PALADIN
BLOCKCHAIN SECURITY

Smart Contract Security Assessment

Final Report

For DragonSwap (v3)

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1 Overview

This report has been prepared for DragonSwap's DEX contracts on the SEI network. Paladin provides a user-centred examination of the smart contracts to look for vulnerabilities, logic errors or other issues from both an internal and external perspective.

This audit is a diff-audit, meaning we reviewed changes between DragonSwap's contracts and Uniswap's V3 contracts. More information is provided Below.

1.1 Summary

Project Name	DragonSwap
URL	https://dragonswap.app
Platform	SEI
Language	Solidity
DragonSwap Commits	https://github.com/dragonswap-app/v2-staker/tree/ca59d4713449402a7862b90f9899e4fbaa9bb46b https://github.com/dragonswap-app/deploy-v2/commit/81b911c045767499cbe5675e12beef83eb2193bc https://github.com/dragonswap-app/swap-router-contracts/commit/e6574f4d3da18768c5a533b465c11b01697d6ce3 https://github.com/dragonswap-app/v2-periphery/commit/da9d3a5491607b3e88a5133b7fd3c5c1f1f317eb https://github.com/dragonswap-app/v2-core/commit/77f934dd7182abf934787645d8b44057f61acf23
Uniswap V3 Commits	https://github.com/Uniswap/v3-staker/commit/6d06fe4034e4eec53e1e587fc4770286466f4b35 https://github.com/Uniswap/deploy-v3/commit/b7aac0f1c5353b36802dc0cf95c426d2ef0c3252 https://github.com/Uniswap/swap-router-contracts/tree/70bc2e40dfca294c1cea9bf67a4036732ee54303 https://github.com/Uniswap/v3-periphery/commit/0682387198a24c7cd63566a2c58398533860a5d1 https://github.com/Uniswap/v3-core/commit/d8b1c635c275d2a9450bd6a78f3fa2484fef73eb

1.2 Deployed Contracts

Name	Contract	Live Code Match
DragonswapV2Factory	0x179D9a5592Bc77050796F7be28058c51cA575df4	MATCH
DragonswapV2Staker	0x72c0cd98d21ee3263D375437b4FDAC097b596dD6	MATCH
SwapRouter02	0x11DA6463D6Cb5a03411Dbf5ab6f6bc3997Ac7428	MATCH
QuoterV2	0x38F759cf0Af1D0dcAEd723a3967A3B658738eDe9	MATCH
V2Migrator	0xD45547d1af97CadfD77F0B7BC3D2e075eB575974	MATCH
NonfungiblePositionManager	0xa7FDcBe645d6b2B98639EbacbC347e2B575f6F70	MATCH
NonfungibleTokenPositionDescriptor	Proxy: 0x54e8514f5DB8C7d12F38e039dC4dD01A2fa8aece Implementation: 0x10B03532106ebd61A08EFf992e1422bb278D4F1f	MATCH
NFTDescriptor	0x66252e36073532Bc3277C47C4ed2800eeF83Cb1c	MATCH
DragonswapInterfaceMulticall	0x2183BB693DFb41047f3812975b511e272883CfAA	MATCH
ProxyAdmin	0x3fE66fAD6907495076931d553888faD0DBb429B7	MATCH
TickLens	0xD71AB34e3034Bb2A54243bb62Ab5986F6965aeB8	MATCH

2 Findings

2.1 General

The repositories listed below have undergone a diff-audit by our team. The first column lists the Uniswap Repositories, and the second column lists the DragonSwap renamed versions.

Uniswap V3	DragonSwap
`v3-core`	`v2-core`
`v3-periphery`	`v2-periphery`
`v3-staker`	`v2-staker`
`swap-router-contracts`	`swap-router-contracts`
`deploy-v3`	`deploy-v2`

In all repositories, no issues have been found — most of the modifications are simply the renaming of `uniswap` to `dragonswap`.

We would like to note one change in `DragonswapV2Factory` where the 100 fee was added directly in the constructor and not in the deploy scripts.

```
constructor() {
    owner = msg.sender;
    emit OwnerChanged(address(0), msg.sender);

    feeAmountTickSpacing[100] = 1;
    emit FeeAmountEnabled(100, 1);
    feeAmountTickSpacing[500] = 10;
    emit FeeAmountEnabled(500, 10);
    feeAmountTickSpacing[3000] = 60;
    emit FeeAmountEnabled(3000, 60);
    feeAmountTickSpacing[10000] = 200;
    emit FeeAmountEnabled(10000, 200);
}
```

For every file below, we have provided the diff report between Uniswap and Dragonswap. The files can be found here: https://drive.google.com/drive/folders/1Li0NOGRFZ1mo_OcUV54yCBg2UBfOwT2-

v2-core

```
├── DragonswapV2Factory.sol
├── DragonswapV2Pool.sol
├── DragonswapV2PoolDeployer.sol
├── NoDelegateCall.sol
├── interfaces
│   ├── IDragonswapV2Factory.sol
│   ├── IDragonswapV2Pool.sol
│   ├── IDragonswapV2PoolDeployer.sol
│   ├── IERC20Minimal.sol
│   ├── callback
│   │   ├── IDragonswapV2FlashCallback.sol
│   │   ├── IDragonswapV2MintCallback.sol
│   │   └── IDragonswapV2SwapCallback.sol
│   └── pool
│       ├── IDragonswapV2PoolActions.sol
│       ├── IDragonswapV2PoolDerivedState.sol
│       ├── IDragonswapV2PoolEvents.sol
│       ├── IDragonswapV2PoolImmutables.sol
│       ├── IDragonswapV2PoolOwnerActions.sol
│       └── IDragonswapV2PoolState.sol
├── libraries
│   ├── BitMath.sol
│   ├── FixedPoint128.sol
│   ├── FixedPoint96.sol
│   ├── FullMath.sol
│   ├── LICENSE
│   ├── LICENSE_MIT
│   ├── LiquidityMath.sol
│   ├── LowGasSafeMath.sol
│   ├── Oracle.sol
│   ├── Position.sol
│   ├── SafeCast.sol
│   ├── SqrtPriceMath.sol
│   ├── SwapMath.sol
│   ├── Tick.sol
│   ├── TickBitmap.sol
│   ├── TickMath.sol
│   ├── TransferHelper.sol
│   └── UnsafeMath.sol
```

v2-periphery

```
├── NonfungiblePositionManager.sol
├── NonfungibleTokenPositionDescriptor.sol
├── SwapRouter.sol
├── V2Migrator.sol
├── base
│   ├── BlockTimestamp.sol
│   ├── ERC721Permit.sol
│   ├── LiquidityManagement.sol
│   ├── Multicall.sol
│   ├── PeripheryImmutableState.sol
│   ├── PeripheryPayments.sol
│   ├── PeripheryPaymentsWithFee.sol
│   ├── PeripheryValidation.sol
│   ├── PoolInitializer.sol
│   └── SelfPermit.sol
├── examples
│   └── PairFlash.sol
├── interfaces
│   ├── IERC20Metadata.sol
│   ├── IERC721Permit.sol
│   ├── IMulticall.sol
│   ├── INonfungiblePositionManager.sol
│   ├── INonfungibleTokenPositionDescriptor.sol
│   ├── IPeripheryImmutableState.sol
│   ├── IPeripheryPayments.sol
│   ├── IPeripheryPaymentsWithFee.sol
│   ├── IPoolInitializer.sol
│   ├── IQuoter.sol
│   ├── IQuoterV2.sol
│   ├── ISelfPermit.sol
│   ├── ISwapRouter.sol
│   ├── ITickLens.sol
│   ├── IV2Migrator.sol
│   └── external
│       ├── IERC1271.sol
│       ├── IERC20PermitAllowed.sol
│       └── IWSEI.sol
├── lens
│   ├── DragonswapInterfaceMulticall.sol
│   ├── Quoter.sol
│   ├── QuoterV2.sol
│   ├── README.md
│   └── TickLens.sol
├── libraries
│   ├── BytesLib.sol
│   ├── CallbackValidation.sol
│   ├── ChainId.sol
│   ├── HexStrings.sol
│   ├── LiquidityAmounts.sol
│   ├── NFTDescriptor.sol
```

```
│   ├── NFTSVG.sol
│   ├── OracleLibrary.sol
│   ├── Path.sol
│   ├── PoolAddress.sol
│   ├── PoolTicksCounter.sol
│   ├── PositionKey.sol
│   ├── PositionValue.sol
│   ├── SafeERC20Namer.sol
│   ├── SqrtPriceMathPartial.sol
│   └── TransferHelper.sol
```

v2-staker

```
├── DragonswapV2Staker.sol
├── interfaces
│   └── IDragonswapV2Staker.sol
├── libraries
│   ├── IncentiveId.sol
│   ├── NFTPositionInfo.sol
│   ├── RewardMath.sol
│   └── TransferHelperExtended.sol
```

swap-router-contracts

```
├── SwapRouter02.sol
├── V1SwapRouter.sol
├── V2SwapRouter.sol
├── base
│   ├── ApproveAndCall.sol
│   ├── ImmutableState.sol
│   ├── MulticallExtended.sol
│   ├── OracleSlippage.sol
│   ├── PeripheryPaymentsExtended.sol
│   ├── PeripheryPaymentsWithFeeExtended.sol
│   └── PeripheryValidationExtended.sol
├── interfaces
│   ├── IApproveAndCall.sol
│   ├── IImmutableState.sol
│   ├── IMixedRouteQuoterV1.sol
│   ├── IMulticallExtended.sol
│   ├── IOracleSlippage.sol
│   ├── IPeripheryPaymentsExtended.sol
│   ├── IPeripheryPaymentsWithFeeExtended.sol
│   ├── IQuoter.sol
│   ├── IQuoterV2.sol
│   ├── ISwapRouter02.sol
│   ├── ITokenValidator.sol
│   ├── IV1SwapRouter.sol
│   └── IV2SwapRouter.sol
├── lens
│   ├── MixedRouteQuoterV1.sol
│   ├── Quoter.sol
│   ├── QuoterV2.sol
│   ├── README.md
│   └── TokenValidator.sol
├── libraries
│   ├── Constants.sol
│   ├── DragonswapLibrary.sol
│   └── PoolTicksCounter.sol
```

deploy-v2

```
├── deploy.ts
├── migrate.ts
├── migrations.ts
├── steps
│   ├── deploy-multicall2.ts
│   ├── deploy-nft-descriptor-library.ts
│   ├── deploy-nft-position-descriptor.ts
│   ├── deploy-nonfungible-position-manager.ts
│   ├── deploy-proxy-admin.ts
│   ├── deploy-quoter-v2.ts
│   ├── deploy-tick-lens.ts
│   ├── deploy-transparent-proxy-descriptor.ts
│   ├── deploy-v2-core-factory.ts
│   ├── deploy-v2-migrator.ts
│   ├── deploy-v2-staker.ts
│   ├── deploy-v2-swap-router-02.ts
│   ├── meta
│   │   ├── createDeployContractStep.ts
│   │   └── createDeployLibraryStep.ts
│   ├── transfer-proxy-admin.ts
│   └── transfer-v2-core-factory-owner.ts
└── util
    ├── asciiStringToBytes32.ts
    └── linkLibraries.ts
```


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