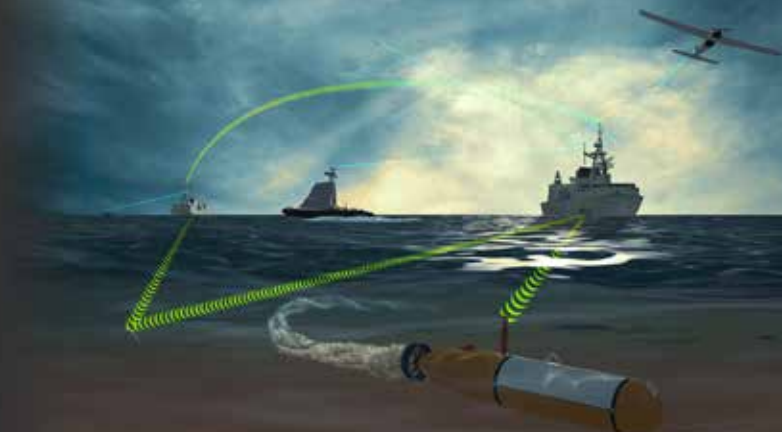




MDCS

Multi-Domain Control Station



Airspace Awareness for BVLOS UAS Missions

MDCS™ is a multi-domain C2 application developed based on the IRIS UxS architecture to allow operators to manage multiple unmanned systems for multi-domain missions. MDCS is intended as a multi-domain ground control station for army (land-based UGV and UAS), and navy (USV, UUV, and UAS) applications. With the Multi-Domain Control Station, a single operator can manage multiple unmanned systems operating in an integrated mission in multiple domains.

True Multi-Domain Capability

MDCS™, (Multi-Environmental Domain Unmanned Systems Application), provides operators with a truly multi-domain display picture based on a deep domain of hard-won experience in developing real-time command and control visualization in single-domain applications for air-defense, air-traffic control, maritime surveillance, and land-based programs for the US Department of Defense.

Leveraging research and development for IRIS UxS™ - a civilian GCS for UAS, the engineering team at Kongsberg Geospatial took on the challenge of creating a multi-domain display that addresses the technical challenges of fusing a wide array of often overlapping tracks from different types of sensors.

They also addressed the UX/UI challenge inherent in displaying an easily comprehensible, integrated picture capable of clearly displaying a large number of tracks at a wide range of altitudes and moving at very different speeds – from aircraft at high altitude to small UAS flying at treetop height – to watercraft or Unmanned Underwater Vehicles – or even dismounted first responders traveling on foot.



The result was a military-focused version of the IRIS UxS system, codenamed MDCS. The resulting application is heavily influenced by participation in NATO STANAG 4586 and 4817 standards groups for interoperable and multi-domain control stations.

The Multi-Domain Control Station collects and fuses data from a wide range of sensors, allowing operators to control multiple autonomous vehicles in a truly multi-domain mission theatre.

Safely Conduct BVLOS Missions in Multiple Domains

The MDCS system integrates multiple real-time sensor feeds to create a highly accurate battlespace common operating picture and provides real-time calculation of aircraft separation; airspace monitoring alerts; and communications line-of-sight prediction to enable detect-and-avoid for safe Beyond Visual Line of Sight (BVLOS) operations.

The system isn't limited to Unmanned Aerial Systems, because MDCS is a multi-domain system which allows the operator to manage a constellation of unmanned systems operating simultaneously in the air, on the surface, and underwater, (depending on the sensors the system is configured with).

MDCS can include cloud integration for mission planning, updating and reporting purposes. A cloud-based application provides an easy way to store a mission file - both as a flight data recorder function and for any Flight Operations Quality Assurance (FOQA) analysis by the operator.

Features

- Displays ownship UAS feeds, including telemetry and video
- Visualize a multi-domain mission space, including UUVs, USVs, and UAS
- Live track data from ADS-B, Harris NEXTGEN™ and PrecisionHawk LATAS™
- Integrated with Cloud Cap Piccolo, ArduPilot, PixHawk, Cube and Micropilot autopilots
- High-performance plotting of up to 10,000 simultaneous tracks
- High-performance 3D map and terrain engine powered by TerraLens® 9.1
- Pilot-configurable UI, map styling, and data layers
- Integrates feeds from cameras, sensors, and web
- Implements NATO STANAG 4586 and 4817 standards for interoperable Ground Control Stations



Kongsberg Geospatial has partnered with MartinUAV to provide shipboard VTOL capabilities for Unmanned Aerial Reconnaissance. The joint solution features MDCS and the MartinUAV V-Bat, shown here in a night time shipboard launch.

MDCS is being proposed for use for multi-domain naval reconnaissance missions by the Royal Canadian Navy, the Royal Australian Navy, and CANSOFCOM.