

KFT Fleet Management System Specification

This document provides a comprehensive technical specification and functional breakdown of the **KFT Fleet Management Portal**, derived directly from the system user manual. This system operates as the centralized administrative layer for fleet monitoring, team approvals, payload metrics, and maintenance scheduling.

1. Authentication & Security Protocols

Profile Verification Handshake

The system employs a two-channel authorization gateway to authenticate user sessions and handle administrative actions:

- **Dual-Channel Routing:** Profile validation tasks allow user selection between automated email delivery or SMS cellular network routing.
- **OTP Lifecycle Constraints:** Authorization requires entering a **6-digit OneTime Password (OTP)**. The entry window is monitored by a visual countdown timer initialized at **0:57 seconds** before expiration.

Credential Self-Service Systems

- **Token Routing:** Users can reset forgotten passwords using either their registered email address or mobile number.
 - **Password Complexity Rules:** New passwords require a minimum length of **6 characters** and must include a diverse mix of letters, numbers, and symbols.
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2. Central Analytics & Telemetry Dashboard

The dashboard aggregates operational performance metrics from all connected field systems.

Core Analytical Targets

The central database continuously tracks and groups seven critical parameters:

- **Total Missions:** Cumulative historical flight operations launched.
- **Total Acres Covered:** Combined geographic area transversed by aircraft.

- **Total Spray Acres:** Precise coverage area where liquid application payloads were actively deployed.
- **Active Pilots:** Total number of team members currently managing live flights.
- **Total Mission Hours:** Total airborne time recorded across the entire fleet.
- **Drone Performance Metrics:** Hardware efficiency tracking.
- **Top 5 Pilots Ranking:** A leaderboard automatically sorting team operators based on cumulative flight hours.

Temporal Filtering Matrices

Analytical graphs and fleet overviews filter and render data across five specific date structures:

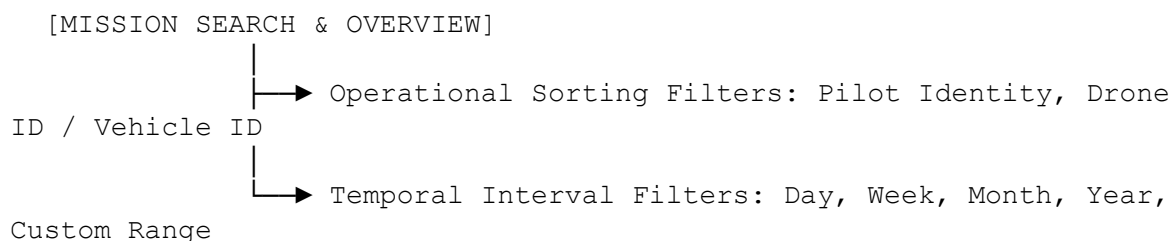
- **Day, Week, Month, Year,** or a **Custom Date Range.**
- *Default System State:* The dashboard defaults to a **weekly view** upon initialization.

3. Mission Overview, Auditing, & Playback

The software provides two deeply integrated auditing layers for completed missions.

Fleet Sorting Filters

Operators can parse through historical mission lists using seven independent parameter variables:



Analytical Metrics Capture

Expanding a specific mission entry from the historical log exposes real-time structural performance data:

- **Mission Overview Indicators:** Displays Mission ID, Vehicle ID, Pilot Email, Flight Status, Flight Mode (Manual vs. Automatic), Mission Type, Plot Name, and exact Start/End timestamps.
- **Resource Consumption Monitoring:** Quantifies Sprayed Acres, total Litres Consumed, and cumulative Flying Minutes/Hours.
- **Vehicle Serialization Records:** Cross-references aircraft telemetry with unique onboard hardware identities using a Unique Identification Number (UIN).

- **Synchronous Activity Replay:** Features a **Mission Replay** utility that reconstructs the full flight path and event logs over a map backdrop for precise post-flight analysis.
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4. Live Drone Tracking & Event Logging

Synchronous Tracking Environment

- **Real-Time Cartographic Overlay:** Active, live-flight deployments render directly onto a continuous map stream using dual **Map / Satellite** viewing projections.
 - **Dynamic Operational Timeline:** Captures critical in-flight event transitions in real time, such as automated shifts like `Tank empty in Loiter mode - action: BRAKE` or status loops like `Manual flight ended - Disarmed`.
 - **Temporal Data Defaults:** The tracking and event panel defaults to a **monthly** visualization profile.
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5. Asset & Maintenance Lifecycle Management

Aircraft Inventory & UIN Allocation

The system provides a tabular dashboard to track all registered field equipment.

- **Status Check Flags:** Each aircraft entry shows its system status (`Registered` or `Not Registered`), current completed missions, and alerts for missing UINs.
- **UIN Modification Window:** Administrators can open an edit modal to modify an aircraft's **Unique Identification Number (UIN)** and change its activation or registration date.

Maintenance & Service Logs

To ensure safety and airworthiness, administrators record vehicle maintenance via a dedicated service log manager:

- **Service Event Fields:** Captures the exact Service Date, the name of the assigned technician or center (`Serviced By`), and a detailed text field for hardware `Remarks`.
- **Interlocking Mission Thresholds:** Displays completed flights alongside an adjustable **maximum mission limit ceiling**. This sets a hard boundary for flight hours allowed before the aircraft must be grounded for scheduled servicing.

6. Team Governance & Communication

User Onboarding & Approval Workflows

The system uses strict administrative security gates to manage pilot access:

- **Account Categorization:** Pilot request queues are filed under four distinct status filters: **All Pilots, Approved, Pending, or Rejected.**
- **Administrative Interlocking:** An administrator must manually sign off on a profile before a pilot can log into a field app.
- **Automated Notification System:** The system sends automated email notifications to pilots when their accounts are approved or rejected.
- **Hardware Spoof Detection:** If an authorized pilot account logs in from an unrecognized hardware device, the system automatically triggers a security email alert to both the operator and the fleet administrator.

Multi-Tier Administrator Profile Settings

- **Sensitive Actions Gateway:** Fleet managers can update standard contact fields but cannot change their master email or phone number directly. Highrisk tasks (such as approving or rejecting user accounts) require completing a mandatory **OTP phone confirmation handshake.**
- *Verification Token Routing:* When a mobile verification loop is triggered, the system sends the security OTP to that administrator's specific registered email address for verification.

Communication Sub-Systems

The platform includes an internal messaging client with dual layout channels:

- **General Group Chat:** A unified channel connecting all regional administrators and the super-admin profile to coordinate fleet updates.
 - **Single Chat:** A direct, private messaging channel for 1:1 problem solving between specific administrators and the super-admin.
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