EquilibriumCore Smart Contract

This repository contains the source code for the EquilibriumCore smart contract, which is a key component of the Equilibrium project. The EquilibriumCore smart contract is a Solidity-based implementation of an algorithmic stablecoin, similar to DAI or MakerDAO. It maintains a stable value by being pegged to a reserve currency or a basket of assets.

Overview

The EquilibriumCore smart contract is designed to be the core functionality of the Equilibrium algorithmic stablecoin. It is built using Solidity and incorporates features from the OpenZeppelin library, including SafeERC20, ReentrancyGuard, and Ownable. The smart contract is loosely based on the DAI and MakerDAO stablecoins.

The EquilibriumCore smart contract has a key invariant: the Health Factor (Hf) should always be above the HEALTH_FACTOR_THRESHOLD. If the Hf falls below this threshold, the contract will become useless and the invariant will be broken.

Features

- Implementation of an algorithmic stablecoin, similar to DAI or MakerDAO
- Uses Chainlink price feeds for collateral assets
- Incorporates features from OpenZeppelin library, including SafeERC20, ReentrancyGuard, and Ownable
- Health Factor (Hf) invariant to maintain stability

EquilibriumCore Architecture (Just Significant Functions)

PROF

Gas-SnapShot

src/EquilibriumCore.sol:EquilibriumCore contract					
Deployment Cost	Deployment Size				
1715103	8768				
Function Name	min	avg	median	max	# calls
depositCollateral	64498	64498	64498	64498	1

src/EquilibriumCore.sol:EquilibriumCore contract					
depositCollateralAndMintEquilibrium	7678	73529	62853	153153	77
getCollateralTokenSupportedPriceFeedAddresses	911	4911	4911	8911	2
getEquilibriumTokenAddress	225	225	225	225	4
getSupportedTokenAddress	495	2495	2495	4495	2
getUsdValue	14972	14972	14972	14972	256
getUserCollateralDepositedAmount	782	782	782	782	5
get_health_factor	3532	3532	3532	3532	3
liquidation	5913	7154	7017	7913	5
owner	2398	2398	2398	2398	1
withdrawCollateral	4043	11689	12605	17506	4
withdrawCollateralWithBurnEquilibrium	51951	51951	51951	51951	1

Usage

Build

```
$ forge build
```

Test

PROF

```
$ forge test -vv
```

Format

```
$ forge fmt
```

Test Coverages

```
$ forge coverage
```

Anvil

```
$ anvil
```

Deploy After you setUp your own key

```
$ forge script script/EquilibriumCoreScript.sol:EquilibriumCoreScript --
rpc-url <YOU-RPC-ENDPOINT> --broadcast --verify
```

To Deploy Project on Scroll ZK network

```
$ forge create EquilibriumCore --rpc-url=https://sepolia-rpc.scroll.io
```

Help

```
$ forge --help
$ anvil --help
$ cast --help
```