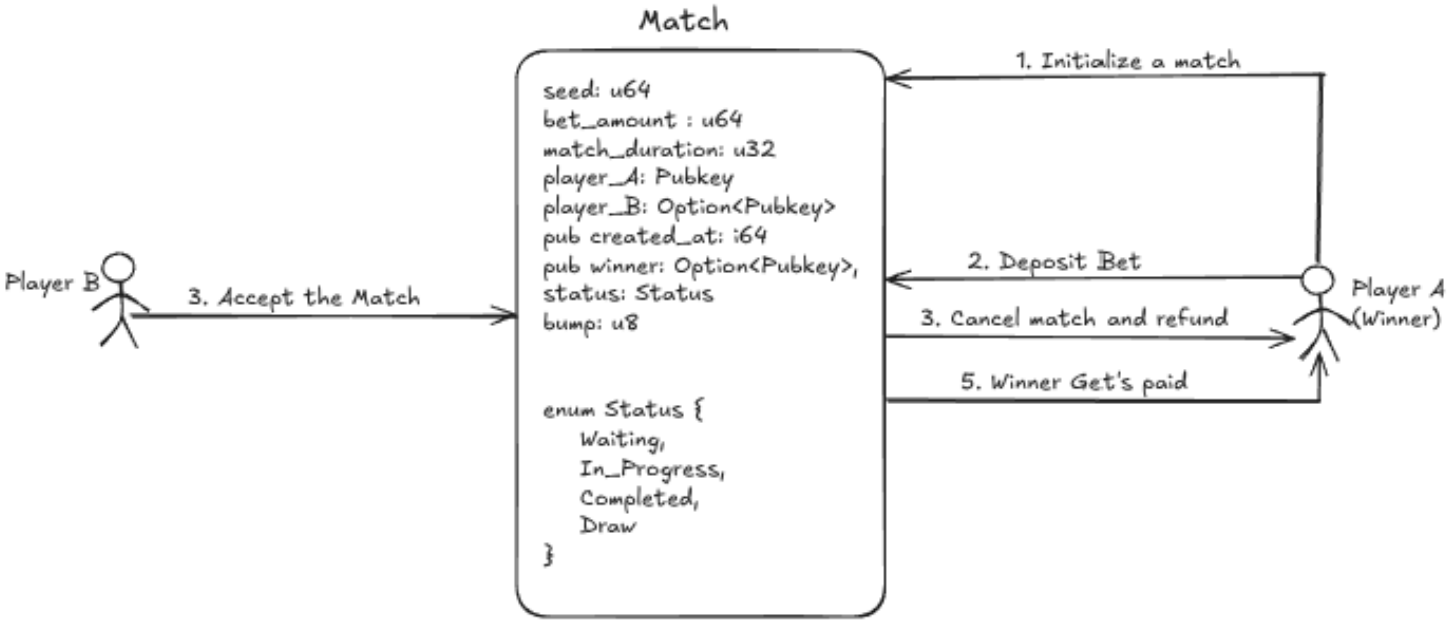
Assignment: Architecture Diagrams

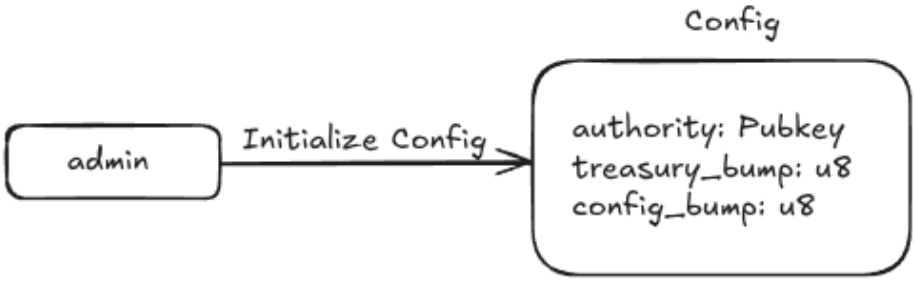
On-Chain Chess Game with betting

Protocol POC Requirements

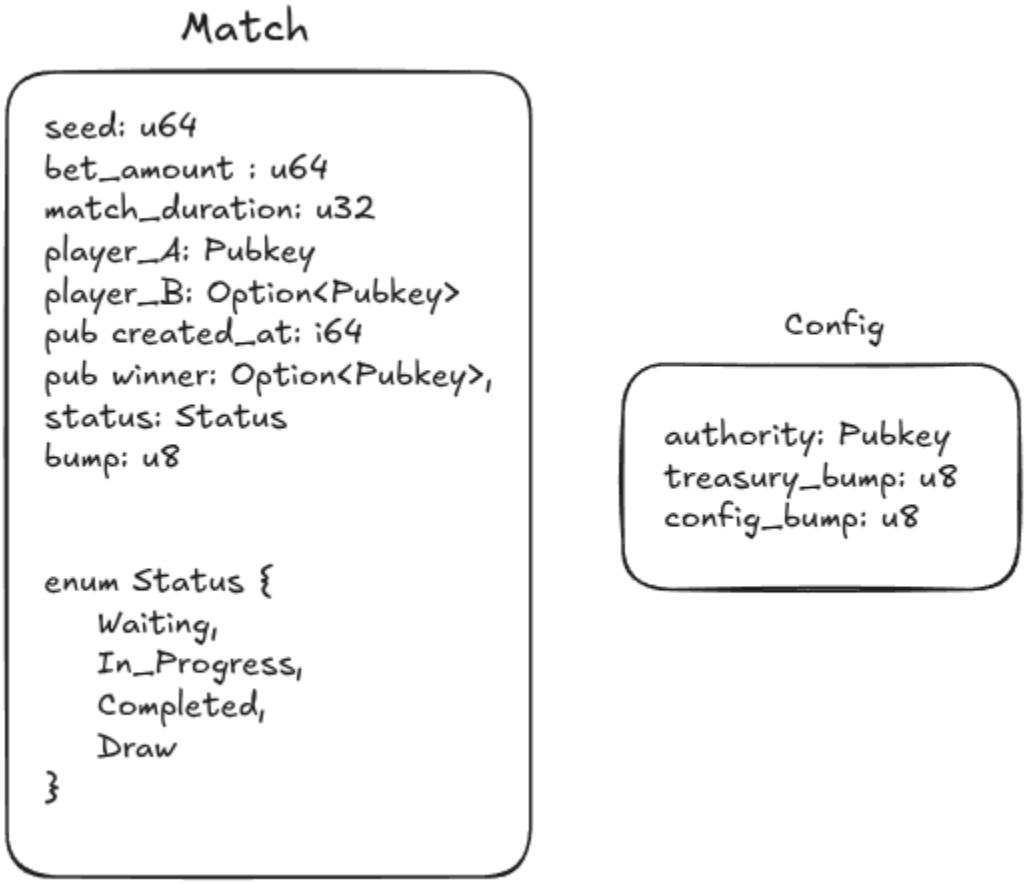
- The protocol should create a match pda to store all match details.
- The protocol should create a vault ATA within the match to store players' bets.
- The protocol should allow a player to deposit a bet in the vault.
- The protocol should cancel a match when requested.
- The protocol should allow the opponent player to place the bet and join the match.
- The protocol should update the match result after match completion and save the winner.
- The protocol should pay the winner after calculating the winning amount.
- The protocol should resolve payouts if the match is a draw.

Overview

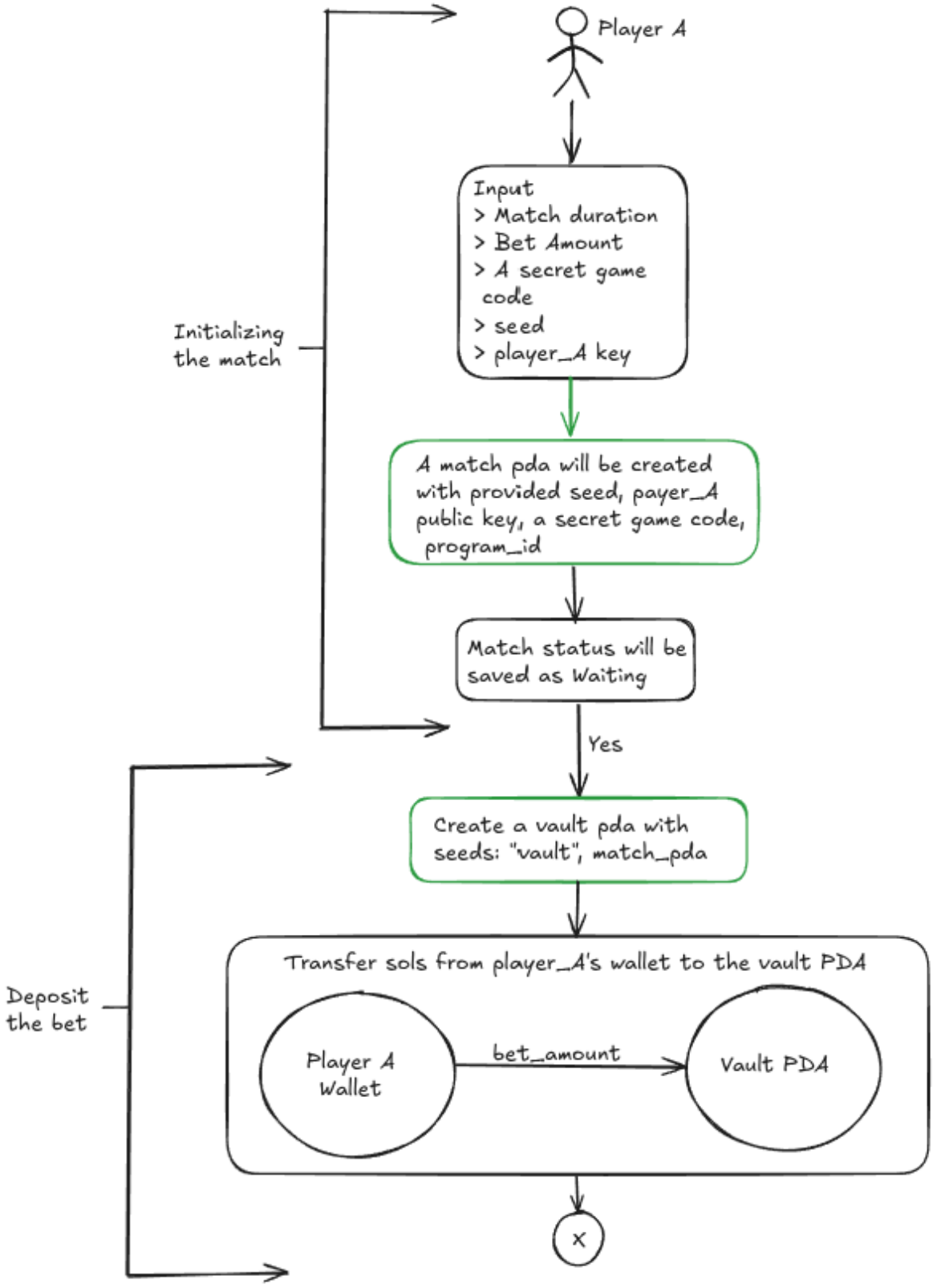



Config
admin
Initialize Config
authority: Pubkey
treasury_bump: u8
config_bump: u8

States


Match
seed: u64
bet_amount : u64
match_duration: u32
player_A: Pubkey
player_B: Option<Pubkey>
pub created_at: i64
pub winner: Option<Pubkey>,
status: Status
bump: u8
enum Status {
Waiting,
In_Progress,
Completed,
Draw
}
Config
authority: Pubkey
treasury_bump: u8
config_bump: u8

Initialize a Match & Deposit Bet Amount



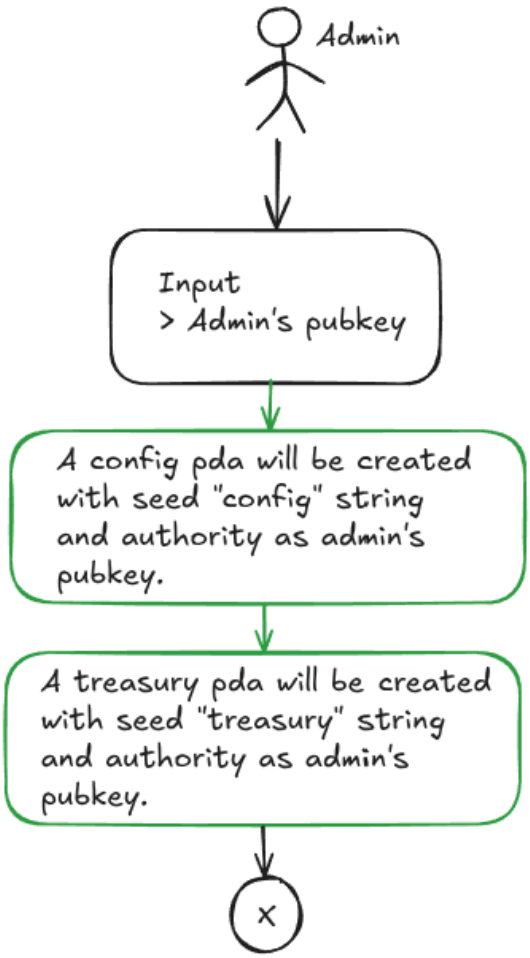
Initializing a Match:

- The player will select the match duration and bet amount, and will also enter a secret game code.
- A match PDA will be created with seeds: “match”, a seed, the user’s public key, a secret code entered by the user, and program_id
- A match will be initiated with the state waiting.

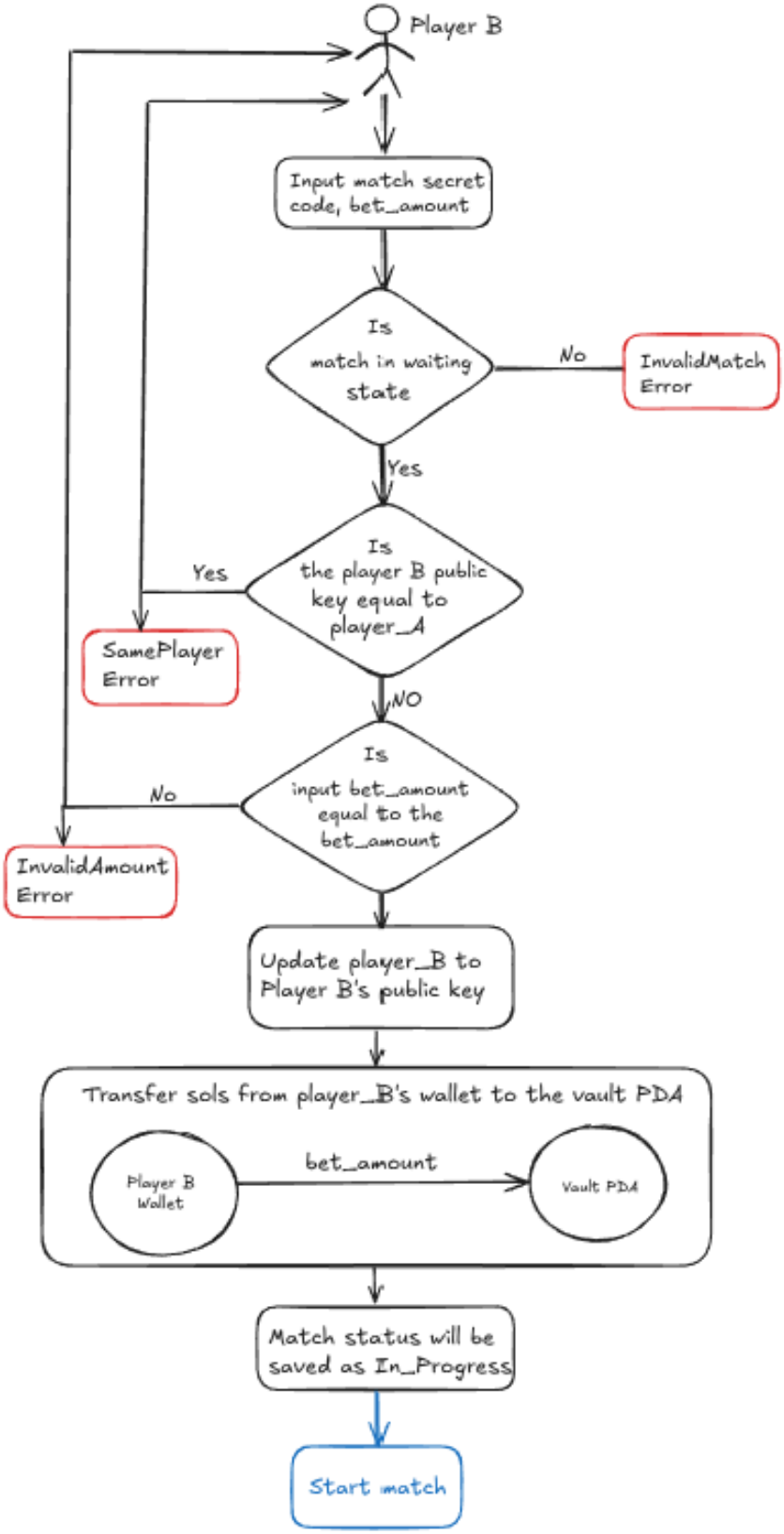
Deposit a Bet

A vault PDA is created with seeds: “vault” and match_pda.
Transfer: From player_A’s public key to vault PDA

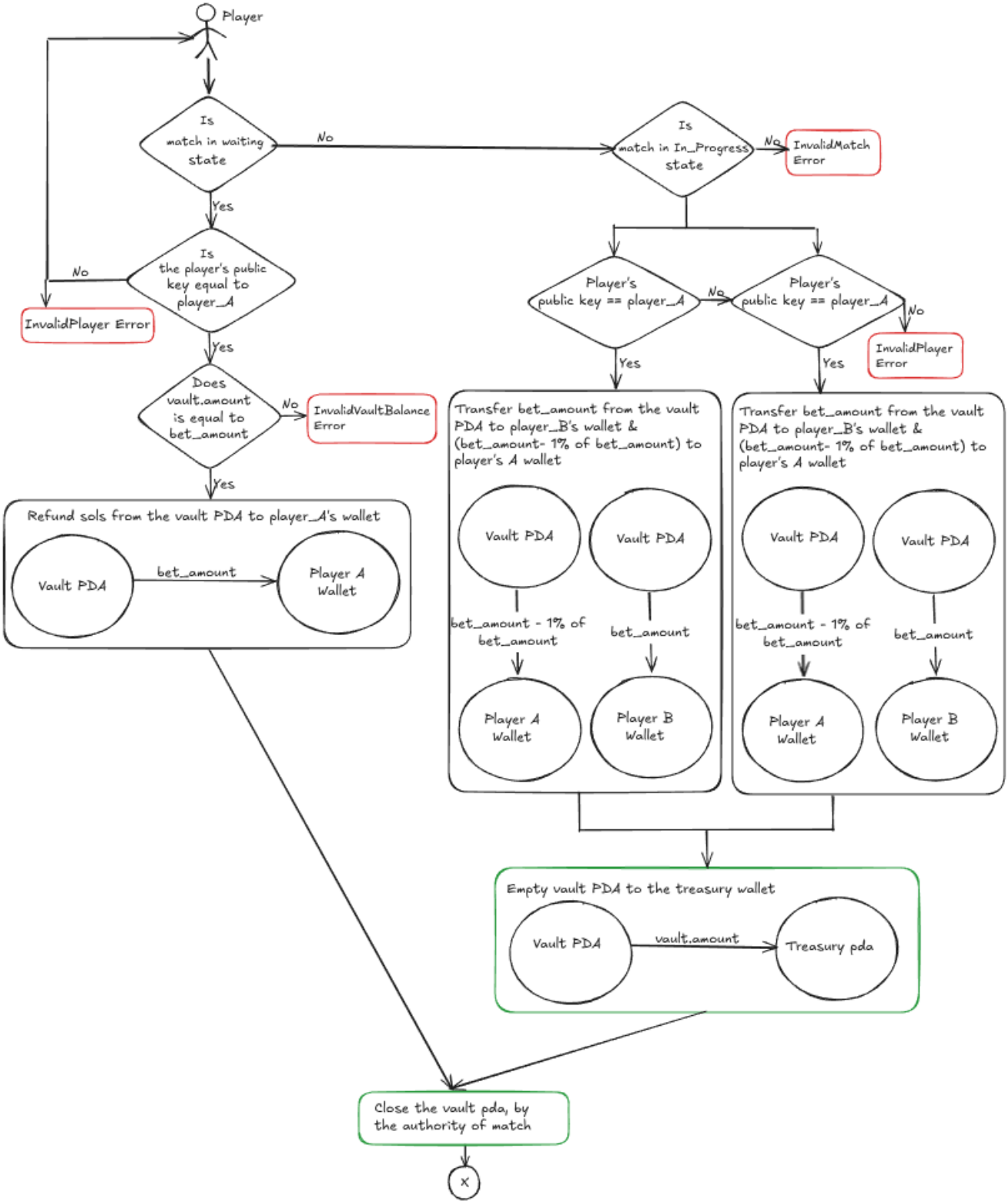
Initialize Config (By Admin)



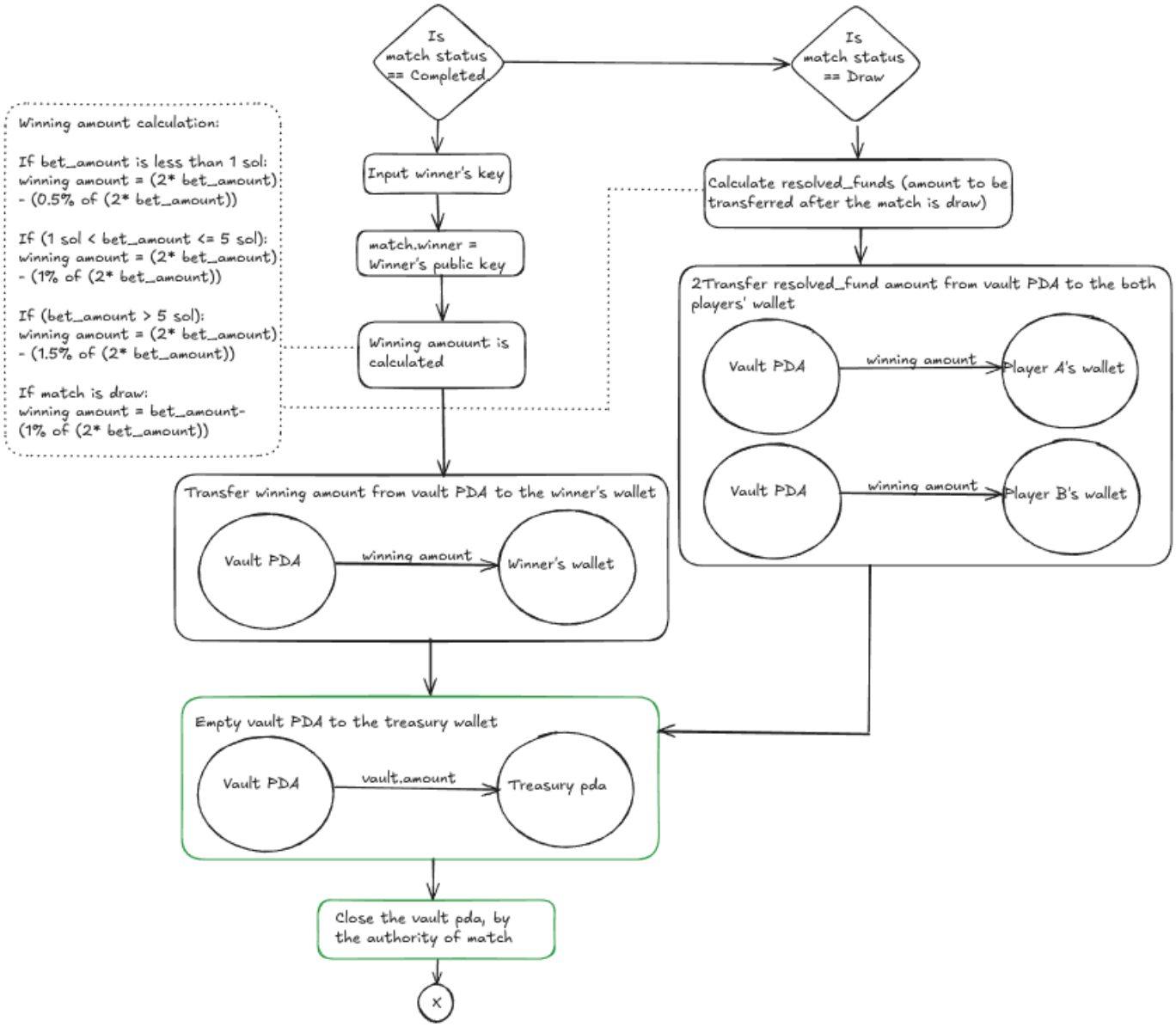
Accept a match



Cancel Match and Refund



Final Payouts



Withdraw from Treasury(by Admin)