



SPYWOLF

Security Audit Report



Audit prepared for
Morpheus

Completed on
October 29, 2024

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OVERVIEW

This goal of this report is to review the main aspects of the project to help investors make an informative decision during their research process.

You will find a a summarized review of the following key points:

- ✓ Contract's source code
- ✓ Owners' wallets
- ✓ Tokenomics
- ✓ Team transparency and goals
- ✓ Website's age, code, security and UX
- ✓ Whitepaper and roadmap
- ✓ Social media & online presence

“

The results of this audit are purely based on the team's evaluation and does not guarantee nor reflect the projects outcome and goal

- SPYWOLF Team -

”





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KEY RESULTS

| | |
|--|--------|
| Cannot mint new tokens | * |
| Cannot pause trading (honeypot) | PASSED |
| Cannot blacklist an address | PASSED |
| Cannot raise taxes over 25%? | PASSED |
| No proxy contract detected | PASSED |
| Not required to enable trading | PASSED |
| No hidden ownership | PASSED |
| Cannot change the router | PASSED |
| No cooldown feature found | PASSED |
| Bot protection delay is lower than 5 blocks | PASSED |
| Cannot set max tx amount below 0.05% of total supply | PASSED |
| The contract cannot be self-destructed by owner | PASSED |

For a more detailed and thorough examination of the heightened risks, refer to the subsequent parts of the report.

N/A = Not applicable for this type of contract

*New tokens can be minted only the minting contract in exchange of dragonX/titanX tokens



Morpheus



PROJECT DESCRIPTION:

According to their whitepaper:

Welcome to Morpheus. An ecosystem designed not by chance, but by purpose.

A system crafted with precision, driven by three assets - TitanX, DragonX and Morpheus - each interacting seamlessly, building a future of decentralized value.

Everything you know about liquidity, scarcity, and power within finance is about to be redefined.

But first, you must see the path...

Release Date: October 28, 2024

Launchpad: Fairlaunch

Category: DeFi

01





Morpheus Contract INFO

Token Name

Morpheus

Symbol

MORPH

Contract Address

0x4687f007da484EFE20D7A17E5B1D105CDBFCA0Eb

Network

ETH

Language

Solidity

Deployment Date

Oct 28, 2024

Contract Type

Mintable token

Total Supply

49,960,572,515

Decimals

18

TAXES

Buy Tax

0%

Sell Tax

0%

Our Contract Review Process

The contract review process pays special attention to the following:

- ✓ Testing the smart contracts against both common and uncommon vulnerabilities
- ✓ Assessing the codebase to ensure compliance with current best practices and industry standards.
- ✓ Ensuring contract logic meets the specifications and intentions of the client.
- ✓ Cross referencing contract structure and implementation against similar smart contracts produced by industry leaders.
- ✓ Thorough line-by-line manual review of the entire codebase by industry experts.

Blockchain security tools used:

- OpenZeppelin
- Mythril
- Solidity Compiler
- Hardhat



SMART CONTRACT STATS

| | |
|-----------------------|--|
| Calls Count | 2174 |
| External calls | 129 |
| Internal calls | 2045 |
| Transactions count | 1120 |
| Last transaction time | 2024-10-29 10:20:47 UTC |
| Deployment Date | 2024-10-28 17:23:23 UTC |
| Create TX | 0x4ae572c857d807ae7a0153548d2eb8db81e87e65c40d7b164f2c58a7270eea77 |
| Owner | unavailable |
| Deployer | 0x2AE800Ea54342B4d78FeC83479157dd663b5C78E |

TOKEN TRANSFERS STATS

| | |
|-------------------------|--------------------------|
| Transfer Count | 716 |
| Total Amount | 264694104949.01343 MORPH |
| Median Transfer Amount | 85084079.7955289 MORPH |
| Average Transfer Amount | 369684504.1187338 MORPH |
| First transfer date | 2024-10-28 |
| Last transfer date | 2024-10-29 |
| Days token transferred | 2 Days |



VULNERABILITY ANALYSIS

| ID | Title | |
|---------|--------------------------------------|--------|
| SWC-100 | Function Default Visibility | Passed |
| SWC-101 | Integer Overflow and Underflow | Passed |
| SWC-102 | Outdated Compiler Version | Passed |
| SWC-103 | Floating Pragma | Passed |
| SWC-104 | Unchecked Call Return Value | Passed |
| SWC-105 | Unprotected Ether Withdrawal | Passed |
| SWC-106 | Unprotected SELFDESTRUCT Instruction | Passed |
| SWC-107 | Reentrancy | Passed |
| SWC-108 | State Variable Default Visibility | Passed |
| SWC-109 | Uninitialized Storage Pointer | Passed |
| SWC-110 | Assert Violation | Passed |
| SWC-111 | Use of Deprecated Solidity Functions | Passed |
| SWC-112 | Delegatecall to Untrusted Callee | Passed |
| SWC-113 | DoS with Failed Call | Passed |
| SWC-114 | Transaction Order Dependence | Passed |
| SWC-115 | Authorization through tx.origin | Passed |
| SWC-116 | Block values as a proxy for time | Passed |
| SWC-117 | Signature Malleability | Passed |
| SWC-118 | Incorrect Constructor Name | Passed |



VULNERABILITY ANALYSIS

| ID | Title | |
|---------|---|--------|
| SWC-119 | Shadowing State Variables | Passed |
| SWC-120 | Weak Sources of Randomness from Chain Attributes | Passed |
| SWC-121 | Missing Protection against Signature Replay Attacks | Passed |
| SWC-122 | Lack of Proper Signature Verification | Passed |
| SWC-123 | Requirement Violation | Passed |
| SWC-124 | Write to Arbitrary Storage Location | Passed |
| SWC-125 | Incorrect Inheritance Order | Passed |
| SWC-126 | Insufficient Gas Griefing | Passed |
| SWC-127 | Arbitrary Jump with Function Type Variable | Passed |
| SWC-128 | DoS With Block Gas Limit | Passed |
| SWC-129 | Typographical Error | Passed |
| SWC-130 | Right-To-Left-Override control character (U+202E) | Passed |
| SWC-131 | Presence of unused variables | Passed |
| SWC-132 | Unexpected Ether balance | Passed |
| SWC-133 | Hash Collisions With Multiple Variable Length Arguments | Passed |
| SWC-134 | Message call with hardcoded gas amount | Passed |
| SWC-135 | Code With No Effects | Passed |
| SWC-136 | Unencrypted Private Data On-Chain | Passed |



VULNERABILITY ANALYSIS

NO ERRORS FOUND



MANUAL CODE REVIEW

When performing smart contract audits, our specialists look for known vulnerabilities as well as logical and access control issues within the code. The exploitation of these issues by malicious actors may cause serious financial damage to projects that failed to get an audit in time.

We categorize these vulnerabilities by 4 different threat levels.

THREAT LEVELS

High Risk

Issues on this level are critical to the smart contract's performance/functionality and should be fixed before moving to a live environment.

Medium Risk

Issues on this level are critical to the smart contract's performance, functionality and should be fixed before moving to a live environment.

Low Risk

Issues on this level are minor details and warning that can remain unfixed.

Informational

Information level is to offer suggestions for improvement of efficacy or security for features with a risk free factor.



FOUND THREATS

High Risk

No high risk-level threats found in this contract.

Medium Risk

No medium risk-level threats found in this contract.

Low Risk

No low risk-level threats found in this contract.



FOUND THREATS

Informational

Buyandburn contract's owner can mint tokens for LP once.

```
function mintTokensForLP() external onlyBuyAndBurn {
    _mint(address(buyAndBurn), INITIAL_LP_MINT);
}

function _onlyBuyAndBurn() internal view {
    if (msg.sender != address(buyAndBurn)) revert OnlyBuyAndBurn();
}

Buy and burn contract's logic:
function addLiquidityToMorpheusDragonxPool(
    uint32 _deadline
) external onlyOwner {
    if (liquidityAdded) revert LiquidityAlreadyAdded();
    if (titanX.balanceOf(address(this)) < INITIAL_TITAN_X_FOR_LIQ)
        revert NotEnoughTitanXForLiquidity();

    liquidityAdded = true;

    uint256 dragonxReceived = _swapTitanxForDragonx(
        INITIAL_TITAN_X_FOR_LIQ,
        _deadline
    );

    morpheusToken.createDragonXMorpheusPool
        (DRAGON_X_ADDRESS, UNISWAP_V3_DRAGON_X_TITAN_X_POOL, dragonxReceived);

    morpheusToken.mintTokensForLP();
    .....
}
```



FOUND THREATS

Informational

New tokens can be minted via minting contract during the minting phases which can be up to 14 days after startTimestamp.

```
function mint(address _to, uint256 _amount) external onlyMinting {
    _mint(_to, _amount);
}

Minting contract's functionality:

function mint(uint256 _amount) external {
    if (_amount == 0) revert InvalidInput();

    if (block.timestamp < startTimestamp) revert NotStartedYet();

    (uint32 currentCycle, , uint32 endsAt) = getCurrentMintCycle();

    if (block.timestamp > endsAt) revert CycleIsOver();

    uint256 adjustedAmount = _vaultAndSendToGenesis(_amount);
    uint256 morpheusAmount = (_amount * getRatioForCycle(currentCycle)) /
        1e18;

    amountToClaim[msg.sender][currentCycle] += morpheusAmount;

    emit MintExecuted(msg.sender, morpheusAmount, currentCycle);

    totalMorpheusMinted = totalMorpheusMinted + morpheusAmount;
    totalTitanXDeposited = totalTitanXDeposited + _amount;

    _distributeToBuyAndBurn(adjustedAmount);
}

function _distributeToBuyAndBurn(uint256 _amount) internal {
    titanX.safeTransferFrom(msg.sender, address(this), _amount);
    titanX.approve(address(buyAndBurn), _amount);

    buyAndBurn.distributeTitanXForBurning(_amount);
}
```



FOUND THREATS

Informational

DragonX and TitanX tokens are not in the scope of the current audit.



BuyAndBurn Contract INFO

| | |
|--|---|
| Token Name unavailable | Symbol unavailable |
| Contract Address 0x14f485D6480D76fe31e9332Ed4B87e704601b552 | |
| Network ETH | Language Solidity |
| Deployment Date Oct 28, 2024 | Contract Type Buy and burn interface |
| Total Supply unavailable | Decimals unavailable |

TAXES



Our Contract Review Process

The contract review process pays special attention to the following:

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Blockchain security tools used:

- OpenZeppelin
- Mythril
- Solidity Compiler
- Hardhat



FOUND THREATS

High Risk

No high risk-level threats found in this contract.

Medium Risk

No medium risk-level threats found in this contract.

Low Risk

No low risk-level threats found in this contract.



FOUND THREATS

Informational

Owner can set daily TitanX allocation for distribution. Daily allocation (tokens amount distributed per day) can be set between 1% and 10% of contract's current TitanX balances.

```
function setDailyAllocation(uint256 _newDailyAllocation) public onlyOwner {  
    DAILY_ALLOCATION = _newDailyAllocation;  
    require(DAILY_ALLOCATION >= 100 && DAILY_ALLOCATION <= 1000,  
        "Min 1 percent, max 10 percent.");  
    _intervalUpdate();  
}
```

Anyone can call burnMorpheus() function and initiate Morpheus tokens burn. This will burn the entire contract's Morpheus token balances.

```
function burnMorpheus() public {  
    uint256 morpheusToBurn = morpheusToken.balanceOf(address(this));  
  
    totalMorpheusBurnt = totalMorpheusBurnt + morpheusToBurn;  
    morpheusToken.burn(morpheusToBurn);  
}
```



FOUND THREATS

Informational

Owner can set slippage for token swaps of DragonX to Morpheus and TitanX to DragonX.

Slippage can be set between 2% and 100%.

```
function setSlippageForDragonxToMorpheus(  
    uint8 _newSlippage  
) external onlyOwner {  
    if (_newSlippage > 100 || _newSlippage < 2) revert InvalidInput();  
  
    dragonxToMorpheusSlippage = _newSlippage;  
}  
  
function setSlippageForTitanxToDragonx(  
    uint8 _newSlippage  
) external onlyOwner {  
    if (_newSlippage > 100 || _newSlippage < 2) revert InvalidInput();  
  
    titanxToDragonxSlippage = _newSlippage;  
}
```



FOUND THREATS

Informational

Anyone can use burnFees() function, which will sent the dragonX tokens to Genesis wallet and burn the available Morpheus tokens in the contract.

```
function burnFees() external returns (uint256 amount0, uint256 amount1) {
    LP memory _lp = lp;

    INonfungiblePositionManager.CollectParams
    memory params = INonfungiblePositionManager.CollectParams({
        tokenId: _lp.tokenId,
        recipient: address(this),
        amount0Max: type(uint128).max,
        amount1Max: type(uint128).max
    });

    (amount0, amount1) = POSITION_MANAGER.collect(params);

    (uint256 dragonxAmount, ) = _lp.isDragonxToken0
        ? (amount0, amount1)
        : (amount1, amount0);

    dragonX.transfer(GENESIS_WALLET, dragonxAmount);
    burnMorpheus();
}
```



FOUND THREATS

Informational

Owner can create DragonX-Morpheus pool to Morpheus token and add liquidity once. BuyAndBurn contract's balances should not be less than 50,000,000,000 TitanX tokens in order to add liquidity.

```
uint256 constant INITIAL_TITAN_X_FOR_LIQ = 50_000_000_000e18;

function addLiquidityToMorpheusDragonxPool(
    uint32 _deadline
) external onlyOwner {
    if (liquidityAdded) revert LiquidityAlreadyAdded();
    if (titanX.balanceOf(address(this)) < INITIAL_TITAN_X_FOR_LIQ)
        revert NotEnoughTitanXForLiquidity();

    liquidityAdded = true;

    uint256 dragonxReceived = _swapTitanXForDragonx(
        INITIAL_TITAN_X_FOR_LIQ,
        _deadline
    );

    morpheusToken.createDragonXMorpheusPool(DRAGON_X_ADDRESS, UNISWAP_V3_DRAGON_X_TITAN_X_POOL, dragonxReceived);

    morpheusToken.mintTokensForLP();

    ( uint256 amount0, uint256 amount1, uint256 amount0Min,
      uint256 amount1Min, address token0, address token1) = _sortAmounts(dragonxReceived, INITIAL_LP_MINT);

    TransferHelper.safeApprove(token0, address(POSITION_MANAGER), amount0);
    TransferHelper.safeApprove(token1, address(POSITION_MANAGER), amount1);

    // wake-disable-next-line
    INonfungiblePositionManager.MintParams
        memory params = INonfungiblePositionManager.MintParams({
            token0: token0,
            token1: token1,
            fee: POOL_FEE,
            tickLower: (TickMath.MIN_TICK / TICK_SPACING) * TICK_SPACING,
            tickUpper: (TickMath.MAX_TICK / TICK_SPACING) * TICK_SPACING,
            amount0Desired: amount0,
            amount1Desired: amount1,
            amount0Min: amount0Min,
            amount1Min: amount1Min,
            recipient: address(this),
            deadline: _deadline
        });

    // wake-disable-next-line
    (uint256 tokenId, , , ) = POSITION_MANAGER.mint(params);

    lp = LP({
        tokenId: uint248(tokenId),
        isDragonxToken0: token0 == address(dragonX)
    });

    totalTitanXForBurn = titanX.balanceOf(address(this));
}
```

MorpheusMinting Contract INFO

| | |
|--|------------------------------------|
| Token Name unavailable | Symbol unavailable |
| Contract Address 0xf8c4B0E8322eBec10580e34667210386007c4398 | |
| Network ETH | Language Solidity |
| Deployment Date Oct 28, 2024 | Contract Type Minting interface |
| Total Supply unavailable | Decimals unavailable |

TAXES



*"Buy tax" to be readed as "Mint tax".
Mint taxes are distributed towards: Prize (10%),
DragonX (10%) and GENESIS (8%) addresses.



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- Mythril
- Solidity Compiler
- Hardhat



FOUND THREATS

High Risk

No high risk-level threats found in this contract.

Medium Risk

No medium risk-level threats found in this contract.

Low Risk

No low risk-level threats found in this contract.



FOUND THREATS

Informational

If `getCurrentMintCycle()` returns value higher than 25 for 'currentCycle' local variable, overflow occurs in `getRatioForCycle()` since it uses unchecked math.

This behavior can lead to excessive mint amounts of morpheus tokens.

Take above in mind if choose to change math formulas in further implementations.

```
function mint(uint256 _amount) external {
    if (_amount == 0) revert InvalidInput();
    titanX.safeTransferFrom(msg.sender, address(this), _amount);

    if (block.timestamp < startTimestamp) revert NotStartedYet();

    (uint32 currentCycle, , uint32 endsAt) = getCurrentMintCycle();

    if (block.timestamp > endsAt) revert CycleIsOver();

    uint256 adjustedAmount = _vaultAndSendToGenesisAndPrize(_amount);
    uint256 morpheusAmount = (_amount * getRatioForCycle(currentCycle)) /
        1e18;
    amountToClaim[msg.sender][currentCycle] += morpheusAmount;

    emit MintExecuted(msg.sender, morpheusAmount, currentCycle);

    totalMorpheusMinted = totalMorpheusMinted + morpheusAmount;
    totalTitanXDeposited = totalTitanXDeposited + _amount;

    titanX.approve(address(buyAndBurn), _amount);
    buyAndBurn.distributeTitanXForBurning(adjustedAmount);

    if (!buyAndBurn.liquidityAdded() && titanX.balanceOf(address(buyAndBurn)) >= INITIAL_TITAN_X_FOR_LIQ) {
        buyAndBurn.addLiquidityToMorpheusDragonxPool(uint32(block.timestamp));
    }
}

function getRatioForCycle(
    uint32 cycleId
) public pure returns (uint256 ratio) {
    unchecked {
        uint256 adjustedRatioDiscount = cycleId == 1
            ? 0
            : uint256(cycleId - 1) * 4e16;
        ratio = STARTING_RATIO - adjustedRatioDiscount;
    }
}

function getCurrentMintCycle()
    public
    view
    returns (uint32 currentCycle, uint32 startsAt, uint32 endsAt)
{
    uint32 timeElapsedSince = uint32(block.timestamp - startTimestamp);
    currentCycle = uint8(timeElapsedSince / GAP_BETWEEN_CYCLE) + 1;
    if (currentCycle > MAX_MINT_CYCLE) currentCycle = MAX_MINT_CYCLE;
    startsAt = startTimestamp + ((currentCycle - 1) * GAP_BETWEEN_CYCLE);
    endsAt = startsAt + MINT_CYCLE_DURATION;
}
```



FOUND THREATS

Informational

Users can issue (mint) Morpheus tokens in exchange of TitanX tokens.

```
function mint(uint256 _amount) external {
    if (_amount == 0) revert InvalidInput();
    titanX.safeTransferFrom(msg.sender, address(this), _amount);

    if (block.timestamp < startTimestamp) revert NotStartedYet();

    (uint32 currentCycle, , uint32 endsAt) = getCurrentMintCycle();

    if (block.timestamp > endsAt) revert CycleIsOver();

    uint256 adjustedAmount = _vaultAndSendToGenesisAndPrize(_amount);
    uint256 morpheusAmount = (_amount * getRatioForCycle(currentCycle)) /
        1e18;

    amountToClaim[msg.sender][currentCycle] += morpheusAmount;

    emit MintExecuted(msg.sender, morpheusAmount, currentCycle);

    totalMorpheusMinted = totalMorpheusMinted + morpheusAmount;
    totalTitanXDeposited = totalTitanXDeposited + _amount;

    titanX.approve(address(buyAndBurn), _amount);
    buyAndBurn.distributeTitanXForBurning(adjustedAmount);

    if (!buyAndBurn.liquidityAdded() && titanX.balanceOf(address(buyAndBurn)) >= INITIAL_TITAN_X_FOR_LIQ) {
        buyAndBurn.addLiquidityToMorpheusDragonxPool(uint32(block.timestamp));
    }
}
```



FOUND THREATS

Informational

Users can claim their issued (minted) Morpheus tokens at any time after the current minting cycle is over.

```
function claim(uint8 _cycleId) external {
    if (_getCycleEndTime(_cycleId) > block.timestamp)
        revert CycleStillOngoing();

    uint256 toClaim = amountToClaim[msg.sender][_cycleId];

    if (toClaim == 0) revert NoMorpheusToClaim();

    delete amountToClaim[msg.sender][_cycleId];

    emit ClaimExecuted(msg.sender, toClaim, _cycleId);

    totalMorpheusClaimed = totalMorpheusClaimed + toClaim;

    morpheus.mint(msg.sender, toClaim);
}
```



Tokenomics Overview

The initial token distribution of Morpheus is designed to incentivize early participation and establish a deflationary mechanism through daily burns. The MINT process within the first 14 days is crucial for determining the allocation of tokens across key components of the ecosystem.

Genesis Wallet Allocation: 8% of the total TitanX tokens submitted for MINTing during the first 14 days will be allocated to the Genesis Wallet. This wallet represents the foundational reserve of the Morpheus ecosystem, ensuring the long-term stability and growth of the project.

DragonX Vault Allocation: 20% of the total TitanX submitted in the first 14 days will be directed to the DragonX Vault. The vault serves as a strategic reserve to support the future growth and security of the DragonX ecosystem, while also acting as a reserve for potential liquidity and development initiatives.

Buy and Burn Mechanism: The remaining TitanX from the initial submission period will be utilized in a unique buy-and-burn mechanism. Through a publicly callable function executed daily, these tokens will be used to purchase and burn both DragonX and Morpheus tokens. This process creates a deflationary pressure on the circulating supply, enhancing the value proposition for holders and participants within the ecosystem.

SPYWOLF
TOKENOMICS



WEBSITE

Website URL:
<https://www.morpheus.win>

Domain Registry
<https://www.godaddy.com>

Domain Expiration
2025-09-24

Technical SEO Test
Passed

Security Test
Passed. SSL certificate present

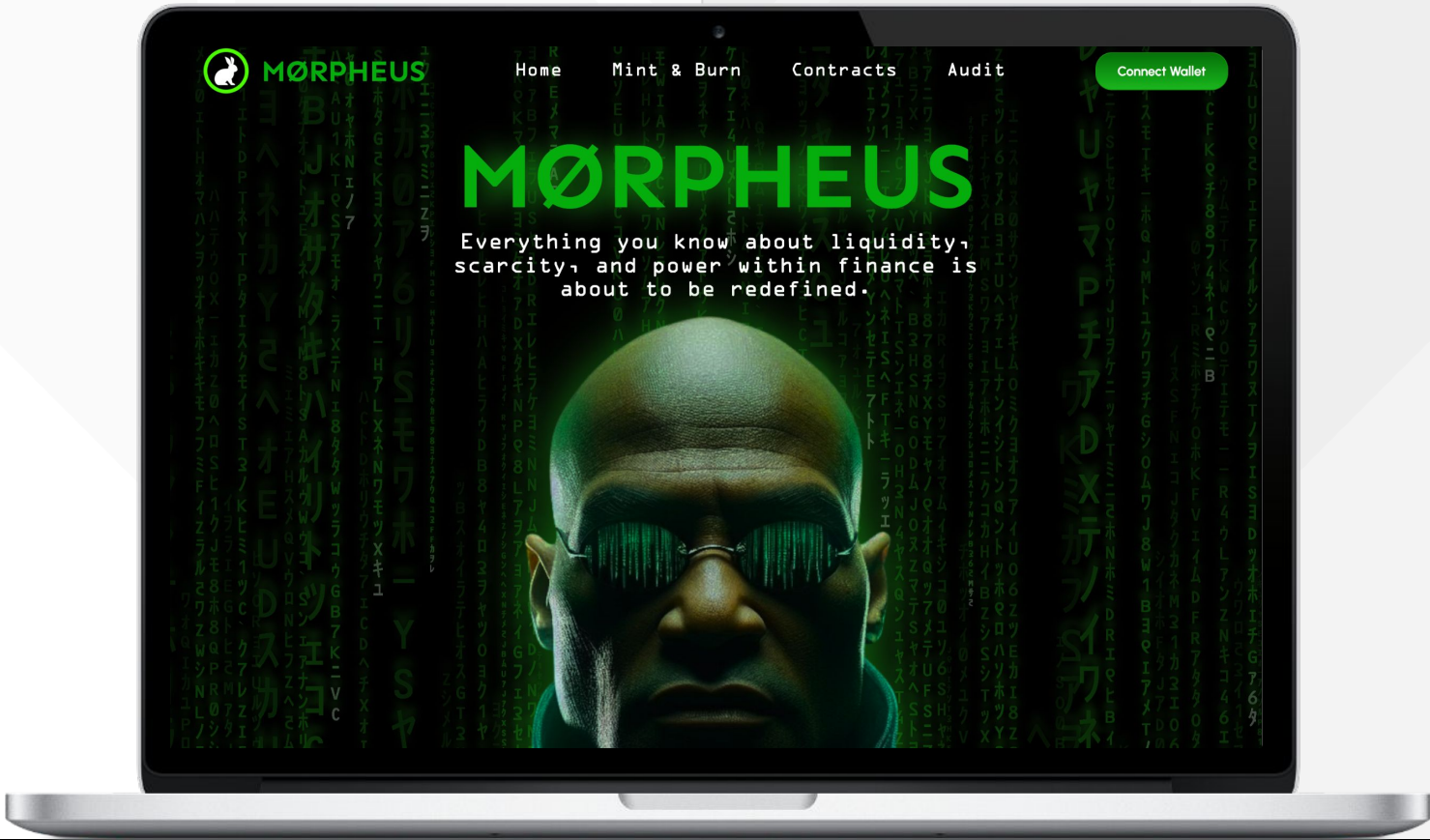
Design
Website is under construction

Content
Website is under construction

Whitepaper
Explanatory, tokenomics mechanics can be more detailed.

Roadmap
No

Mobile-friendly?
Yes



www.morpheus.win

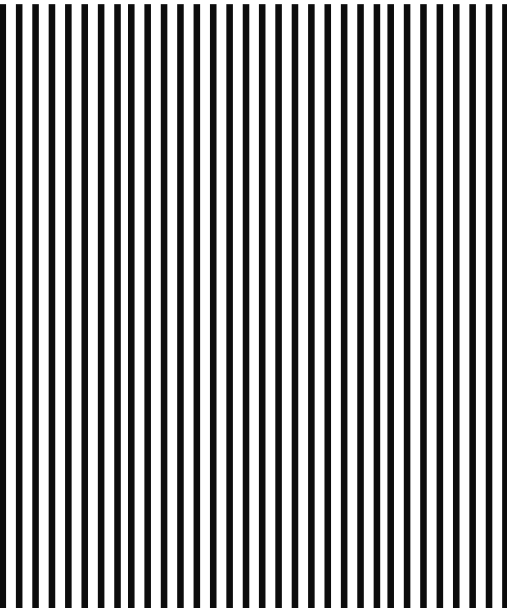


SOCIAL MEDIA



ANALYSIS

The project's social media pages are active.



Twitter:

@MorpheusDotWin

- 790 Followers
- Daily posts



Discord

unavailable



Telegram:

@morpheuswin

- 890 members
- Active mods



Medium

unavailable



SPYWOLF

CRYPTO SECURITY

Audits | KYCs | dApps
Contract Development

ABOUT US

We are a growing crypto security agency offering audits, KYCs and consulting services for some of the top names in the crypto industry.

- ✓ OVER 700 SUCCESSFUL CLIENTS
- ✓ MORE THAN 1000 SCAMS EXPOSED
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Disclaimer

This report shows findings based on our limited project analysis, following good industry practice from the date of this report, in relation to cybersecurity vulnerabilities and issues in the framework and algorithms based on smart contracts, overall social media and website presence and team transparency details of which are set out in this report. In order to get a full view of our analysis, it is crucial for you to read the full report.

While we have done our best in conducting our analysis and producing this report, it is important to note that you should not rely on this report and cannot claim against us on the basis of what it says or doesn't say, or how we produced it, and it is important for you to conduct your own independent investigations before making any decisions. We go into more detail on this in the disclaimer below – please make sure to read it in full.

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No applications were reviewed for security. No product code has been reviewed.

