smart state

new generation of
smart contract audit

Hubble

Aug 28

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METHODOLOGY

MAIN TESTS LIST:

- Best code practices
- ERC20/BEP20 compliance (if applicable)
- FA2 compliance (if applicable)
- Logical bugs
- General Denial Of Service(DOS)
- Locked ether
- Private data leaks
- Using components with known vulns
- Weak PRNG
- Unused vars
- Unchecked call return method
- Code with no effects
- Pool Asset Security (backdoors in the underlying ERC-20)
- Function visibility
- Use of deprecated functions
- Authorization issues
- Re-entrancy
- Arithmetic Over/Under Flows
- Hidden Malicious Code
- External Contract Referencing
- Short Address/ Parameter Attack
- Race Conditions / Front Running
- Uninitialized Storage Pointers
- Floating Points and Precision
- Signatures Replay

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/
BORROWING/SRC/LIB.RS

CONTRACT METHODS ANALYSIS:

- initialize_borrowing_market(ctx: Context<InitializeBorrowingMarket>)

  Vulnerabilities not detected
- create_additional_borrowing_market(ctx: Context<CreateAdditionalBorrowingMarket>,)

  Vulnerabilities not detected
- update_market_mcr(
  ctx: Context<UpdateMarketMcr>,
  mcr: u64
)

  Vulnerabilities not detected
- update_market_type(
  ctx: Context<UpdateMarketType>,
  market_type: u64
)

  Vulnerabilities not detected

- update_market_debt_max(
  ctx: Context<UpdateMarketDebtMax>,
  total_debt_max: u64,
)

  Vulnerabilities not detected
- update_market_linkage(ctx: Context<UpdateMarketLinkage>)

  Vulnerabilities not detected
- update_market_owner(ctx: Context<UpdateMarketOwner>)

  Vulnerabilities not detected
- initialize_collateral_vaults_new (ctx: Context<InitializeCollateral VaultsNew>,)

  Vulnerabilities not detected
- add_new_vault(
  ctx: Context<AddNewVault>,
  mint_id: u8,
  set_vault_to_pda: bool,
  vault_is_for_liquidation_rewards: bool,
)

  Vulnerabilities not detected
- update_global_config(
  ctx: Context<UpdateGlobalConfig>,
  key: u16,
  value: [u8;32],
)

  Vulnerabilities not detected
- modify_supported_collaterals(
  ctx: Context<ModifySupportedCollaterals>,
  action: u8,
  token_id: u8,
)

  Vulnerabilities not detected

- update_market_token_deposit_cap(
  ctx: Context<UpdateMarketTokenDepositCap>,
  collateral: u8,
  cap_in_lamports: u64,
)

  Vulnerabilities not detected
- update_oracle_mapping(
  ctx: Context<UpdateOracleMapping>,
  collateral: u8,
)

  Vulnerabilities not detected
- update_scope_mapping(ctx: Context<UpdateScopeOracleMapping>)

  Vulnerabilities not detected
- approve_trove(ctx: Context<ApproveTrove>)

  Vulnerabilities not detected
- deposit_collateral(
  ctx: Context<DepositCollateral>,
  amount_in_lamports: u64,
  collateral: u8,
)

  Vulnerabilities not detected
- borrow_stablecoin(
  ctx: Context<BorrowStable>,
  amount: u64
)

  Vulnerabilities not detected
- deposit_collateral_and_borrow_stablecoin(
  ctx:
  Context<DepositCollateralAndBorrowStable>,
  deposit_amount: u64,
  deposit_asset: u8,
  borrow_amount: u64,
)

  Vulnerabilities not detected

- `repay_loan(`
  `ctx: Context<RepayLoan>,`
  `amount: u64`
  `)`

  Vulnerabilities not detected
- `withdraw_collateral(`
  `ctx: Context<WithdrawCollateral>,`
  `amount: u64,`
  `collateral: u8,`
  `)`

  Vulnerabilities not detected
- `stability_initialize(ctx: Context<InitializeStabilityPool>)`

  Vulnerabilities not detected
- `stability_approve(ctx: Context<ApproveProvideStability>)`

  Vulnerabilities not detected
- `stability_provide(`
  `ctx: Context<ProvideStability>,`
  `amount: u64`
  `)`

  Vulnerabilities not detected
- `stability_withdraw(`
  `ctx: Context<WithdrawStability>,`
  `amount: u64`
  `)`

  Vulnerabilities not detected
- `try_liquidate(ctx: Context<TryLiquidate>)`

  Vulnerabilities not detected
- `try_liquidate_cash_based(`
  `ctx: Context<TryLiquidateCashBased>,`
  `debt_to_repay: u64,`
  `)`

  Vulnerabilities not detected

- `harvest_liquidation_gains(ctx: Context<HarvestLiquidationGains>, token: u8,)`

  Vulnerabilities not detected

- `clear_liquidation_gains(ctx: Context<ClearLiquidationGains>, token: u8,)`

  Vulnerabilities not detected

- `staking_initialize(ctx: Context<InitializeStakingPool>)`

  Vulnerabilities not detected

- `staking_approve(ctx: Context<ApproveStakingPool>)`

  Vulnerabilities not detected

- `staking_stake_hbb(ctx: Context<StakeHbbStakingPool>, amount: u64)`

  Vulnerabilities not detected

- `withdraw_from_treasury(ctx: Context<WithdrawFromTreasury>, amount: u64,)`

  Vulnerabilities not detected

- `reset_placeholders(ctx: Context<ZeroPlaceholders>)`

  Vulnerabilities not detected

- `staking_harvest_reward(ctx: Context<HarvestRewardStakingPool>)`

  Vulnerabilities not detected

- unstake_hbb(
  ctx: Context<UnstakeHbbStakingPool>,
  amount: u64
)

  Vulnerabilities not detected
- serum_init_account(ctx: Context<SerumInitOpenOrders>)

  Vulnerabilities not detected
- serum_swap_withdraw_collateral(
  ctx: Context<SerumSwapWithdrawCollateral>,
  amount: u64,
  collateral: u8,
)

  Vulnerabilities not detected
- serum_close_account(ctx: Context<SerumCloseOpenOrders>)

  Vulnerabilities not detected
- delegate_marinade_deposit(
  ctx: Context<MarinadeDelegateDeposit>,
  amount: u64,
)

  Vulnerabilities not detected
- delegate_marinade_emergency_withdraw(
  ctx: Context<MarinadeEmergencyWithdraw>,
  amount: u64,
)

  Vulnerabilities not detected
- airdrop_hbb(
  ctx: Context<AirdropHbb>,
  amount: u64
)

  Vulnerabilities not detected

- airdrop_usdh(
  ctx: Context<AirdropUsdh>,
  amount: u64
)

  Vulnerabilities not detected
- psm_initialize(
  ctx: Context<PsmInitialize>,
  bump: u8,
  max_capacity: u64,
)

  Vulnerabilities not detected
- psm_change_max_capacity(
  ctx: Context<PsmChangeMaxCapacity>,
  max_capacity: u64,
)

  Vulnerabilities not detected
- psm_change_withdrawal_cap(
  ctx: Context<PsmChangeWithdrawalCap>,
  max_capacity: u64,
  interval: u64,
  change_stable_cap: bool,
  reset_accums: bool,
)

  Vulnerabilities not detected
- psm_mint(
  ctx: Context<PsmMint>,
  amount: u64
)

  Vulnerabilities not detected
- psm_burn(
  ctx: Context<PsmBurn>,
  amount: u64
)

  Vulnerabilities not detected
- drip_stability_fees(ctx: Context<DripStabilityFees>)

  Vulnerabilities not detected

- update_stability_fees_config(
  ctx:
  Context<UpdateStabilityFeesConfig>,
  new_value: u64,
  update_mode: u8,
)

  Vulnerabilities not detected
- update_scope_mapping(ctx:
  Context<UpdateScopeOracleMapping>)

  Vulnerabilities not detected
- approve_trove(ctx:
  Context<ApproveTrove>)

  Vulnerabilities not detected
- borrow_stablecoin(
  ctx: Context<BorrowStable>,
  amount: u64
)

  Vulnerabilities not detected
- repay_loan(
  ctx: Context<RepayLoan>,
  amount: u64
)

  Vulnerabilities not detected
- stability_initialize(ctx:
  Context<InitializeStabilityPool>)

  Vulnerabilities not detected
- stability_approve(ctx:
  Context<ApproveProvideStability>)

  Vulnerabilities not detected
- stability_provide(
  ctx: Context<ProvideStability>,
  amount: u64
)

  Vulnerabilities not detected

- stability_withdraw(
  ctx: Context<WithdrawStability>,
  amount: u64
)

  Vulnerabilities not detected
- try_liquidate(ctx:
  Context<TryLiquidate>)

  Vulnerabilities not detected
- staking_initialize(ctx:
  Context<InitializeStakingPool>)

  Vulnerabilities not detected
- staking_stake_hbb(
  ctx: Context<StakeHbbStakingPool>,
  amount: u64
)

  Vulnerabilities not detected
- staking_approve(ctx:
  Context<ApproveStakingPool>)

  Vulnerabilities not detected
- reset_placeholders(ctx:
  Context<ZeroPlaceholders>)

  Vulnerabilities not detected
- staking_harvest_reward(ctx:
  Context<HarvestRewardStakingPool>)

  Vulnerabilities not detected
- unstake_hbb(
  ctx: Context<UnstakeHbbStakingPool>,
  amount: u64
)

  Vulnerabilities not detected
- serum_init_account(ctx:
  Context<SerumInitOpenOrders>)

  Vulnerabilities not detected
- serum_close_account(ctx:
  Context<SerumCloseOpenOrders>)

  Vulnerabilities not detected

- airdrop_hbb(
  ctx: Context<AirdropHbb>,
  amount: u64
)

  Vulnerabilities not detected
- airdrop_usdh(
  ctx: Context<AirdropUsdh>,
  amount: u64
)

  Vulnerabilities not detected
- psm_mint(
  ctx: Context<PsmMint>,
  amount: u64
)

  Vulnerabilities not detected
- psm_burn(
  ctx: Context<PsmBurn>,
  amount: u64
)

  Vulnerabilities not detected
- drip_stability_fees(ctx: Context<DripStabilityFees>)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/STABILITY_POOL/STABILITY_POOL_OPERATIONS.RS

CONTRACT METHODS ANALYSIS:

- initialize_stability_pool(
  stability_pool_state:
  &mutStabilityPoolState,
  liquidations_queue:
  &mutRefMut<LiquidationsQueue>,
)

  Vulnerabilities not detected
- approve_new_user(
  stability_pool_state:
  &mutStabilityPoolState,
  stability_provider_state:
  &mutStabilityProviderState,
)

  Vulnerabilities not detected

- provide_stability(
  stability_pool_state:
  &mutStabilityPoolState,
  stability_provider_state:
  &mutStabilityProviderState,
  global_config: &GlobalConfig,
  epoch_to_scale_to_sum:
  &mutEpochToScaleToSum,
  amount: u64,
  now_timestamp: u64,
)

  Vulnerabilities not detected

- distribute_stability_fees(
  stability_pool_state:
  &mutStabilityPoolState,
  epoch_to_scale_to_sum:
  &mutEpochToScaleToSum,
  staking_pool_state: &mutStakingPoolState,
  stability_fee_amount: u64,
  stability_fee_pct: u16,
  staking_fee_pct: u16,
  treasury_fee_pct: u16,
)

  Vulnerabilities not detected

- withdraw_stability(
  stability_pool_state:
  &mutStabilityPoolState,
  stability_provider_state:
  &mutStabilityProviderState,
  global_config: &GlobalConfig,
  epoch_to_scale_to_sum:
  &mutEpochToScaleToSum,
  amount: u64,
  now_timestamp: u64,
)

  Vulnerabilities not detected

- update_pending_gains(
  stability_pool_state:
  &mutStabilityPoolState,
  stability_provider_state:
  &mutStabilityProviderState,
  epoch_to_scale_to_sum: &EpochToScaleToSum,
)

  Vulnerabilities not detected

- harvest_liquidation_gains(
  stability_pool_state:
  &mutStabilityPoolState,
  stability_provider_state:
  &mutStabilityProviderState,
  global_config: &GlobalConfig,
  epoch_to_scale_to_sum:
  &mutEpochToScaleToSum,
  liquidations_queue:
  &mutRefMut<LiquidationsQueue>,
  now_timestamp: u64,
  harvest_token: StabilityToken,
)

  Vulnerabilities not detected
- harvest_pending_gains(
  stability_pool_state:
  &mutStabilityPoolState,
  stability_provider_state:
  &mutStabilityProviderState,
  harvest_token: StabilityToken,
)

  Vulnerabilities not detected
- liquidate(
  stability_pool_state:
  &mutStabilityPoolState,
  global_config: &GlobalConfig,
  epoch_to_scale_to_sum:
  &mutEpochToScaleToSum,
  collateral_gain_to_stability_pool:
  UserCollateralAmounts,
  debt_to_offset: u64,
  now_timestamp: u64,
)

  Vulnerabilities not detected
- send_usd_to_stability_pool(
  stability_pool_state:
  &mutStabilityPoolState,
  amount: u64,
)

  Vulnerabilities not detected

- send_usd_to_depositor(
  stability_pool_state:
&mutStabilityPoolState,
  amount: u64,
)

  Vulnerabilities not detected
- update_pending_gains(
  stability_provider_state:
&mutStabilityProviderState,
  epoch_to_scale_to_sum:
&EpochToScaleToSum,
)

  Vulnerabilities not detected
- get_new_user_snapshot(
  stability_pool_state:
&StabilityPoolState,
  epoch_to_scale_to_sum:
&EpochToScaleToSum,
  amount: u64,
)

  Vulnerabilities not detected
- get_compounded_usd_deposit(
  stability_pool_state:
&StabilityPoolState,
  stability_provider_state:
&StabilityProviderState,
)

  Vulnerabilities not detected
- compute_rewards_per_unit_staked(
  stability_pool_state:
&mutStabilityPoolState,
  coll_to_add: StabilityCollateralAmounts,
  debt_to_offset: u64,
  total_usd_deposits: u64,
)

  Vulnerabilities not detected

- update_reward_sum_and_product(
  stability_pool_state:
  &mutStabilityPoolState,
  epoch_to_scale_to_sum:
  &mutEpochToScaleToSum,
  coll_gained_per_unit_staked:
  StabilityTokenMap,
  usd_loss_per_unit_staked: u64,
)

  Vulnerabilities not detected
- get_depositor_pending_gain(
  stability_provider_state:
  &StabilityProviderState,
  epoch_to_scale_to_sum:
  &EpochToScaleToSum,
)

  Vulnerabilities not detected
- compute_new_hbb_issuance(
  stability_pool_state:
  &mutStabilityPoolState,
  global_config: &GlobalConfig,
  now_timestamp: u64,
)

  Vulnerabilities not detected
- expected_issuance_since_start(
  start: u64,
  now: u64
)

  Vulnerabilities not detected
- split_three_ways(
  sum: u64,
  sp_pctg: u16,
  stakers_pctg: u16,
  treasury_pctg: u16,
)

  Vulnerabilities not detected

- weight_of_total(
  sum: u64,
  weight: u16,
  total_weight: u16
)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/STABILITY_POOL/LIQUIDATIONS_QUEUE.RS

CONTRACT METHODS ANALYSIS:

- initialize_queue(queue: &mutRefMut<LiquidationsQueue>)

  Vulnerabilities not detected

- add_liquidation_event(
  liquidation_event: LiquidationEvent,
  queue: &mutLiquidationsQueue,
)

  Vulnerabilities not detected

- clear_liquidation_gains(
  queue: &mutLiquidationsQueue,
  token: CollateralToken,
  clearing_agent: Pubkey,
  now_timestamp: u64,
)

  Vulnerabilities not detected

- `get(`
  `queue: &mutRefMut<LiquidationsQueue>,`
  `index: usize`
  `)`

  Vulnerabilities not detected
- `len(queue: &mutRefMut<LiquidationsQueue>)`

  Vulnerabilities not detected
- `get_next_index(queue: &mutLiquidationsQueue)`

  Vulnerabilities not detected
- `has_pending_liquidation_events(queue: &mutRefMut<LiquidationsQueue>)`

  Vulnerabilities not detected
- `num_pending_events(queue: &LiquidationsQueue)`

  Vulnerabilities not detected
- `remove_liquidation_event(`
  `queue: &mutLiquidationsQueue,`
  `index: usize`
  `)`

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/CONFIG/GLOBAL_CONFIG_OPERATIONS.RS

CONTRACT METHODS ANALYSIS:

- update_u64_config(
  global_config: &mut GlobalConfig,
  key: GlobalConfigOption,
  value: u64,
)

  Vulnerabilities not detected
- update_pubkey_config(
  global_config: &mut GlobalConfig,
  key: GlobalConfigOption,
  value: &Pubkey,
)

  Vulnerabilities not detected
- update_bool_config(
  global_config: &mut GlobalConfig,
  key: GlobalConfigOption,
  value: bool,
)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/CONFIG/ORACLE_MAPPING_OPERATIONS.RS

CONTRACT METHODS ANALYSIS:

- initialize_psm(
  psm_reserve: &mutPsmReserve,
  bump: u8,
  stablecoin_decimals: u8,
  max_capacity: u64,
)

  Vulnerabilities not detected
- change_psm_max_capacity(
  psm_reserve: &mutPsmReserve,
  max_capacity: u64
)

  Vulnerabilities not detected
- mint(
  psm_reserve: &mutPsmReserve,
  amount_usdh: u64,
  curr_slot: u64,
)

  Vulnerabilities not detected

- burn(
  psm_reserve: &mutPsmReserve,
  amount_usdh: u64,
  curr_slot: u64,
)

  Vulnerabilities not detected
- usdh_to_stablecoin(
  stablecoin_mint_decimals: u8,
  amount_usdh: u64,
)

  Vulnerabilities not detected
- psm_withdrawal_cap_type_from_bool(change_stable_cap: bool)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/UTILS/FINANCE.RS

CONTRACT METHODS ANALYSIS:

- from(
  user: &UserMetadata,
  prices: &TokenPrices
)

  Vulnerabilities not detected
- calc_coll_ratio_and_usdh_value(
  debt_usdh: u64,
  collateral_deposited:
  &CollateralAmounts,
  prices: &TokenPrices,
)

  Vulnerabilities not detected
- coll_ratio(
  debt_usdh: u64,
  market_value_usdh: u64
)

  Vulnerabilities not detected

- `calculate_collateral_value(`
  `debt_usdh: u64,`
  `collateral_deposited: &CollateralAmounts,`
  `prices: &TokenPrices,`
  `)`

  Vulnerabilities not detected
- `calc_market_value_usdh(`
  `prices: &TokenPrices,`
  `amounts: &CollateralAmounts,`
  `)`

  Vulnerabilities not detected
- `calc_market_value_token<'a>(`
  `amount: u64,`
  `price: implInto<Option<&'aPrice>>,`
  `collateral: CollateralToken,`
  `)`

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/UTILS/SCOPE.RS

CONTRACT METHODS ANALYSIS:

- `get_price_account<'a,'info>(scope_price_account: &'aAccountInfo<'info>,)`

  Vulnerabilities not detected

- `get_price_usd(`
  `scope_prices: &ScopePrices,`
  `token: implTryInto<ScopeConversionChain>,`
  `current_slot: clock::Slot,`
  `)`

  Vulnerabilities not detected

- `check_prices(`
  `scope_price_account: &AccountInfo<'_>,`
  `pyth_prices: &TokenPrices`
  `)`

  Vulnerabilities not detected

- `get_price(`
  `scope_prices: &ScopePrices,`
  `token: impl TryInto<ScopePriceId>,`
  `current_slot: clock::Slot,`
  `)`

  Vulnerabilities not detected
- `get_price_max_age(token: ScopePriceId)`

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/UTILS/ORACLE.RS

CONTRACT METHODS ANALYSIS:

- get_prices<'a>(
  pyth_sol_price_info:
  &AccountInfo<'a>,
  pyth_eth_price_info:
  &AccountInfo<'a>,
  pyth_btc_price_info:
  &AccountInfo<'a>,
  pyth_srm_price_info:
  &AccountInfo<'a>,
  pyth_ray_price_info:
  &AccountInfo<'a>,
  pyth_ftt_price_info:
  &AccountInfo<'a>,
  pyth_msol_price_info:
  &AccountInfo<'a>,
  scope_prices_info:
  Option<&AccountInfo>,
  //Notmandatoryifnotavailable
)

  Vulnerabilities not detected

- `get_price(
  pyth_price_info: &AccountInfo,
  token: CollateralToken,
)`

  Vulnerabilities not detected
- `validate_pyth_product(
  pyth_product:
&pyth_client::ProductAccount
)`

  Vulnerabilities not detected
- `validate_pyth_product_symbol(
  pyth_product:
&pyth_client::ProductAccount,
  token: &CollateralToken,
)`

  Vulnerabilities not detected
- `validate_pyth_price_pubkey(
  pyth_product:
&pyth_client::ProductAccount,
  pyth_price_pubkey: &Pubkey,
)`

  Vulnerabilities not detected
- `validate_pyth_price(
  pyth_price:
&pyth_client::PriceAccount
)`

  Vulnerabilities not detected
- `read_pyth_product_attribute(
  pyth_product:
&pyth_client::ProductAccount,
  attribute: &str,
)`

  Vulnerabilities not detected
- `get_pyth_symbol_for_token(token:
&CollateralToken)`

  Vulnerabilities not detected

- `get_pyth_symbol_for_token_devnet(token: &CollateralToken)`

  Vulnerabilities not detected

- `new_product()`

  Vulnerabilities not detected

- `new_product_attributes(`
  `key: &str,`
  `val: &str`
  `)`

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/UTILS/MATH.RS

CONTRACT METHODS ANALYSIS:

- stablecoin_decimal_to_u64(number: f64)

  Vulnerabilities not detected
- stablecoin_decimal_to_u128(number: f64)

  Vulnerabilities not detected
- coll_to_lamports(
  number: f64,
  collateral: CollateralToken
)

  Vulnerabilities not detected
- lamports_to_coll(
  number: u64,
  collateral: CollateralToken
)

  Vulnerabilities not detected
- hbb_decimal_to_u64(number: f64)

  Vulnerabilities not detected

- `hbb_decimal_to_u128(number: f64)`

  Vulnerabilities not detected

- `decimal_to_u128(`
  `number: f64,`
  `factor: u128`
  `)`

  Vulnerabilities not detected

- `decimal_to_u64(`
  `number: f64,`
  `factor: u128`
  `)`

  Vulnerabilities not detected

- `u64_to_decimal(`
  `number: u64,`
  `factor: u128`
  `)`

  Vulnerabilities not detected

CONTRACT METHODS ANALYSIS:

- check_context<T>(ctx: &Context<T>)
  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/UTILS/CONSTRAINTS.RS

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/UTILS/BN.RS

CONTRACT METHODS ANALYSIS:

- to_u64(self)
  Vulnerabilities not detected
- try_to_u64(self)
  Vulnerabilities not detected
- to_u128(self)
  Vulnerabilities not detected
- try_to_u128(self)
  Vulnerabilities not detected
- from_le_bytes(bytes: [u8; 32])
  Vulnerabilities not detected
- to_le_bytes(self)
  Vulnerabilities not detected
- to_u64(self)
  Vulnerabilities not detected
- try_to_u64(self)
  Vulnerabilities not detected

- `to_u128(self)`

  Vulnerabilities not detected
- `try_to_u128(self)`

  Vulnerabilities not detected
- `from_le_bytes(bytes: [u8; 24])`

  Vulnerabilities not detected
- `to_le_bytes(self)`

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/UTILS/PDA.RS

CONTRACT METHODS ANALYSIS:

- `collateral_vault_from(owner: &Pubkey)`

  Vulnerabilities not detected

- `liquidation_rewards_vault_from(owner: &Pubkey)`

  Vulnerabilities not detected

- `treasury_rewards_vault_from(owner: &Pubkey)`

  Vulnerabilities not detected

- ```
  make_pda_pubkey(
   mode: PDA,
    program: &Pubkey
  )
  ```

  Vulnerabilities not detected
  ```

- ```
  make_pda_seeds<'a>(
   mode: &'a PDA,
    _program: &'a Pubkey
  )
  ```

  Vulnerabilities not detected

- ```
  make_pda(
   owner: &Pubkey,
    tag: &str,
    program: &Pubkey
  )
  ```

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/STATE/DEPOSIT_SNAPSHOT.RS

CONTRACT METHODS ANALYSIS:

- default()

  Vulnerabilities not detected

- new(
  sum: StabilityTokenMap,
  product: u128,
  scale: u64,
  epoch: u64
)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/STATE/STABILITY_COLLATERAL_AMOUNTS.RS

CONTRACT METHODS ANALYSIS:

- `is_zero_token(&self, token: StabilityToken)`

  Vulnerabilities not detected
- `token_amount(&self, token: StabilityToken)`

  Vulnerabilities not detected
- ```
  of_token(
    amount: u64,
     token: StabilityToken
  )
  ```

  Vulnerabilities not detected
- `to_token_map(&self)`

  Vulnerabilities not detected
  ```

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/STATE/USER_COLLATERAL_AMOUNTS.RS

CONTRACT METHODS ANALYSIS:

- get(&self, token: CollateralToken)
  Vulnerabilities not detected
- sol(&self)
  Vulnerabilities not detected
- eth(&self)
  Vulnerabilities not detected
- btc(&self)
  Vulnerabilities not detected
- ray(&self)
  Vulnerabilities not detected
- msol(&self)
  Vulnerabilities not detected
- srm(&self)
  Vulnerabilities not detected
- ftt(&self)
  Vulnerabilities not detected

- is_zero_token(&self, token: CollateralToken)

  Vulnerabilities not detected
- is_zero(&self)

  Vulnerabilities not detected
- is_zero_extra(&self)

  Vulnerabilities not detected
- get_original_collateral(&self)

  Vulnerabilities not detected
- get_extra_collateral(&self)

  Vulnerabilities not detected
- add_user(&self, user: &UserCollateralAmounts)

  Vulnerabilities not detected
- add_assign_to_user(&mut self, user: &UserCollateralAmounts)

  Vulnerabilities not detected
- sub_user(&self, user: &UserCollateralAmounts)

  Vulnerabilities not detected
- sub_assign_user(&mut self, user: &UserCollateralAmounts)

  Vulnerabilities not detected
- mul_bps(&self, factor: u16)

  Vulnerabilities not detected
- mul_scalar(&self, scalar: u64)

  Vulnerabilities not detected
- div_scalar(&self, factor: u64)

  Vulnerabilities not detected
- mul_percent(&self, factor: u64)

  Vulnerabilities not detected

- set(
  &mut self,
  token: CollateralToken,
  value: u64
)

  Vulnerabilities not detected
- of_token(
  amount: u64,
  token: CollateralToken
)

  Vulnerabilities not detected
- iter_nonzero(&self)

  Vulnerabilities not detected
- to_token_map(&self)

  Vulnerabilities not detected
- to_market_collateral(&self)

  Vulnerabilities not detected
- of_token_f64(
  amount: f64,
  token: CollateralToken
)

  Vulnerabilities not detected
- tst_move_zeroes(&mut self, zeroed_collateral_index: usize)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/STATE/LIQUIDATIONS_QUEUE.RS

CONTRACT METHODS ANALYSIS:

- empty()

  Vulnerabilities not detected

- new(
  liquidator: Pubkey,
  liquidator_gains: UserCollateralAmounts,
  clearer_gains: UserCollateralAmounts,
  stability_pool_gains:
  UserCollateralAmounts,
  event_timestamp: u64,
)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/STATE/BORROWING_VAULTS.RS

CONTRACT METHODS ANALYSIS:

- collateral_vault(&self, token: CollateralToken)

  Vulnerabilities not detected
- mint_address(&self, token: CollateralToken)

  Vulnerabilities not detected
- liquidations_vault(&self, token: CollateralToken)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/STATE/STABILITY_POOL_STATE.RS

CONTRACT METHODS ANALYSIS:

- new(
  num_users: u64,
  total_users_providing_stability: u64,
  cumulative_gains_total: StabilityTokenMap,
  pending_collateral_gains: StabilityTokenMap,
  current_epoch: u64,
  current_scale: u64,
)

  Vulnerabilities not detected

CONTRACT METHODS ANALYSIS:

- to_state_string(&self)
  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/STATE/USER_STAKING_STATE.RS

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/STATE/BORROWING_MARKET_STATE.RS

CONTRACT METHODS ANALYSIS:

- new()

  Vulnerabilities not detected
- to_state_string(&self)

  Vulnerabilities not detected

CONTRACT METHODS ANALYSIS:

- pyth_price_info(&self, token: CollateralToken)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/STATE/ORACLE_MAPPINGS.RS

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/STATE/MARKET_COLLATERAL_AMOUNTS.RS

CONTRACT METHODS ANALYSIS:

- add_user(&self,user: &UserCollateralAmounts,)

  Vulnerabilities not detected
- add_assign_user(&mutself,user: &UserCollateralAmounts)

  Vulnerabilities not detected
- sub_user(&self,user: &UserCollateralAmounts,)

  Vulnerabilities not detected
- sub_assign_user(&mutself,user: &UserCollateralAmounts)

  Vulnerabilities not detected
- get(&self,token: CollateralToken)

  Vulnerabilities not detected

- set(
  &mutself,
  token: CollateralToken,
  value: u64
)

  Vulnerabilities not detected
- iter(&self)

  Vulnerabilities not detected
- iter_mut(&mutself)

  Vulnerabilities not detected
- sol(&self)

  Vulnerabilities not detected
- eth(&self)

  Vulnerabilities not detected
- btc(&self)

  Vulnerabilities not detected
- ray(&self)

  Vulnerabilities not detected
- msol(&self)

  Vulnerabilities not detected
- srm(&self)

  Vulnerabilities not detected
- ftt(&self)

  Vulnerabilities not detected
- is_zero_token(&self,token: CollateralToken)

  Vulnerabilities not detected
- token_amount(&self,token: CollateralToken)

  Vulnerabilities not detected
- of_token(
  amount: u64,
  token: CollateralToken
)

  Vulnerabilities not detected

- `of_token_f64(`
  `amount: f64,`
  `token: CollateralToken`
  `)`

  Vulnerabilities not detected
- `to_token_map(&self)`

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/STATE/STABILITY_TOKEN_MAP.RS

CONTRACT METHODS ANALYSIS:

- `is_zero_token(&self, token: StabilityToken)`

  Vulnerabilities not detected
- `token_amount(&self, token: StabilityToken)`

  Vulnerabilities not detected
- ```
  of_token(
    amount: u128,
     token: StabilityToken
  )
  ```

  Vulnerabilities not detected
- `to_collateral_amounts(&self)`

  Vulnerabilities not detected
  ```

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/STATE/EPOCH_TO_SCALE_TO_SUM.RS

CONTRACT METHODS ANALYSIS:

- get_sum(
  &self,
  epoch: u64,
  scale: u64
)

  Vulnerabilities not detected
- write_sum(
  &mutself,
  offset: usize,
  sum: StabilityTokenMap
)

  Vulnerabilities not detected
- set_sum(
  &mutself,
  epoch: u64,
  scale: u64,
  sum: StabilityTokenMap,
)

  Vulnerabilities not detected

- `unpack_from_zero_copy_account(epoch_to_scale_to_sum_account: &'aAccountLoader<EpochToScaleToSumAccount>,)`

  Vulnerabilities not detected

- `unpack_from_account(epoch_to_scale_to_sum_account: &'aRefCell<EpochToScaleToSumAccount>,)`

  Vulnerabilities not detected

- `from<'a>(vec_stability_token_map: Vec<Vec<StabilityTokenMap>>,)`

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/STATE/STAKING_POOL_STATE.RS

CONTRACT METHODS ANALYSIS:

- new(
  total_stake: u64,
  reward_per_token: u128,
  total_distributed_rewards: u128,
  rewards_not_yet_claimed: u128,
)

  Vulnerabilities not detected
- initialize_staking_pool(&mutself)

  Vulnerabilities not detected
- to_state_string(&self)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/STATE/STABILITY_PROVIDER_STATE.RS

CONTRACT METHODS ANALYSIS:

- approve_stability(&mut self, user_id: u64)

  Vulnerabilities not detected
- to_state_string(&self)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/COMPONENTS/WITHDRAWAL_CAP_OPERATIONS.RS

CONTRACT METHODS ANALYSIS:

- add_to_withdrawal_accum(
  caps: &mutWithdrawalCaps,
  requested_amount: u64,
  curr_slot: u64,
)

  Vulnerabilities not detected
- sub_from_withdrawal_accum(
  caps: &mutWithdrawalCaps,
  requested_amount: u64,
  curr_slot: u64,
)

  Vulnerabilities not detected

- change_withdrawal_cap(
  caps: &mutWithdrawalCaps,
  new_amount: u64,
  interval: u64,
  accum_action:
  WithdrawalCapAccumulatorAction,
)

  Vulnerabilities not detected
- initialize_withdrawal_cap(caps:
  &mutWithdrawalCaps)

  Vulnerabilities not detected
- withdrawal_cap_accumulator_action_from
  _bool(reset_accums: bool,)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/COMPONENTS/UTILS.RS

CONTRACT METHODS ANALYSIS:

- update_market_linkage(
  market: &mutBorrowingMarketState,
  global_config_key: Pubkey,
  oracle_mappings: Pubkey,
  borrowing_vaults: Pubkey,
  staking_pool_state: Pubkey,
  stability_pool_state: Pubkey,
)

  Vulnerabilities not detected
- update_market_owner(
  market: &mutBorrowingMarketState,
  new_owner: Pubkey
)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/TOKEN_OPERATIONS/HBB.RS

CONTRACT METHODS ANALYSIS:

- mint<'info>(
  amount: u64,
  hbb_mint_seed: u8,
  owner: Pubkey,
  program_id: &Pubkey,
  hbb_mint: AccountInfo<'info>,
  mint_to: AccountInfo<'info>,
  hbb_mint_authority:
  AccountInfo<'info>,
  token_program: AccountInfo<'info>,
)

  Vulnerabilities not detected
- transfer<'info>(
  amount: u64,
  from: &AccountInfo<'info>,
  to: &AccountInfo<'info>,
  authority: &AccountInfo<'info>,
  token_program: &AccountInfo<'info>,
)

  Vulnerabilities not detected

- ```
  transfer_from_staking_pool<'info>(
   amount: u64,
   owner: Pubkey,
   to_account: &AccountInfo<'info>,
   from_vault: &AccountInfo<'info>,
   from_vault_authority:
  &AccountInfo<'info>,
   from_vault_authority_seed: u8,
   token_program: &AccountInfo<'info>,
   program_id: &Pubkey,
  )
  ```

  Vulnerabilities not detected
  ```

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/TOKEN_OPERATIONS/SPLTOKEN.RS

CONTRACT METHODS ANALYSIS:

- mint<'info>(
  mint_coin: &AccountInfo<'info>,
  mint_to: &AccountInfo<'info>,
  mint_coin_authority:
  &AccountInfo<'info>,
  mint_coin_authority_seed: u8,
  pda_mode: &crate::pda::PDA,
  token_program: &AccountInfo<'info>,
  program_id: &Pubkey,
  amount: u64,
)

  Vulnerabilities not detected

- burn<'info>(
  mint: &AccountInfo<'info>,
  burn_from: &AccountInfo<'info>,
  burn_authority: &AccountInfo<'info>,
  burn_authority_seed: u8,
  pda_mode: crate::pda::PDA,
  token_program: &AccountInfo<'info>,
  program_id: &Pubkey,
  amount: u64,
)

  Vulnerabilities not detected
- burn_from_user<'info>(
  amount: u64,
  mint: AccountInfo<'info>,
  to: AccountInfo<'info>,
  authority: AccountInfo<'info>,
  token_program: AccountInfo<'info>,
)

  Vulnerabilities not detected
- transfer_from_vault<'info>(
  amount: u64,
  mode: pda::PDA,
  to_vault: &AccountInfo<'info>,
  from_vault: &AccountInfo<'info>,
  from_vault_authority:
  &AccountInfo<'info>,
  from_vault_authority_seed: u8,
  token_program: &AccountInfo<'info>,
  program_id: &Pubkey,
)

  Vulnerabilities not detected
- transfer_from_user<'info>(
  amount: u64,
  from_ata: &AccountInfo<'info>,
  to: &AccountInfo<'info>,
  authority: &AccountInfo<'info>,
  token_program: &AccountInfo<'info>,
)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/TOKEN_OPERATIONS/STABLECOIN.RS

CONTRACT METHODS ANALYSIS:

- `mint_many<'info>(recipients_and_amounts_to_mint: &[(&AccountInfo<'info>,u64)`

  Vulnerabilities not detected

- ```
  burn<'info>(
   amount: u64,
   burn_from: &AccountInfo<'info>,
   mint: &AccountInfo<'info>,
   burn_authority: &AccountInfo<'info>,
   burn_authority_seed: u8,
   pda_mode: crate::pda::PDA,
   program_id: &Pubkey,
   token_program: &AccountInfo<'info>,
  )
  ```

  Vulnerabilities not detected
  ```

- burn_from_user<'info>(
  amount: u64,
  mint: AccountInfo<'info>,
  to: AccountInfo<'info>,
  authority: AccountInfo<'info>,
  token_program: AccountInfo<'info>,
)

  Vulnerabilities not detected
- transfer<'info>(
  amount: u64,
  from: &AccountInfo<'info>,
  to: &AccountInfo<'info>,
  authority: &AccountInfo<'info>,
  token_program: &AccountInfo<'info>,
)

  Vulnerabilities not detected
- transfer_from_stability_pool<'info>(
  amount: u64,
  owner: Pubkey,
  to_vault: &AccountInfo<'info>,
  from_vault: &AccountInfo<'info>,
  from_vault_authority:
  &AccountInfo<'info>,
  from_vault_authority_seed: u8,
  token_program: &AccountInfo<'info>,
  program_id: &Pubkey,
)

  Vulnerabilities not detected
- transfer_from_borrowing_fees_vault<'info>(
  amount: u64,
  owner: Pubkey,
  to_vault: &AccountInfo<'info>,
  from_vault: &AccountInfo<'info>,
  from_vault_authority:
  &AccountInfo<'info>,
  from_vault_authority_seed: u8,
  token_program: &AccountInfo<'info>,
  program_id: &Pubkey,
)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/BORROWING_MARKET/BORROWING_OPERATIONS.RS

CONTRACT METHODS ANALYSIS:

- initialize_borrowing_market(market: &mutBorrowingMarketState)

  Vulnerabilities not detected

- update_market_type(
  market: &mutBorrowingMarketState,
  market_type: MarketType
)

  Vulnerabilities not detected

- update_supported_collaterals(
  market: &mutBorrowingMarketState,
  action: CollateralAction,
  token: CollateralToken,
)

  Vulnerabilities not detected

- update_market_token_deposit_cap(
  market: &mutBorrowingMarketState,
  token: CollateralToken,
  cap_in_lamports: u64,
)

  Vulnerabilities not detected
- approve_trove(
  market: &mutBorrowingMarketState,
  user: &mutUserMetadata,
  current_timestamp: u64,
)

  Vulnerabilities not detected
- deposit_collateral(
  market: &mutBorrowingMarketState,
  user: &mutUserMetadata,
  config: &GlobalConfig,
  amount: u64,
  asset: CollateralToken,
  current_timestamp: u64,
)

  Vulnerabilities not detected
- borrow_stablecoin(
  market: &mutBorrowingMarketState,
  user: &mutUserMetadata,
  staking_pool: &mutStakingPoolState,
  config: &GlobalConfig,
  prices: &TokenPrices,
  requested_borrow_amount: u64,
  current_timestamp: u64,
)

  Vulnerabilities not detected
- repay_loan(
  market: &mutBorrowingMarketState,
  user: &mutUserMetadata,
  config: &GlobalConfig,
  amount: u64,
  current_timestamp: u64,
)

  Vulnerabilities not detected

- withdraw_collateral(
  market: &mutBorrowingMarketState,
  user: &mutUserMetadata,
  requested_amount: u64,
  asset: CollateralToken,
  prices: &TokenPrices,
  current_timestamp: u64,
)

  Vulnerabilities not detected
- deposit_and_borrow(
  market: &mutBorrowingMarketState,
  user: &mutUserMetadata,
  staking_pool: &mutStakingPoolState,
  config: &GlobalConfig,
  prices: &TokenPrices,
  borrow: u64,
  deposit: u64,
  deposit_asset: CollateralToken,
  current_timestamp: u64,
)

  Vulnerabilities not detected
- charge_stability_fees(
  market: &mutBorrowingMarketState,
  current_timestamp: u64,
)

  Vulnerabilities not detected
- drain_stability_fees(
  market: &mutBorrowingMarketState,
  current_timestamp: u64,
)

  Vulnerabilities not detected
- update_stability_fee(
  market: &mutBorrowingMarketState,
  new_value: u64,
  current_timestamp: u64,
)

  Vulnerabilities not detected

- try_liquidate(
  liquidator: Pubkey,
  market: &mutBorrowingMarketState,
  user: &mutUserMetadata,
  stability_pool_state: &mutStabilityPoolState,
  global_config: &GlobalConfig,
  epoch_to_scale_to_sum: &mutEpochToScaleToSum,
  token_prices: &TokenPrices,
  liquidations_queue: &mutLiquidationsQueue,
  now_timestamp: u64,
  liquidation_type: LiquidationType,
)

  Vulnerabilities not detected
- refresh_positions(
  market: &mutBorrowingMarketState,
  user: &mutUserMetadata,
)

  Vulnerabilities not detected
- from(user: &UserMetadata)

  Vulnerabilities not detected
- add_supported_collateral(
  market: &mutBorrowingMarketState,
  token: CollateralToken,
)

  Vulnerabilities not detected
- remove_supported_collateral(
  market: &mutBorrowingMarketState,
  token: CollateralToken,
)

  Vulnerabilities not detected
- deposit_collateral(
  market: &mutBorrowingMarketState,
  user: &mutUserMetadata,
  amount: u64,
  asset: CollateralToken,
  collateral_status: CollateralStatus,
)

  Vulnerabilities not detected

- deposit_inactive_collateral(
  market: &mutBorrowingMarketState,
  user: &mutUserMetadata,
  deposit: &UserCollateralAmounts,
)

  Vulnerabilities not detected
- replace_collateral(
  market: &mutBorrowingMarketState,
  user: &mutUserMetadata,
  amount: u64,
  asset: CollateralToken,
  collateral_status: CollateralStatus,
)

  Vulnerabilities not detected
- withdraw_collateral(
  market: &mutBorrowingMarketState,
  user: &mutUserMetadata,
  amount: u64,
  asset: CollateralToken,
  collateral_status: CollateralStatus,
)

  Vulnerabilities not detected
- update_stability_fees_config(
  market: &mutBorrowingMarketState,
  new_value: u64,
  update_mode: u8,
  timestamp: u64,
)

  Vulnerabilities not detected
- set_addresses(
  user: &mutUserMetadata,
  owner: Pubkey,
  metadata: Pubkey
)

  Vulnerabilities not detected
- assert_not_zero(
  value: u64,
  err: BorrowError
)

  Vulnerabilities not detected
- assert_true_or(
  value: bool,
  err: BorrowError
)

  Vulnerabilities not detected

- is_collateral_allowed(
  market: &BorrowingMarketState,
  token: CollateralToken
)

  Vulnerabilities not detected
- contains(
  supported_collaterals:
  &[SupportedCollateral],
  token: CollateralToken
)

  Vulnerabilities not detected
- get_collateral_global_cap(
  market: &BorrowingMarketState,
  token: CollateralToken
)

  Vulnerabilities not detected
- get_token_deposited_amount(
  market: &BorrowingMarketState,
  token: CollateralToken,
)

  Vulnerabilities not detected
- can_deposit_token_amount(
  market: &BorrowingMarketState,
  token: CollateralToken,
  amount: u64,
)

  Vulnerabilities not detected
- replace_equivalent_collateral(
  market: &mutBorrowingMarketState,
  user: &mutUserMetadata,
  config: &GlobalConfig,
  token_in: CollateralToken,
  token_out: CollateralToken,
  withdrawing_amount: u64,
  receiving_amount: u64,
)

  Vulnerabilities not detected
- charge(
  market: &mutBorrowingMarketState,
  current_timestamp: u64,
)

  Vulnerabilities not detected

- calculate_stability_fee(
  stablecoin_borrowed: u64,
  stability_fee_bps: u64,
  seconds_elapsed: u64,
)

  Vulnerabilities not detected
- redistribute(
  market: &mutBorrowingMarketState,
  stablecoin_debt: u64,
  collateral: UserCollateralAmounts,
)

  Vulnerabilities not detected
- apply_pending_rewards(
  market: &BorrowingMarketState,
  user: &mutUserMetadata,
)

  Vulnerabilities not detected
- get_user_balances(
  market: &BorrowingMarketState,
  user: &UserMetadata,
)

  Vulnerabilities not detected
- get_pending_redistributed_stablecoin_reward(
  market: &BorrowingMarketState,
  user: &UserMetadata,
)

  Vulnerabilities not detected
- get_pending_redistributed_collateral_reward(
  market: &BorrowingMarketState,
  user: &UserMetadata,
)

  Vulnerabilities not detected
- has_pending_rewards(
  market: &BorrowingMarketState,
  user: &mutUserMetadata
)

  Vulnerabilities not detected
- update_reward_snapshots(
  market: &BorrowingMarketState,
  user: &mutUserMetadata
)

  Vulnerabilities not detected

- compute_new_stake(
  market: &BorrowingMarketState,
  debt: u64
)

  Vulnerabilities not detected
- update_user_stake_and_total_stakes(
  market: &mutBorrowingMarketState,
  user: &mutUserMetadata,
)

  Vulnerabilities not detected
- remove_stake(
  market: &mutBorrowingMarketState,
  user: &mutUserMetadata
)

  Vulnerabilities not detected
- update_system_snapshots(market: &mutBorrowingMarketState)

  Vulnerabilities not detected
- liquidate_user(
  market: &mutBorrowingMarketState,
  user: &mutUserMetadata,
  stability_pool_state: &StabilityPoolState,
  token_prices: &TokenPrices,
  liquidation_type: LiquidationType,
)

  Vulnerabilities not detected
- update_user_and_market_state_post_liquidation(
  market: &mutBorrowingMarketState,
  user: &mutUserMetadata,
  user_balances: UserBalances,
  liquidation_amounts: &LiquidationBreakdownAmounts,
  remnant_debt: u64,
)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/BORROWING_MARKET/LIQUIDATION_CALCS.RS

CONTRACT METHODS ANALYSIS:

- try_borrow(
  market: &BorrowingMarketState,
  config: &GlobalConfig,
  requested_amount: u64,
  global_debt: u64,
  user_collateral: &UserCollateralAmounts,
  user_debt: u64,
  user_inactive_collateral: &UserCollateralAmounts,
  prices: &TokenPrices,
  market_mcr: u64,
)

  Vulnerabilities not detected
- try_withdraw(
  withdrawing: &UserCollateralAmounts,
  user_collateral: &UserCollateralAmounts,
  user_debt: u64,
  prices: &TokenPrices,
  market_mcr: u64,
)

  Vulnerabilities not detected

- calc_liq_inputs(
  user_debt: u64,
  user_collateral:
  &UserCollateralAmounts,
  prices: &TokenPrices,
  market_type: MarketType,
  market_mcr: u64,
)

  Vulnerabilities not detected
- evaluate_liquidation_decision(
  user_debt: u64,
  user_collateral:
  &UserCollateralAmounts,
  prices: &TokenPrices,
  market_type: MarketType,
  market_mcr: u64,
)

  Vulnerabilities not detected
- evaluate_liquidation_decision_cash_bas
  ed(
  user_debt: u64,
  user_collateral:
  &UserCollateralAmounts,
  prices: &TokenPrices,
  market_type: MarketType,
  market_mcr: u64,
  debt_to_be_repaid: u64,
)

  Vulnerabilities not detected
- calculate_liquidation_effects(
  user_debt: u64,
  user_collateral:
  &UserCollateralAmounts,
  usdh_in_sp: u64,
  prices: &TokenPrices,
  market_type: MarketType,
  market_mcr: u64,
  liquidation_type: LiquidationType,
)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/BORROWING_MARKET/BORROWING_RATE.RS

CONTRACT METHODS ANALYSIS:

- from_amount(
  amount_to_borrow: u64,
  base_rate_bps: u64
)

  Vulnerabilities not detected
- split_fees(
  requested_amount: u64,
  borrowing_fees_rate: u64,
)

  Vulnerabilities not detected
- calc_time_passed(
  last_fee_event: u64,
  now: u64
)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/SERUM/SWAP_OPERATIONS.RS

CONTRACT METHODS ANALYSIS:

- get_order_inputs(
  market: &MarketState,
  amount: u64,
  from_mint: &Pubkey,
)

  Vulnerabilities not detected
- redeposit_partially_swapped_dust(
  market: &mutBorrowingMarketState,
  user_metadata: &mutUserMetadata,
  vault_balance_before_swap: u64,
  vault_balance_after_swap: u64,
  asset: CollateralToken,
)

  Vulnerabilities not detected

- assert_swap_executed(
  from_account_balance_before_transfer: u64,
  from_account_balance_after_swap: u64,
  dex_swap_account_balance_before_swap: u64,
  dex_swap_account_balance_after_swap: u64,
  to_account_balance_before_swap: u64,
  to_account_balance_after_swap: u64,
)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/SERUM/UTILS.RS

CONTRACT METHODS ANALYSIS:

- get_market_state_as_v1(
  dex_program: &Pubkey,
  market: &AccountInfo,
)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_DELEGATE_DEPOSIT_MARINADE.RS

CONTRACT METHODS ANALYSIS:

- process(
  ctx:
  Context<MarinadeDelegateDeposit>,
  delegating_amount: u64
)

  Vulnerabilities not detected
- close_context(&self)

  Vulnerabilities not detected
- assert_permissions(ctx:
  &Context<MarinadeDelegateDeposit>)

  Vulnerabilities not detected
- cpi_deposit_call_marinade(
  ctx: &Context<MarinadeDelegateDeposit>,
  amount: u64,
)

  Vulnerabilities not detected

CONTRACT METHODS ANALYSIS:

- process(
  ctx: Context<UpdateMarketDebtMax>,
  total_debt_max: u64
)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_UPDATE_MARKET_DEBT_MAX.RS

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_SERUM_CLOSE_ACCOUNT.RS

CONTRACT METHODS ANALYSIS:

- process(ctx: Context<SerumCloseOpenOrders>)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_DELEGATE_WITHDRAW_MARINADE.RS

CONTRACT METHODS ANALYSIS:

- process(
  ctx:
  Context<MarinadeEmergencyWithdraw>,
  amount: u64
)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_MODIFY_SUPPORTED_COLLATERALS.RS

CONTRACT METHODS ANALYSIS:

- process(
  ctx:
  Context<crate::ModifySupportedCollaterals>,
  action: CollateralAction,
  token: CollateralToken,
)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_UPDATE_STABILITY_FEES_CONFIG.RS

CONTRACT METHODS ANALYSIS:

- process(
  ctx:
  Context<UpdateStabilityFeesConfig>,
  new_value: u64,
  update_mode: u8,
)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_PSM_CHANGE_WITHDRAWAL_CAP.RS

CONTRACT METHODS ANALYSIS:

- process(
  ctx:
  Context<PsmChangeWithdrawalCap>,
  max_capacity: u64,
  interval_length: u64,
  cap_to_change:
  PsmWithdrawalCapType,
  accum_action:
  WithdrawalCapAccumulatorAction,
)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_UPDATE_ORACLE_MAPPING.RS

CONTRACT METHODS ANALYSIS:

- update_pyth_mapping(
  ctx: Context<UpdateOracleMapping>,
  token: CollateralToken,
)

  Vulnerabilities not detected
- update_scope_mapping(ctx: Context<UpdateScopeOracleMapping>)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_INITIALIZE_STAKING_POOL.RS

CONTRACT METHODS ANALYSIS:

- `process(ctx: Context<InitializeStakingPool>)`

  Vulnerabilities not detected
- `to_staking_cpi_context(&self, mode: pda::PDA,)`

  Vulnerabilities not detected
- `transfer_to_pda(ctx: &Context<InitializeStakingPool>, mode: pda::PDA,)`

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_WITHDRAW_COLLATERAL.RS

CONTRACT METHODS ANALYSIS:

- process(
  ctx: Context<WithdrawCollateral>,
  amount: u64,
  collateral: CollateralToken,
)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_REPAY_LOAN.RS

CONTRACT METHODS ANALYSIS:

- process(
  ctx: Context<RepayLoan>,
  stablecoin_amount: u64
)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_DRIP_STABILITY_FEES.RS

CONTRACT METHODS ANALYSIS:

- process(ctx: Context<DripStabilityFees>)

  Vulnerabilities not detected
- assert_permissions(ctx: &Context<DripStabilityFees>)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_HARVEST_LIQUIDATION_GAINS.RS

CONTRACT METHODS ANALYSIS:

- process(
  ctx:
  Context<HarvestLiquidationGains>,
  harvest_token: StabilityToken,
)

  Vulnerabilities not detected
- assert_permissions(
  ctx: &Context<HarvestLiquidationGains>,
  borrowing_market_state:
  &mutRef<BorrowingMarketState>,
  harvest_token: StabilityToken,
)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_DEPOSIT_COLLATERAL.RS

CONTRACT METHODS ANALYSIS:

- process(
  ctx:
  Context<crate::DepositCollateral>,
  amount_in_lamports: u64,
  collateral: CollateralToken,
)

  Vulnerabilities not detected
- assert_permissions(
  ctx: &Context<DepositCollateral>,
  collateral: CollateralToken,
)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_PSM_BURN.RS

CONTRACT METHODS ANALYSIS:

- process(
  ctx: Context<PsmBurn>,
  amount_usdh: u64
)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_CLEAR_LIQUIDATION_GAINS.RS

CONTRACT METHODS ANALYSIS:

- process(
  ctx:
  Context<ClearLiquidationGains>,
  token: CollateralToken
)

  Vulnerabilities not detected
- assert_permissions(
  ctx: &Context<ClearLiquidationGains>,
  token: CollateralToken,
)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_STABILITY_WITHDRAW.RS

CONTRACT METHODS ANALYSIS:

- process(
  ctx:
  Context<crate::WithdrawStability>,
  amount: u64
)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_UPDATE_GLOBAL_CONFIG.RS

CONTRACT METHODS ANALYSIS:

- process(
  ctx: Context<UpdateGlobalConfig>,
  key: GlobalConfigOption,
  value: &[u8; VALUE_BYTE_ARRAY_LEN],
)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_UPDATE_MARKET_TOKEN_DEPOSIT_CAP.RS

CONTRACT METHODS ANALYSIS:

- process(
  ctx: Context<UpdateMarketTokenDepositCap>,
  token: CollateralToken,
  cap_in_lamports: u64,
)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_SERUM_SWAP_WITHDRAW_COLLATERAL.RS

CONTRACT METHODS ANALYSIS:

- process(
  ctx:
  Context<SerumSwapWithdrawCollateral>
  ,
  amount: u64,
  collateral: CollateralToken,
)

  Vulnerabilities not detected
- assert_permissions(
  ctx:
  &Context<SerumSwapWithdrawCollateral>,
  collateral: CollateralToken,
)

  Vulnerabilities not detected

```
assert_valid_market(
 market: &MarketState,
 collateral_from: &TokenAccount,
 collateral_to: &TokenAccount,
)
```

- cpi_new_order_serum(
  ctx:
  &Context<crate::SerumSwapWithdrawCollateral>,
  side: Side,
  limit_price: u64,
  max_coin_qty: u64,
  max_pc_qty: u64,
)

  Vulnerabilities not detected

- cpi_settle_order_serum(
  ctx:
  &Context<crate::SerumSwapWithdrawCollateral>,
  side: Side,
)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_ADD_NEW_VAULT.RS

CONTRACT METHODS ANALYSIS:

- process(
  ctx: Context<AddNewVault>,
  mint_id: u8,
  set_vault_to_pda: bool,
  vault_is_for_liquidation_rewards: bool,
)

  Vulnerabilities not detected
- to_set_authority_cpi_context_coll_vault(&self,)

  Vulnerabilities not detected
- to_set_authority_cpi_context_liq_rewards(&self,)

  Vulnerabilities not detected
- transfer_to_pda_collateral_vault(
  ctx: &Context<AddNewVault>,
  authority_pda: &PdaAddress,
)

  Vulnerabilities not detected

- transfer_liquidations_vault_to_pda(
  ctx: &Context<AddNewVault>,
  authority_pda: &PdaAddress,
)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_CREATE_ADDITIONAL_BORROWING_MARKET.RS

CONTRACT METHODS ANALYSIS:

- process(ctx: Context<CreateAdditionalBorrowingMarket>)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_WITHDRAW_FROM_TREASURY.RS

CONTRACT METHODS ANALYSIS:

- process(
  ctx: Context<WithdrawFromTreasury>,
  amount: u64
)

  Vulnerabilities not detected
- constraints(amount: u64)

  Vulnerabilities not detected

CONTRACT METHODS ANALYSIS:

- process(ctx: Context<ZeroPlaceholders>)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_RESET_PLACEHOLDERS.RS

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_PSM_CHANGE_MAX_CAPACITY.RS

CONTRACT METHODS ANALYSIS:

- process(
  ctx: Context<PsmChangeMaxCapacity>,
  max_capacity: u64
)

  Vulnerabilities not detected

CONTRACT METHODS ANALYSIS:

- process(ctx: Context<TryLiquidate>)
  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_TRY_LIQUIDATE.RS

CONTRACT METHODS ANALYSIS:

- process(ctx: Context<ApproveTrove>)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_APPROVE_TROVE.RS

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_BORROW_STABLECOIN.RS

CONTRACT METHODS ANALYSIS:

- process(
  ctx: Context<BorrowStable>,
  stablecoin_amount: u64
)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_STAKE_HBB.RS

CONTRACT METHODS ANALYSIS:

- process(
  ctx: Context<StakeHbbStakingPool>,
  amount: u64
)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_UNSTAKE_HBB.RS

CONTRACT METHODS ANALYSIS:

- process(
  ctx:
  Context<UnstakeHbbStakingPool>,
  amount: u64
)

  Vulnerabilities not detected
- assert_permissions(amount: u64)

  Vulnerabilities not detected

CONTRACT METHODS ANALYSIS:

- process(ctx: Context<InitializeStabilityPool>)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_INITIALIZE_STABILITY_POOL.RS

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/COMMON_UTILS.RS

CONTRACT METHODS ANALYSIS:

- `assert_non_zero(value: u64, borrow_error: BorrowError)`

  Vulnerabilities not detected

- `u8_to_bool(v: u8)`

  Vulnerabilities not detected

CONTRACT METHODS ANALYSIS:

- process(ctx: Context<ApproveProvideStability>)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_STABILITY_APPROVE.RS

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_TRY_LIQUIDATE_CASH_BASED.RS

CONTRACT METHODS ANALYSIS:

- process(
  ctx:
  Context<TryLiquidateCashBased>,
  debt_to_repay: u64
)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_DEPOSIT_AND_BORROW.RS

CONTRACT METHODS ANALYSIS:

- process(
  ctx:
  Context<DepositCollateralAndBorrowStable>,
  deposit_amount: u64,
  collateral: CollateralToken,
  borrow_amount: u64,
)

  Vulnerabilities not detected
- assert_permissions(
  ctx:
  &Context<DepositCollateralAndBorrowStable>,
  collateral: CollateralToken,
)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_INITIALIZE_NEW_COLLATERAL_VAULTS.RS

CONTRACT METHODS ANALYSIS:

- process(ctx: Context<InitializeCollateralVaultsNew>)

  Vulnerabilities not detected
- to_set_authority_cpi_context(
  &self,
  account_to_context: pda::PDA,
)

  Vulnerabilities not detected
- to_set_authority_cpi_context_stability_pool(&self,)

  Vulnerabilities not detected
- transfer_stability_pool_to_pda(
  ctx: &Context<InitializeCollateralVaultsNew>,
  mode: pda::PDA,
)

  Vulnerabilities not detected

- transfer_to_pda(
  ctx:
  &Context<InitializeCollateralVaultsNew>,
  mode: pda::PDA,
  authority_type:
  spl_token::instruction::AuthorityType,
)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_STABILITY_PROVIDE.RS

CONTRACT METHODS ANALYSIS:

- process(
  ctx:
  Context<crate::ProvideStability>,
  amount: u64
)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/
BORROWING/SRC/
HANDLERS/
HANDLER_UPDATE_MARKET_
TYPE.RS

CONTRACT METHODS ANALYSIS:

- process(
  ctx: Context<UpdateMarketType>,
  market_type: MarketType
)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_APPROVE_STAKING_POOL.RS

CONTRACT METHODS ANALYSIS:

- process(mut ctx: Context<ApproveStakingPool>)

  Vulnerabilities not detected
- set_accounts(ctx: &mut Context<ApproveStakingPool>)

  Vulnerabilities not detected

CONTRACT METHODS ANALYSIS:

- process(ctx: Context<SerumInitOpenOrders>)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/
BORROWING/SRC/
HANDLERS/
HANDLER_SERUM_INIT_
ACCOUNT.RS

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_PSM_INITIALIZE.RS

CONTRACT METHODS ANALYSIS:

- process(
  ctx: Context<PsmInitialize>,
  bump: u8,
  max_capacity: u64
)

  Vulnerabilities not detected
- to_set_authority_cpi_context(&self,)

  Vulnerabilities not detected
- transfer_to_pda(
  ctx: &Context<PsmInitialize>,
  authority_pda: &PdaAddress
)

  Vulnerabilities not detected

CONTRACT METHODS ANALYSIS:

- process(ctx: Context<UpdateMarketOwner>)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_UPDATE_MARKET_OWNER.RS

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_HARVEST_STAKING_REWARD.RS

CONTRACT METHODS ANALYSIS:

- process(ctx: Context<HarvestRewardStakingPool>)

  Vulnerabilities not detected

- assert_permissions(ctx: &Context<HarvestRewardStakingPool>)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_UPDATE_MARKET_MCR.RS

CONTRACT METHODS ANALYSIS:

- process(
  ctx: Context<UpdateMarketMcr>,
  mcr: u64
)

  Vulnerabilities not detected

CONTRACT METHODS ANALYSIS:

- process(ctx: Context<UpdateMarketLinkage>)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_UPDATE_MARKET_LINKAGE.RS

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/HANDLERS/HANDLER_INITIALIZE_BORROWING_MARKET.RS

CONTRACT METHODS ANALYSIS:

- process(ctx: Context<InitializeBorrowingMarket>)

  Vulnerabilities not detected
- to_set_authority_cpi_context(
  &self,
  account_to_context: pda::PDA,
)

  Vulnerabilities not detected
- transfer_to_pda(
  ctx: &Context<InitializeBorrowingMarket>,
  mode: pda::PDA,
  authority_type: spl_token::instruction::AuthorityType,
)

  Vulnerabilities not detected

STRUCTURE OF CONTRACT

HUBBLE/PROGRAMS/BORROWING/SRC/STAKING_POOL/STAKING_POOL_OPERATIONS.RS

CONTRACT METHODS ANALYSIS:

- qqinitialize_staking_pool(staking_pool_state: &mutStakingPoolState)

  Vulnerabilities not detected

- approve_new_user(
  staking_pool_state: &mutStakingPoolState,
  user_staking_state: &mutUserStakingState,
)

  Vulnerabilities not detected

- user_stake(
  staking_pool_state: &mutStakingPoolState,
  user_staking_state: &mutUserStakingState,
  amount: u64,
)

  Vulnerabilities not detected

- user_harvest(
  staking_pool_state: &mutStakingPoolState,
  user_staking_state: &mutUserStakingState,
)

  Vulnerabilities not detected

- user_unstake(
  staking_pool_state:
  &mutStakingPoolState,
  user_staking_state:
  &mutUserStakingState,
  amount: u64,
)

  Vulnerabilities not detected
- split_fees(
  fees_to_pay: u64,
  treasury_fee_rate: u64
)

  Vulnerabilities not detected
- distribute_fees(
  staking_pool_state:
  &mutStakingPoolState,
  fees_to_pay: u64
)

  Vulnerabilities not detected

VERIFICATION CHECK SUMS

Contract Name	Bytecode hash (SHA 256)
hubble/programs/borrowing/src/lib.rs	ad25d61bba1f7355d0759f08502e268183da0b8c5ffed68fbe152ae96b833f15
hubble/programs/borrowing/src/stability_pool/stability_pool_operations.rs	8de310b61299ba78463e0a31020656c09183d9472a6858675c341904f7be2b39
hubble/programs/borrowing/src/stability_pool/liquidations_queue.rs	a7c45cacdcfc41f53d010978800edc340579f3140b06eacd5081663774753698
hubble/programs/borrowing/src/config/global_config_operations.rs	5976cf8d44de254a383dbf4552202e99f66999af8c49a357514ba7d81bf030cb
hubble/programs/borrowing/src/config/oracle_mapping_operations.rs	9363eee9efe7c55bc74a52ab92d6b64563ab8fdb756ca0ac2be4c5e05b7036a6

Contract Name	Bytecode hash (SHA 256)
hubble/programs/borrowing/src/utils/finance.rs	f1d41db3bb58a8baa94870502292cc22065453921ad02bd433e920f4334354d1
hubble/programs/borrowing/src/utils/scope.rs	1bc891f745627c2dd8ee7b968ae75775eafb7c210e4bc72a12a09905e187ec8d
hubble/programs/borrowing/src/utils/oracle.rs	97548e01115eacf910b6fbded6eb809c5c00c46822a149a6c2f4ed84b7977e9d
hubble/programs/borrowing/src/utils/math.rs	da0c18f700ad66f0b5391cf014bf9d8e163c190594b548233866df08929631db
hubble/programs/borrowing/src/utils/constraints.rs	b88838cce3cfb92d84f20ff1b962a6fc71db1227557ee1807ca49c3248335fe3
hubble/programs/borrowing/src/utils/bn.rs	73a9f7770615f8c220b929605329a03ce7814507b5bfb7909da95d7238236c74

Contract Name	Bytecode hash (SHA 256)
hubble/programs/borrowing/src/utils/pda.rs	ec375bf021fec0798417451458eeb5b3771d6ba5b398c2913b983f49c2545a9d
hubble/programs/borrowing/src/state/deposit_snapshot.rs	4cdad3042567b499df7000001637dc6fe1e6d13ebd47de2521207a630bf87536
hubble/programs/borrowing/src/state/stability_collateral_amounts.rs	005a45a46397c5adbf280748f30f1a8927b745e1fd37c59da2db0ffd60039979
hubble/programs/borrowing/src/state/user_collateral_amounts.rs	60bb061de4b30441b9b0f38358252537894b4ab9543005bfeca9a0391b6003c3
hubble/programs/borrowing/src/state/liquidations_queue.rs	9c55fcab0c4be0885eeadfe9221405a73476ff2483dece3c74c4d38b96c30cc2
hubble/programs/borrowing/src/state/borrowing_vaults.rs	888ed2859f9886e30087fc4cd188f28c8fbff5dcc0a2170b34eacf0824a8cde5

Contract Name	Bytecode hash (SHA 256)
hubble/programs/borrowing/src/state/stability_pool_state.rs	34d5315d8d4aed0651d0672e2c91a598d696d7a4faece94de4f5627d19ee3c2d
hubble/programs/borrowing/src/state/user_staking_state.rs	984f3ca4caf22c135e8106505d74dc1b7405997c10c8a64e65f8bb144bd19a16
hubble/programs/borrowing/src/state/borrowing_market_state.rs	5c6bf3c581df2c7d3759fc9cd8f79b2a92079b359bfa2bb8b2776a93a17c306f
hubble/programs/borrowing/src/state/oracle_mappings.rs	4eee1ec071c92b66984feb4c45e1ec04ffa1dfc608b1e2fa808c1ea0f31028fb
hubble/programs/borrowing/src/state/market_collateral_amounts.rs	242a00d4edf28e48f90275f3c67270dcc1cb0095705419e15186a0a4841a5b9e
hubble/programs/borrowing/src/state/stability_token_map.rs	021a1b76dd869044a0bdbd1cc9874da1b6129a99c400ed286f8c3a4ddfb9b355

Contract Name	Bytecode hash (SHA 256)
hubble/programs/borrowing/src/state/epoch_to_scale_to_sum.rs	2ad5920fb2541aaef5c96999f88ada9106785311d29184be42b47b02f0b440f9
hubble/programs/borrowing/src/state/staking_pool_state.rs	f7148d15e10ee0c87ccd57fd3a8b0b7aa11e8108d692cef7a587ebab768261c8
hubble/programs/borrowing/src/state/stability_provider_state.rs	05d9493cce1d8cdcc0273e632f8eebb9362fab9e4a9ca0a26759f393135d57cc
hubble/programs/borrowing/src/components/withdrawal_cap_operations.rs	f6ea82a3fe1575dfc6137b10a66acbe2a84f9d3d6de510e95393cd66cb7305e6
hubble/programs/borrowing/src/components/utils.rs	3e0de536ff2630cb7f54783ad4d43d546c283a5fcab8d75438fc641098a3829e
hubble/programs/borrowing/src/token_operations/hbb.rs	42f0a91fdd1fd88d70c1e323798722dfe38d644c3a317ad4cc774d2e488774c8

Contract Name	Bytecode hash (SHA 256)
hubble/programs/borrowing/src/token_operations/spltoken.rs	451a39e813eae0fe1f6559ad9654903077fa557c6e440b8d77536926d9f6059d
hubble/programs/borrowing/src/token_operations/stablecoin.rs	d325fe41fa02d71e54f929e3f4fcf4756b1e3e42ad75efc94cf44208d8329a39
hubble/programs/borrowing/src/borrowing_market/borrowing_operations.rs	036876f5af82babe2e895d343db6557e5daff97a3b91ff82ad167ddf0fef7ec9
hubble/programs/borrowing/src/borrowing_market/liquidation_calcs.rs	5dfcb7e924a22329f54705e770330796d8d5d487a7a2a34429fb9306f94bfefd
hubble/programs/borrowing/src/borrowing_market/borrowing_rate.rs	e29740eff75bd0b970fc8e7de134d73d7f64077f24ac0ff39bd215f9110e4234
hubble/programs/borrowing/src/serum/swap_operations.rs	0dd3d5017c785b0a54f7660bdb94ac550ff24428945699679b0f6fa4737273b9

Contract Name	Bytecode hash (SHA 256)
hubble/programs/borrowing/src/serum/utils.rs	1b6f144de714de1974c400596e7d63d0d84ce183e287a68fc9fed600b8e67b26
hubble/programs/borrowing/src/handlers/handler_delegate_deposit_marinade.rs	d325fe41fa02d71e54f929e3f4fcf4756b1e3e42ad75efc94cf44208d8329a39
hubble/programs/borrowing/src/handlers/handler_update_market_debt_max.rs	c04e0f183641249c2135332021becdd0af57a877942e540fd06bf8da7bfbe040
hubble/programs/borrowing/src/handlers/handler_serum_close_account.rs	b9a71934236365a5b6d2aa274191e42187d9fd040b668daa79ef2f52a201c47a
hubble/programs/borrowing/src/handlers/handler_delegate_withdraw_marinade.rs	d03e7bb592bfa2766a090d7401dc38623f692e38df6a5925fa9728e6d6e927a5
hubble/programs/borrowing/src/handlers/handler_modify_supported_collaterals.rs	0a0ec096b50c6c5cfc9bd4fe9b772fe6c35999b0958b5bd4be1be74587cf8b61

Contract Name	Bytecode hash (SHA 256)
hubble/programs/borrowing/src/handlers/handler_update_stability_fees_config.rs	4aafbbf1d64acd555dd5cddbfcb5ddb55dbbac99083673936efbbb91ad8313bf
hubble/programs/borrowing/src/handlers/handler_psm_change_withdrawal_cap.rs	9e8381f71564114af3d50fc819d749508c580b8b764e12148884fcb65607981b
hubble/programs/borrowing/src/handlers/handler_update_oracle_mapping.rs	5dfcb7e924a22329f54705e770330796d8d5d487a7a2a34429fb9306f94bfefd
hubble/programs/borrowing/src/handlers/handler_initialize_staking_pool.rs	594274c787b1e551cecdeecd2b2f4dd5e2c77b4ddbb64773cc76865babd8d707
ubble/programs/borrowing/src/handlers/handler_withdraw_collateral.rs	e786b9abea954d5d72b5de2dfbf85ddaf0287e9a5bb30177d8e84dffa86e91fa

Contract Name	Bytecode hash (SHA 256)
hubble/programs/borrowing/src/handlers/handler_repay_loan.rs	7a76e81b4493a9b3aa6ea3ca9ec7ec8d1de9cd54079f4c20bc2d3bab5dfd77ea
hubble/programs/borrowing/src/handlers/handler_drip_stability_fees.rs	ba0de6d2de6b737aa7152cd3206fa9ab72655e5423995c7b863773115db00bf1
hubble/programs/borrowing/src/handlers/handler_harvest_liquidation_gains.rs	cd2349fcb9ee160ed98c47afe58b212c3e56bb9d4310ca0dc056f9d939f0aa7a
hubble/programs/borrowing/src/handlers/handler_deposit_collateral.rs	56cceb6148871361dfcb4cb5a5461e6e2e4bea0fb9007875a07c4874f3e30e20
hubble/programs/borrowing/src/handlers/handler_psm_burn.rs	705e755b06c3d0582379419dc3fea3d4afb0d0ed80633168dfb8101efc25bb25
hubble/programs/borrowing/src/handlers/handler_clear_liquidation_gains.rs	803fe18e219b6086539d92d7a7aa08340e74c56aa15f39476bd73d10748a2241

Contract Name	Bytecode hash (SHA 256)
hubble/programs/borrowing/src/handlers/handler_stability_withdraw.rs	5f6a580da77abce2003cc41577df716c0ffe7c16d4b831ee69d439349636dac1
hubble/programs/borrowing/src/handlers/handler_update_global_config.rs	4ec6902f331c5c6ba78d5a9dc5db3e98b0be8d3235db387802009d9ca90c4af1
hubble/programs/borrowing/src/handlers/handler_update_market_token_deposit_cap.rs	1b00305a2043049dc61818d7593039b3269ec32fa720760d38e471d6bd2d42ed
hubble/programs/borrowing/src/handlers/handler_serum_swap_withdraw_collateral.rs	82dbfb4a8deeda177fa90e7c5f694a61e8eb28b19ec3fdf9963b0e78bc9b6735
hubble/programs/borrowing/src/handlers/handler_add_new_vault.rs	e3cff9ec6b26574787ddb93f0ddeda5b94ef91a49845e5c39c235cb531667359
hubble/programs/borrowing/src/handlers/handler_create_additional_borrowing_market.rs	6cfd5cf7cf4738596eb0e27bdac018350fec43908805282ab93c1fa85f345cd7

Contract Name	Bytecode hash (SHA 256)
hubble/programs/borrowing/src/handlers/handler_withdraw_from_treasury.rs	5bfb8a140a3a861ff8f6192210d098c40ba89d9bcb6c9b2c58445525aa390ce2
hubble/programs/borrowing/src/handlers/handler_reset_placeholders.rs	7be873b6118a050a230ebc06704f7c4be723ad57e00664b65164d9f255d8ff92
hubble/programs/borrowing/src/handlers/handler_psm_change_max_capacity.rs	31a38107da7940536fc02e5c5c22190d92ccf10838d601ed98240a27f76fa0c8
hubble/programs/borrowing/src/handlers/handler_try_liquidate.rs	52fd97de4d1ffb332f619b7d82840ba6ffc1d64b9e5c6715ec3869b8567723fa
hubble/programs/borrowing/src/handlers/handler_approve_trove.rs	c178b95bf97d1afc7181efabd1f6c85e86229bbd5e4389001fea93dfa4a40d99
hubble/programs/borrowing/src/handlers/handler_borrow_stablecoin.rs	38e1b0b1a6721ed53f2634b7d7d0a878d69ab372d5b6d79ff7553112cb0f4dd2

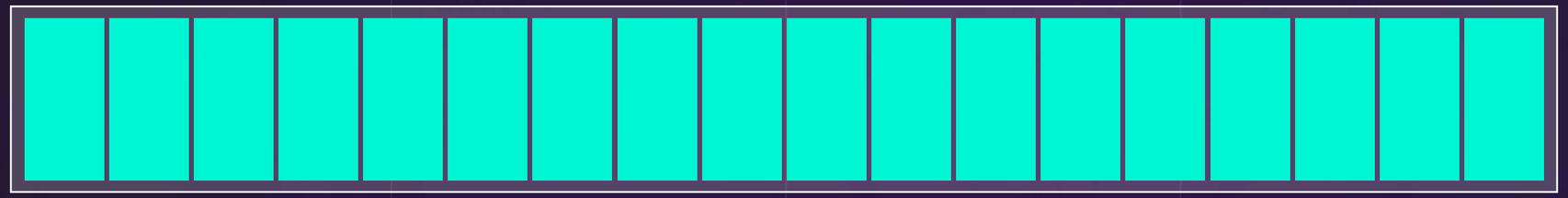
Contract Name	Bytecode hash (SHA 256)
hubble/programs/borrowing/src/handlers/handler_stake_hbb.rs	9a8112903d9f745fa9d58305bb65325b67864ddde183678b319c596ac06ddd70
hubble/programs/borrowing/src/handlers/handler_unstake_hbb.rs	48bbc99147be93d9e15eae048841064b517da5defab7fb7bb540d4d688f29c15
hubble/programs/borrowing/src/handlers/handler_initialize_stability_pool.rs	f0d3cc42c03a9cd7b6f56c978828391da761b0dcd7b55d8dc426686aa3ebb910
hubble/programs/borrowing/src/handlers/common_utils.rs	ccdf9b70375a305d6c5d533163afebeb59569112c5aa08878dbf529b58be5a64
hubble/programs/borrowing/src/handlers/handler_stability_approve.rs	b9205571aba31515efee0bd6ec047ec806176506ca9e6f508239067cb7e13aae
hubble/programs/borrowing/src/handlers/handler_try_liquidate_cash_based.rs	5f8c2ea6ec283860d499b07ba91d69f469c8d8c7d74bb8c7efe2a0ec7ef2e6f1

Contract Name	Bytecode hash (SHA 256)
hubble/programs/borrowing/src/handlers/handler_deposit_and_borrow.rs	e4a8d26520c0cfbf76e15cbb198cf3cbcb6ea1a65c4edec35e54d06f23db7d09
hubble/programs/borrowing/src/handlers/handler_initialize_new_collateral_vaults.rs	9b04a47b3936ca8db442fddc53c7b6fe89b8b64207e9003a0cebb1b635af85a7
hubble/programs/borrowing/src/handlers/handler_stability_provide.rs	e2a38d666025bf9ad005db0c9dd55db00741c16f347569639a3749021b8cd7b5
hubble/programs/borrowing/src/handlers/handler_update_market_type.rs	af86f9b068e7ab6e2b707b0b6c4c05e4ac12e75c053cd39f5a9ea2f5fc68bf62
hubble/programs/borrowing/src/handlers/handler_approve_staking_pool.rs	69a013982eb4096835eae3a7597eab0a56d8bfd14a875492e7efa8a79bab912e
hubble/programs/borrowing/src/handlers/handler_serum_init_account.rs	8e2140b54d9d97b32f15c19924c93527381bdb6648dbf4e22481df0f6fd02e7f

Contract Name	Bytecode hash (SHA 256)
hubble/programs/borrowing/src/handlers/handler_psm_initialize.rs	c8bd779dbfa5af7d331af7a93a8adda192f758b9a5759e9d5e31ed063c525131
hubble/programs/borrowing/src/handlers/handler_update_market_owner.rs	9df3e1a746674f2059fd1b3f43b80f5abf6ccb3e1c843e7a9bc29309a51ee114
hubble/programs/borrowing/src/handlers/handler_harvest_staking_reward.rs	b991785b2f4e4aadca688ef449a7ef72fadde7f87ed34b2aa3b7798875fc9375
hubble/programs/borrowing/src/handlers/handler_update_market_mcr.rs	eea6701eb75ddf72c9c6e9285a66c2a35e385dc11dfbb23a7cbfac1c1cf78d29
hubble/programs/borrowing/src/handlers/handler_update_market_linkage.rs	e4fbfe01babedd5dbfb650af8c2bbe9f9466671894bedbfa05246e63933ab7b6
hubble/programs/borrowing/src/handlers/handler_initialize_borrowing_market.rs	c4f8922a0d188702ab73b93361808f155290f7e3fc6bcde7c056cb3ea1847489

Contract Name	Bytecode hash (SHA 256)
hubble/programs/borrowing/src/staking_pool/staking_pool_operations.rs	152b910d2ce2a395a2fdd226fa2bbc1845bcdf078d583bff45b9420fba0ec9fe

PROJECT EVALUATION



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