DAO Swarm Sync Procedures - Atmospheric Filtration Drone Swarm

This guide explains the secure synchronization protocols between individual drones and the DAO control layer. It ensures that swarm members operate under validated logic and coordination parameters.

Daily Sync Cycle

- Each drone checks for mission updates every 610 mins

- DAO issues hash of current op template and geo-zone

- Out-of-sync units flash status light + auto-rejoin protocol

Sync Triggers

- DAO-issued swarm-wide config refresh

- Drone telemetry diverges >15% from average swarm

- Sensor calibration fails 2x in 1 hour

- Environmental spike detected (VOC, CO_2, PM)

Secure Protocol Layers

- End-to-end encryption (AES-256 w/ rotating session key)

- DAO validates mission config via consensus quorum (3 of 5 oracles)

- Local key cache clears if drone inactive >12h

- Re-auth requires DAO + on-site verifier sync pulse

Swarm Behavior During Sync

- Drones reduce speed + hold altitude mid-air or land at checkpoint

- Swarm-wide sync coordinated via mesh priority relay unit

- In conflict: majority-voted swarm hash overrides lone units

- Visual indicators: purple strobe = sync, red = rejected