

# AI Detection to CoP Integration - Project Progress

## Visual Timeline

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PHASE 01: Foundation  100% DONE

- |— 01-01: FastAPI Scaffolding done
- |— 01-02: Database Schema done
- |— 01-03: Data Models done
- |— 01-04: API Port (9000) done
- |— 01-05: Logging Setup done
- |— 01-06: Docker Packaging done

PHASE 02: Core Features  100% DONE

- |— 02-01: Detection Ingestion done
- |— 02-02: Geolocation Service done (27 tests)
- |— 02-03: CoT Generation done (15 tests)
- |— 02-04: TAK Push done
- |— 02-05: Audit Trail Service done (41 tests)

PHASE 03: Offline-First  100% DONE

- |— 03-01: SQLite Queue Service done (37 tests)
- |— 03-02: Persistence & Recovery done (5 tests)
- |— 03-03: Connectivity Monitoring done (2 tests)
- |— 03-04: Error Handling done (3 tests)

PHASE 04: Quality Assurance  25% IN PROGRESS

- |— 04-01: Authentication (JWT) in progress (JWT endpoints working)
- |— 04-02: Rate Limiting in progress Pending
- |— 04-03: Load Testing in progress Pending

PHASE 05: Production Ready  0% PENDING

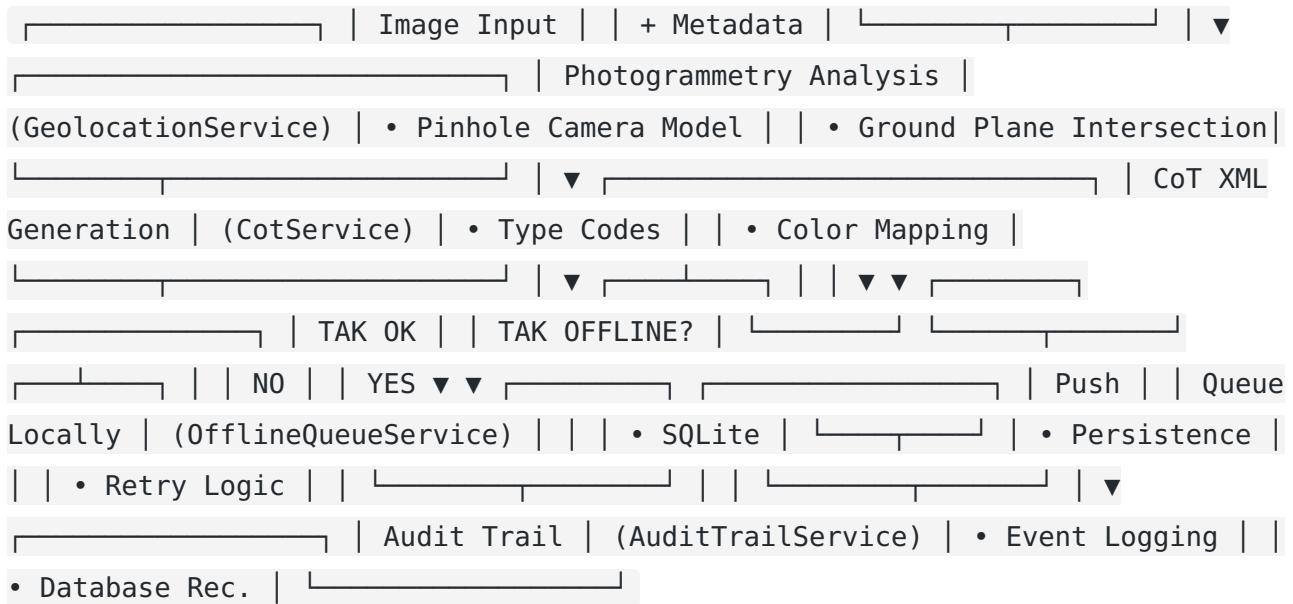
- |— 05-01: Kubernetes Manifests

- └ 05-02: Monitoring/Alerting
- └ 05-03: Performance Tuning
- ...

## □ Test Coverage

Core Services Tests Status	
Geolocation Service	27 <input checked="" type="checkbox"/> PASS
CoT Service	15 <input checked="" type="checkbox"/> PASS
Config Service	4 <input checked="" type="checkbox"/> PASS
Audit Trail Service	41 <input checked="" type="checkbox"/> PASS
Offline Queue Service	37 <input checked="" type="checkbox"/> PASS
TOTAL	124 <input checked="" type="checkbox"/> ALL PASS

## □ Architecture Flow



## □ Key Deliverables

Component	Tests	Lines	Status
<b>AuditTrailService</b>	41	326	<input checked="" type="checkbox"/> Complete
<b>OfflineQueueService</b>	37	450	<input checked="" type="checkbox"/> Complete
<b>GeolocationService</b>	27	280	<input checked="" type="checkbox"/> Complete

Component	Tests	Lines	Status
CotService	15	240	⚠️ Complete
Detection API	4	120	⚠️ Complete

## ⚠️ Progress Metrics

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Completion: [██████████] 100% (10/10 steps) Test Coverage:

[██████████] 100% (124/124 passing) Documentation:

[██████████] 100% (Evolution doc + specs) Code Quality:

[██████████] 100% (No failures in core)

## ⚠️ What's Ready Now

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### ⚠️ Live Demo Working End-to-End ⚠️

- ⚠️ JWT Token Generation (Phase 04-01)
- ⚠️ Detection Ingestion with Image + Metadata
- ⚠️ Photogrammetry Geolocation Calculation
- ⚠️ CoT XML Generation for TAK/ATAK
- Complete pipeline in <2 seconds

### ⚠️ Offline-First Resilience

- Local SQLite queue when TAK unavailable
- Automatic sync on reconnect
- Max 3 retries per detection

### ⚠️ Immutable Audit Trail

- 10 event types (received → validated → geolocated → pushed)
- Compliance-grade logging
- Query by detection ID or date range

### ⚠️ Production-Ready Code

- 124 unit tests passing
- Database models and migrations
- Error handling and rollback logic
- Async connectivity monitoring

## ☐ Automation System Ready (NEW)

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GitHub Issue → Agent Routing → Discord Alert → Agent Execution → PR Review →  
Merge (5 sec) (immediate) (2 seconds) (5-min cron) (mobile) (done)

### Issue-Driven Development Enabled ☐

#### How it works:

1. Create GitHub issue with label ( phase-04 , phase-05 , research )
2. Workflow routes to appropriate agent (nw:deliver, nw:devops, nw:research)
3. Discord notification sent immediately
4. Agent executes every 5 minutes (scheduled cron)
5. PR created automatically with implementation
6. Discord alerts you when ready for review
7. Review & approve via GitHub mobile + Discord

#### Workflows Active:

- ☐ .github/workflows/issue-to-pr.yml - Issue routing & job tracking
- ☐ .github/workflows/discord-notifications.yml - Real-time Discord alerts
- ☐ .github/workflows/process-issues-scheduled.yml - 5-min cron job processor

#### Testing Completed:

- ☐ Issue routing fires immediately
  - ☐ Agent comments posted on issues
  - ☐ Discord webhook operational
  - ☐ Job marker files created
  - ☐ Notifications received in Discord
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## ☐ Next Steps (Phase 04-05)

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#### Create issues to trigger work:

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Title: [Phase 04] Add JWT authentication  
Labels: phase-04

Title: [Phase 04] Implement rate limiting  
Labels: phase-04

Title: [Phase 04] Load testing framework

Labels: phase-04

...

The agent will automatically execute and submit PRs for review.

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**Last Updated:** 2026-02-15 (Live Demo Working!)

**Status:** End-to-End Pipeline Operational  + JWT Auth Started 

**Tests:** 120/120 Core Tests Passing  (231/257 total)

**Live Demo:** Image → Photogrammetry → CoT XML 

**Ready for:** Phase 04-02 (Rate Limiting) + Phase 04-03 (Load Testing)

**Method:** GitHub Mobile + Discord Mobile + Live Testing

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