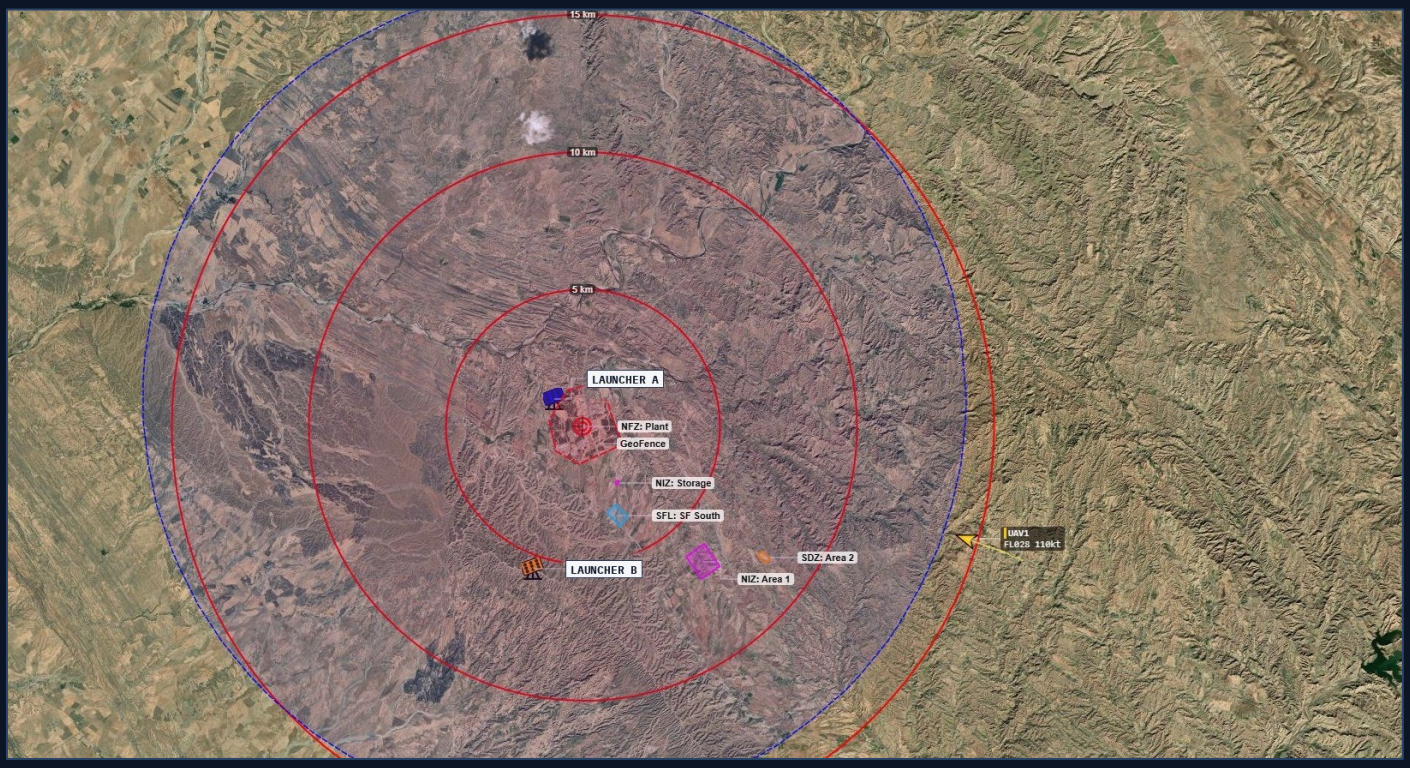
AUTARCH

Suite overview

> Software for counter-UAS: one common track picture, operator command and control, launcher-agnostic interceptor integration, and a built-in simulator for test and training.



AutarchC2 map view in a simulated scenario: sensor range rings, no-fly, no-impact and safe zones around the protected site, and an inbound track. Launcher labels have been generalised for this brochure.

Autarch is a modular software suite that links the steps of a counter-UAS response, from sensor detection to an interceptor decision, in one chain. Each application does one job and hands over to the next, so sensors, launchers and interceptor drones from different suppliers can work together under one operator console.

STATUS
Validated in a full simulation environment. No live-launch or fielded use is claimed.

AutarchFusion
One common track picture from many sensors.

AutarchC2
Operator console: classify, plan, decide.

AutarchPad
Launcher-agnostic interceptor integration.

AutarchTrackSim
Scripted threats for test and training.

Map views: AutarchC2 in a full simulation environment. Map imagery: Esri. Diagrams are illustrative.

WHAT AUTARCH IS

A software chain for countering small drones

Small uncrewed aircraft are cheap, numerous and fast to appear. Countering them means joining up sensors, operators and interceptors quickly, under rules that reflect each customer's doctrine. Autarch provides that software layer: it builds the air picture, supports the operator's decision, and hands tasks to the interceptor system, with a simulator to exercise the whole chain safely.

Purpose

One picture
Reports from several sensors are combined into a single, consistent set of tracks.

Doctrine as configuration
Rules of Engagement are loaded from a configuration tailored to each customer, not hard-coded.

Open to suppliers
Sensors and launchers are added through plug-ins, so the suite is not tied to one vendor.

Simulation first
A built-in track simulator lets teams test, rehearse and train without live flights.

Four applications, one chain



AutarchFusion
Fuses sensor inputs into one common track picture.



AutarchC2
The operator console: tracks, classification, interceptor planning and decisions.



AutarchPad
Launcher-agnostic link to the interceptor system; launcher makers integrate through a plug-in they provide.



AutarchTrackSim
Scripted simulated targets that drive the suite for test and training.

Who it is for

Defence customers
An operator console whose rules follow your own doctrine, configured rather than re-coded.

Counter-UAS integrators
A sensor-agnostic fusion and command layer to build site protection systems around.

Launcher and drone OEMs
Bring your launcher and interceptor into a complete chain by supplying your own plug-in.

Test and evaluation teams
Repeatable, scripted scenarios to exercise the full chain in simulation.

SENSOR-AGNOSTIC | LAUNCHER-AGNOSTIC | CONFIGURED, NOT HARD-CODED | SIMULATION-FIRST

Map views: AutarchC2 in a full simulation environment. Map imagery: Esri. Diagrams are illustrative.

HOW IT WORKS

From detection to decision, step by step

1 Detect
Sensors report what they see in the protected airspace.

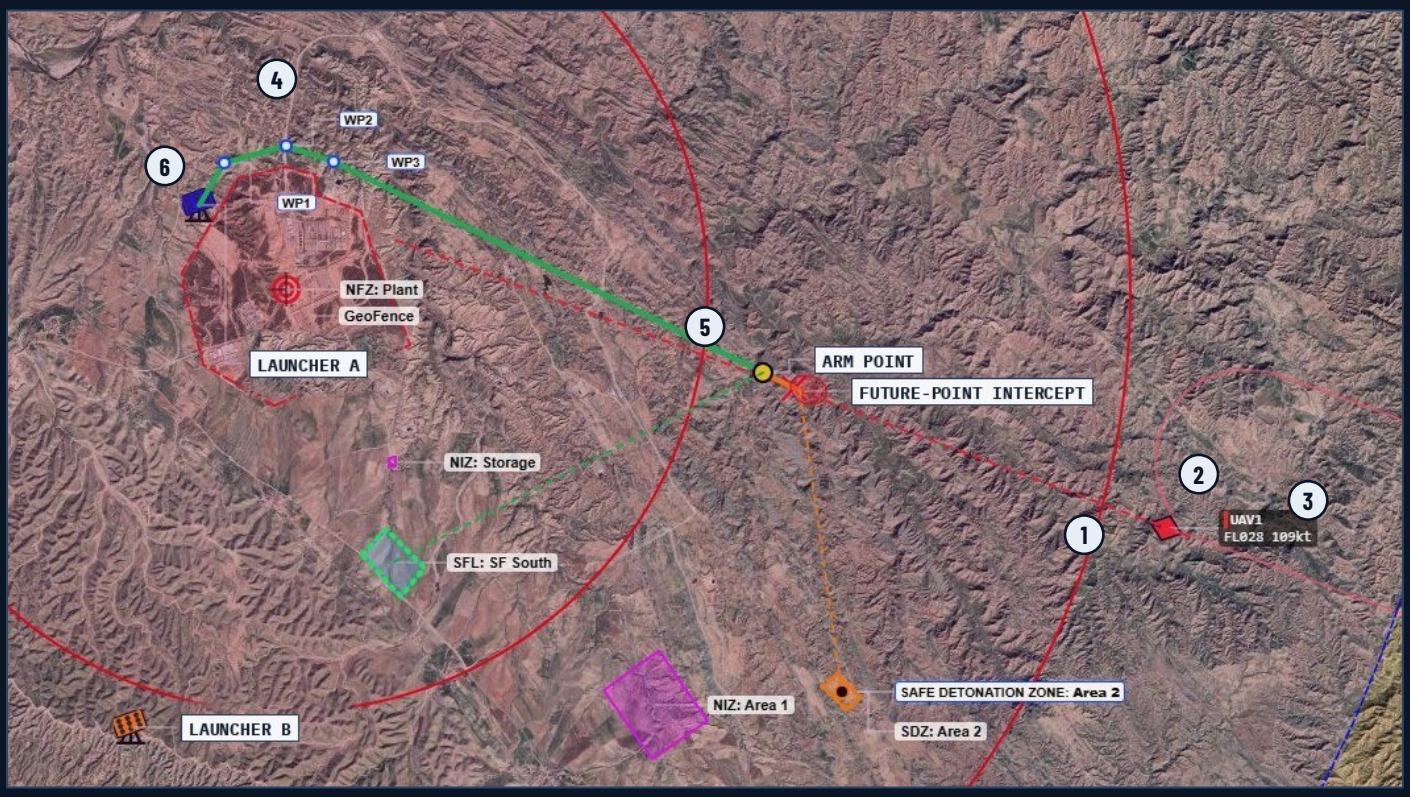
2 Fuse
AutarchFusion combines the reports into one track per object.

3 Classify
AutarchC2 classifies each track by its behaviour against the loaded Rules of Engagement.

4 Plan
For a threat, C2 plans an interceptor route around no-fly and other zones to a kinematic future-point intercept.

5 Decide
Launch, arm and abort decisions stay with C2; abort points are chosen from defined safe zones.

6 Task
AutarchPad passes the task and target track to the launcher maker's plug-in and relays status back.



AutarchC2 map view, simulated single-track run; numbers match the steps above. A hostile track inbound, the planned route via waypoints clear of the no-fly zone to the arm point and future-point intercept, and dashed abort legs to a safe landing zone and a safe detonation zone.

Operator in command

AutarchC2 keeps the operator in charge. Classification follows the customer's Rules of Engagement, loaded from configuration rather than hard-coded, so behaviour can be tailored to each doctrine without changing the software. The console shows the planned route, intercept and abort options before any decision is made.

AutarchTrackSim can replace live targets with scripted ones, including manoeuvres and a terminal dive, so every step above can be rehearsed in simulation.

Map views: AutarchC2 in a full simulation environment. Map imagery: Esri. Diagrams are illustrative.

ARCHITECTURE

The suite working together

Each application does one job and talks to the next through a defined interface. Sensors enter on one side, launchers and interceptor drones on the other, and in both cases suppliers integrate through plug-ins.



Sensor-agnostic
New sensor types join through plug-ins, without changing the rest of the chain.

Launcher-agnostic
Launcher makers integrate through a plug-in they provide. The supplied reference plug-in is simulation-only.

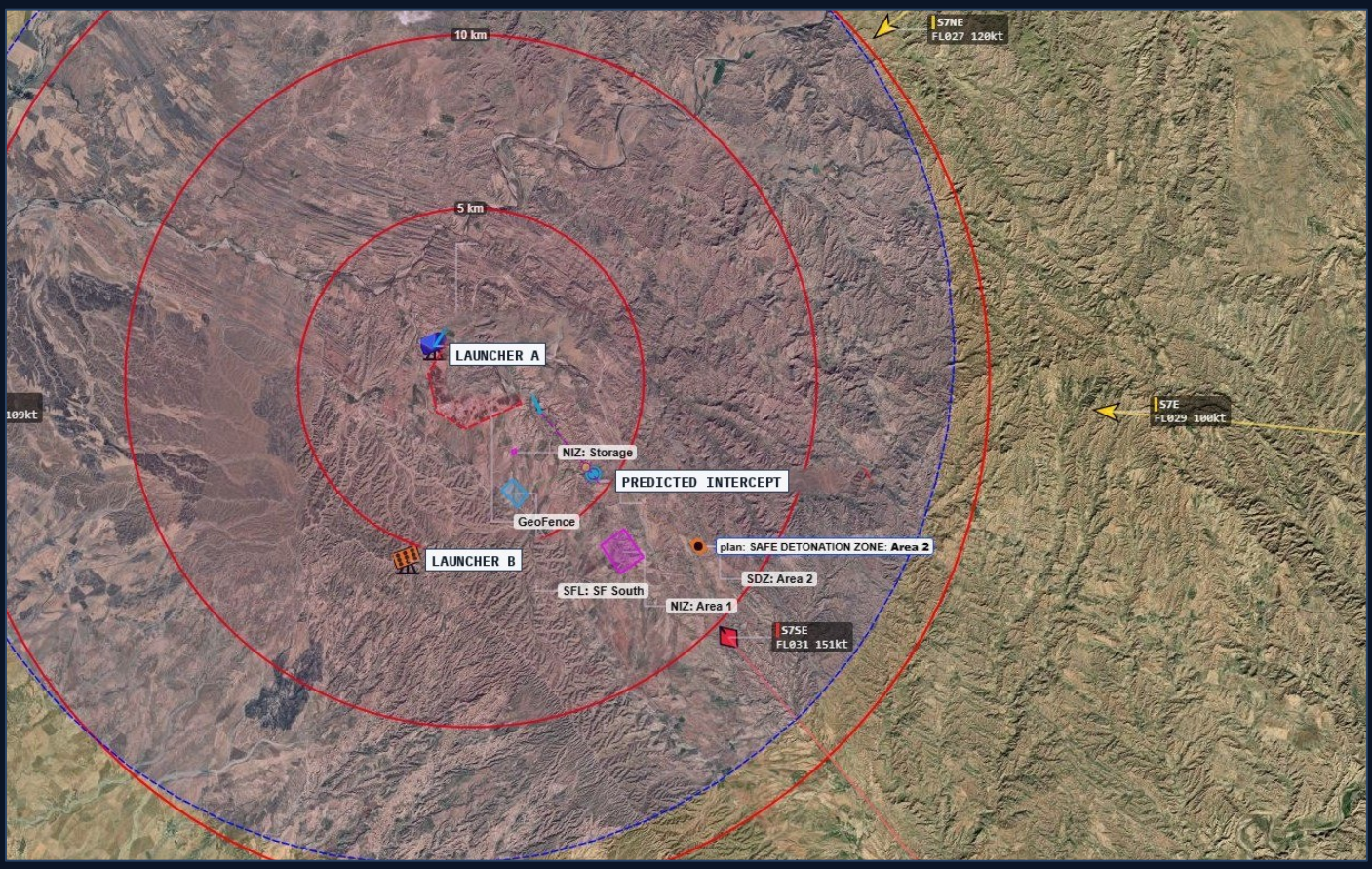
Configured, not coded
Rules of Engagement are loaded per customer; Threat Evaluation and Weapon Assignment will follow the same approach (see roadmap).

Map views: AutarchC2 in a full simulation environment. Map imagery: Esri. Diagrams are illustrative.

IN SIMULATION

Several threats, one picture

In a multi-track simulated scenario, targets approach the protected site from several bearings at once. AutarchFusion keeps one track per target, AutarchC2 classifies each one and plans per threat, and the operator sees the whole situation on a single map.



AutarchC2 map view, simulated multi-track run: inbound tracks from different bearings, interceptor planning towards a predicted intercept, and the zones C2 plans around. Launcher labels have been generalised for this brochure.

Reading the picture

Range rings
Distance from the protected site.

NFZ no-fly zone
Interceptor routes are planned around it.

NIZ no-impact zone
Areas to keep clear of debris.

SFL safe landing zone
An abort destination before arming.

SDZ safe detonation zone
An abort destination after arming.

Tracks
Coloured by classification; label shows the track identity, altitude and speed.

Generated by AutarchTrackSim. Every track, launcher and interceptor in this view is simulated. Scripted scenarios with manoeuvres and a terminal dive let teams repeat the same multi-threat situation for testing, rehearsal and operator training.

STATUS AND ROADMAP

Where Autarch stands today, and what comes next

What the suite does today

Common track picture
Sensor inputs fused into one set of tracks for the operator.

Behaviour-based classification
Tracks classified against Rules of Engagement loaded from a customer-specific configuration.

Route and intercept planning
Interceptor routes planned around no-fly and other zones to a kinematic future-point intercept.

Decisions stay with C2
Launch, arm and abort are decided in C2; abort points are chosen from defined safe zones.

Launcher-agnostic tasking
Tasks and target track passed to the launcher maker's plug-in; status and telemetry relayed back.

Built-in simulation
Scripted targets with manoeuvres and a terminal dive drive the whole suite for test and training.

STATUS

Validated in a full simulation environment with simulated sensors, launcher and drones. No live-launch, real hardware integration, fielded or engagement use is claimed.

ROADMAP | NEXT STEP TO FULL AUTONOMY

Roadmap, the next step to full autonomy: Threat Evaluation and Weapon Assignment (TEWA) algorithms are not yet implemented and are required for fully autonomous operation of AutarchC2. When implemented, like the Rules of Engagement, they will not be hard-coded: TEWA logic and parameters will be defined in a loadable configuration, tailored to each customer's doctrine and requirements.

Path to autonomy

TODAY
Operator-in-command C2 with configurable Rules of Engagement

NEXT
Configurable TEWA logic and parameters per customer

GOAL
Fully autonomous operation of AutarchC2

Talk to us. Trident Corporation can walk you through the suite in a simulated scenario. Detailed product information is available on request.

Map views: AutarchC2 in a full simulation environment. Map imagery: Esri. Diagrams are illustrative.