# Equipment Module

## 1. Module Name & Description

The Equipment Module handles the management, tracking, and check-in/check-out of assignable equipment (excluding vehicles and aircraft) within the ICS Command Assistant app. It ensures accurate inventory records and real-time availability status for all equipment items.

## 2. Primary Functions

* Inventory Management: Create, read, update, and delete equipment records, including metadata and status.
* Check-In/Check-Out Workflow: Streamlined process to assign equipment to users, teams, or missions and track its return.
* Status & Availability Tracking: Real-time visibility into equipment status: Available, In Use.
* Bulk Import/Export: CSV-based bulk operations for onboarding and reporting.

## 3. Submodules/Tools

* Equipment List View: Filterable, sortable table of all equipment items.
* Equipment Detail Panel: View and edit detailed fields and history for a single item.
* Check-In/Out Wizard: Guided UI for scanning or entering item IDs, selecting assignees, and recording transactions.
* Bulk Import/Export Interface: Upload and download CSV templates with column mapping.

## 4. Key Data Models

* EquipmentItem: id, name, type\_id, serial\_number, status, location, current\_holder\_id, tags, created\_at, updated\_at
* EquipmentType: id, name, category, description
* CheckTransaction: id, equipment\_id, actor\_id (user or team), mission\_id, action (check\_out/check\_in), timestamp, notes

## 5. UI Components

* Inventory Table: Data grid with search, filters (type, status, location), and bulk actions.
* Detail Modal/Form: Panel for viewing and editing an item's attributes and history tabs.
* Check-In/Out Dialog: Modal with barcode input, assignee selector, and action buttons.
* Import/Export Wizard: Stepper interface for mapping CSV templates to data fields.

## 6. API Endpoints

* GET /api/logistics/equipment
* GET /api/logistics/equipment/{id}
* POST /api/logistics/equipment
* PUT /api/logistics/equipment/{id}
* DELETE /api/logistics/equipment/{id}
* POST /api/logistics/equipment/{id}/checkout
* POST /api/logistics/equipment/{id}/checkin
* GET /api/logistics/equipment/{id}/transactions

## 7. Database Tables

* equipment\_items
* equipment\_types
* check\_transactions

## 8. Inter-Module Connections

* Personnel & Role Management: Link current\_holder\_id and actor\_id to user/team profiles for audit and access control.
* Missions Module: Associate check-outs with mission\_id for mission-specific inventories.
* Teams Module: Display equipment assigned to teams; enforce one assignment per item.
* Forms & Documentation: Auto-generate ICS Form 204 (Assignment List) and support ICS Form 218 (Equipment Logs).
* Status Boards: Display key equipment statuses (e.g., overdue returns) on a Logistics status board.
* Mapping/GIS Module: Optionally visualize equipment locations on incident maps.
* Audit & Changelog: Integrate with the global audit trail for all CRUD and transaction events.

## 9. Special Features & Notes

* Barcode/QR Code Support: Print and scan codes for rapid check-ins.
* Offline Mode: Local caching and background sync for field operations without connectivity.
* Role-Based Access: Restrict create/edit/delete actions to Logistics, Operations, or Command roles.
* Notifications & Alerts: Email and push alerts for overdue check-ins.
* Custom Fields & Tagging: Allow configurable metadata fields for specialized equipment types.
* Bulk Actions: Multi-select operations for check-in/out and status updates.
* Integration with Master DB: Store master equipment catalog separately from mission-specific overrides.