

Command and Control Capability for Surface Based Air and Missile Defence for the Battalion and Brigade Level (GBAD C2 Layer)

Letter of Intent ¹ signed	Memorandum of Understanding ² signed	Delivery
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Participants



What is a GBAD C2 module?

The Command and Control Capability for Surface Based Air and Missile Defence for the Battalion and Brigade Level (GBAD C2 Layer) High Visibility Project³ provides its participants with a multinational framework for the potential fielding and acquisition of an air defence management solution that will provide integration of multiple assets. By definition, such a system will have to employ an open-architecture approach to allow seamless connectivity and cross-cueing between multiple Ground Based Air Defence (GBAD) systems.



Illustration of an air defence management solution connecting different GBAD modules, sensors and effectors.

Multinational effort

In 2018, Allied National Armaments Directors initiated the development of a structured approach for facilitating multinational cooperation in key capability areas. This led to the creation of the Enabling Multinational Cooperation in the CNAD⁴ work strand. The approach was validated in 2019 through a first pilot case exploring cooperation opportunities in the area of GBAD. One of the cooperation sub-areas investigated was the acquisition and fielding of a Command and Control Capability for Surface Based Air and Missile Defence for the Battalion and Brigade Level.

Following further analysis and negotiations, Denmark, Italy, Portugal, Spain, the United Kingdom and the United States launched the multinational GBAD C2 Layer High Visibility Project through the signature of a Letter of Intent in the margins of the October 2021 Defence Ministers' meeting. Following the signature of the Letter of Intent, the six participating Allies will start working on the development of a detailed set of common requirements as the basis for a potential multinational fielding

Why is it important?

GBAD capabilities are crucial for protecting NATO populations, territory and forces. Effectively connecting multiple available assets requires a coordination element, the Command and Control capability (C2). This system serves as the higher echelon GBAD component and supports military personnel in the decision-making process and execution. This is particularly relevant for integrating multinational GBAD force packages into a holistic air defence posture. It allows for a layered ground based air defence approach, connecting several stand-alone systems consisting of effectors⁵ and sensors covering multiple threat scenarios (e.g. drones, cruise missiles, planes). In this context, "layered" defence means an approach that connects different systems for different threats or is positioned at different locations. This allows for the synergistic use of all available capabilities to match the most appropriate solution with individual specific threat scenarios. Overall, this enables a leaner defence structure.

1 Initial non-binding document outlining participants' will to explore the area in question further.
 2 Legally binding document specifying details of cooperation.
 3 High Visibility Projects are multinational initiatives tailored to address key capability areas, usually launched at Defence Ministers' level.
 4 Conference of National Armaments Directors – senior NATO committee responsible for promoting armaments cooperation among nations.
 5 Effectors are the means used to neutralise a threat. This can be a rocket or a jamming module, depending on the threat.

How does it work?

The GBAD C2 Layer project aims to facilitate the potential acquisition and fielding of an air defence management solution to enable a layered Ground Based Air Defence approach. As a result, the commonly acquired GBAD C2 Layer capability will reduce the number of systems currently in use by NATO Allies and therefore increase interoperability and resilience.

Did you know?



1. Fire Distribution Centres, a component of an air defence management solution, have the ability to share live pictures in real time between different command and control modules when in the same network. This ensures everyone is using the same correlated air picture.
2. In recent years, NATO has been working on strengthening its air and missile defence capabilities. The GBAD C2 Layer High Visibility Project further highlights Allies' commitment to this goal.