

The **OAK BMS** turns real sensor and data-link feeds into one **live common operating picture**: it fuses multi-INT detections into a common track picture on a **layered theatre** → **tactical** display, geolocates emitters, flags threats, and lets the operator confirm identities and task effects — all on one battlespace clock. Built on faithful, first-principles physics; **decision support with the operator in the loop**, not a black box.

### WHAT IT DOES

#### Live common operating picture

Real feeds → multi-INT fusion → one fused track picture. Geographic theatre view drills into the tactical engagement frame — one shared scenario underneath.

#### Geolocate & characterise

Multi-sensor ELINT cross-fixing produces real positions with error ellipses; track trails give course & speed; CPA to defended assets at a glance.

#### Evaluate, decide & act

TEWA ranks threats and recommends the effector for each; the operator confirms IDs and approves effects, scored on the suite's own physics and synchronised across domains.

### CAPABILITIES

**Real-data feeds (7).** Track-link (TCP/JSON), Cursor-on-Target (TAK), INS/GNSS (ANPP), ELINT/PDW (TCP/UDP/SCPI), Keysight PXA capture, EO/IR video, shared picture.

**Kalman tracker.** Stable track numbers, smoothed velocity, dead-reckoning that coasts a track when its feed drops.

**TEWA.** Threat evaluation & weapon-target pairing — ranked threats with a recommended effector; operator approves.

**Operator classification.** Confirm ID/allegiance/class; the label sticks and follows the track; role-based access & audit.

**Interop & export.** CoT in/out (TAK), KML/KMZ (Google Earth/QGIS), CSV track list, SITREP; multi-operator shared picture.

**Verified.** Requirements-traceable V&V (26 checks) gated in CI with a coverage floor.

**Multi-sensor geolocation.** ≥2 ESM cross-fixed to a real position + error ellipse and lines-of-bearing on the COP.

**MIL-STD-2525 symbology.** Affiliation-framed track symbols and the full STANAG identity set.

**Layered + 3-D COP.** Theatre → tactical → 3-D altitude; MGRS grid, range/bearing, and geofence zones that alert on breach.

**Threat alerting & tasking.** Engagement-ring / zone breaches flagged; EW/GNSS/cyber effects scored on real physics + spectrum deconfliction.

**Record / replay / AAR.** Capture, scrub and replay; self-contained after-action report.

**Deployable.** Standalone offline Windows build (single installer); air-gap friendly.

### THE OPERATOR LOOP

real feeds → fused + geolocated picture (with visible uncertainty) → operator confirms IDs → trails · course/speed/CPA → automatic threat alerts → task & synchronise effects → record · replay · after-action report → shared across operators

### REAL-DATA INTERFACES

Track-link · TCP/JSON

Cursor-on-Target · TAK

INS/GNSS · ANPP

ELINT/PDW · TCP-UDP-SCPI

Multi-sensor geolocation

Keysight PXA / VSA · SCPI

EO/IR video

Shared-picture network

MIL-STD-2525 · MGRS

KML/KMZ · GeoJSON · SITREP

### WHY IT STANDS OUT

**Honest by design** — faithful first-principles physics, with geolocation uncertainty shown on the picture, not hidden in a single number.

**Verified** — requirements-traceable V&V evidence, gated in CI. **Interoperable** — speaks Cursor-on-Target (TAK), KML and MGRS out of the box. **Operator-in-the-loop** — the BMS recommends; the operator decides and confirms. **Deployable & offline** — a single installable Windows application on the proven EW SUITE core.

Operator-in-the-loop decision support; not a certified targeting / fires system. Real-world deployment is subject to the operator's own verification & validation, security classification of the deployed build, and export-control / controlled-goods handling. All feeds are receive-only.