties related to the provision of this audit report be liable to any parties for, or lack thereof, decisions or actions with regards to the information provided in this audit report.

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