

EyeCommand

groundforce

Digitising the battlefield



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DIGITISING THE BATTLEFIELD

Advances in digital technologies have made information operations a vital part of military procedures. The importance of having timely, comprehensive and accurate information can mean the difference between successful and unsuccessful operations.

Soldiers do not gain an advantage on the battlefield by using automated equipment alone. Instead, success is achieved when information is optimised and presented in a clear way through advanced digital systems. Shared situational awareness, coupled with the ability to conduct continuous operations, allows military organisations to observe, decide and act more precisely in the heat of battle.

Critical Software's EyeCommand Groundforce supports the process of digitisation for battalion and below echelons by providing commanders with:

- *A common view of the battlefield*
- *Situational awareness*
- *Battlefield synchronisation*
- *C2 on the move*
- *Horizontal integration*
- *Combat identification / Blue Force tracking*

BATTLE MONITORING

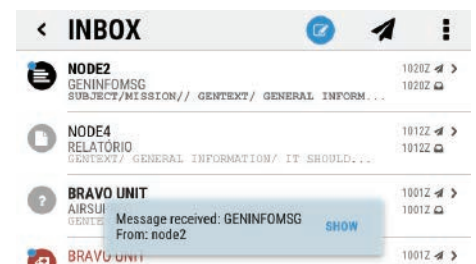
EyeCommand Groundforce delivers 'network-centric operations', enabling horizontal and vertical communication channels that allow users to share information easily, and providing a common operational picture for all military organisational levels at any one time. The system maximises Combat Identification and Force Tracking (blue, red and white) by providing an accurate characterisation of entities in a combatant's area of responsibility. This allows for the real-time application of tactical options and weapon resources in an extremely accurate way, maximising combat and mission effectiveness and reducing casualties.

EyeCommand Groundforce is designed to run on small devices like smart phones or tablets allowing it to be easily transported by dismounted soldiers and be incorporated in the soldier load carriage and protection equipment. This system implements several message catalogues, enabling seamless, bi-directional message exchanges between all battlefield units and ensuring accurate situational awareness.

The system's COP is provided in a 3D GIS engine, which implements several monitoring features, such as elevation data handling (DTED), navigation, terrain analysis, calculations (e.g. progression speed, distances, slopes thresholds), LOS, geo-fencing, alarmistic capability and more. The system adopts custom symbols to represent contacts graphically. It may also be configured with the NATO standard format STANAG 2019 (APP-6 C) or US standard MIL-STD-2525C.

INCREASED SECURITY

Being connected with other systems increases security because this allows EyeCommand Groundforce to raise alerts and report situations or findings by using a camera. It can take a picture or even video if the communication equipment supports it. EyeCommand Groundforce shows the position of each element in the battlefield, meaning that in the case of an accident or casualty, others can check the last known position of an element and start a rescue mission from that position.



Tasking and reporting



SOLDIER SYSTEM INTEGRATION

The system easily supports the integration of new battlefield sensors, like electro-optic devices and cameras, radars and laser range finders. When data is acquired from a sensor, EyeCommand Groundforce allows users to immediately use it (decreasing the sensor to shooter loop) and share it across all levels of the battlefield.

Additionally, the system can monitor soldier equipment like batteries, radio connection or radio battery, allowing the soldier to know the status of his equipment.

EyeCommand Groundforce can be configured with the NATO standard format STANAG 2019 (APP-6 C) or US standard MIL-STD-2525C.

COMMUNICATION INFRASTRUCTURE

In order to enhance operational capabilities, digitising the battlefield does not require a complex communication infrastructure. Any infrastructure will ideally employ equipment already in use by armed forces. Seamless communication means robust, resilient and secure multi-level communication systems that provide users with access to mission-essential information across the entire operational spectrum - without the need for interventions in order to achieve connectivity across heterogeneous networks. For this purpose, EyeCommand Battlefront builds ad-hoc tactical communication networks over existing Combat Net Radios and interfaces with larger bandwidth radios to access military backbone networks. The system is resilient to natural communication obstacles and shadows and efficiently adapts to operational scenarios, enabling dynamic manoeuvring of units.

ALERTS

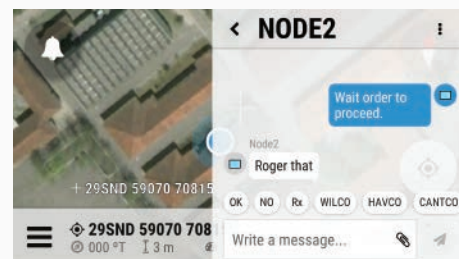
EyeCommand Groundforce augments soldier perception of the battlefield by providing alerts to possible threats on his surroundings. Enemy presence, Fire zones and Restricted areas alarms can be triggered and all units on the battlefield are aware of that crucial information. The integration with the personal radio allows the usage of sounds to alert the soldier even when he is under cover or not looking into the system. The soldier can also trigger alarms due to events observed in the battlefield.



APP-6 tactical graphics



Network diagram



Chat



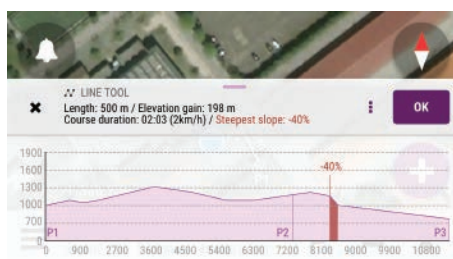
VERTICAL AND HORIZONTAL INTEROPERABILITY

Interoperability is “the ability of two or more systems to exchange data and to mutually understand the information which has been exchanged”.

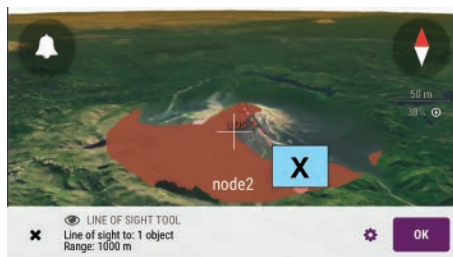
Interoperability goes far beyond simple integration tasks and EyeCommand Groundforce is more than capable of coping with the two main interoperability challenges typically faced in battlefield situations:

- The vertical challenge - which includes communications between different echelons.
- The horizontal challenge - which involves communications between different organisations involved in the governance of the battlefield.

With EyeCommand, interoperability with other external systems is made easy through the implementation of gateways based on NATO standards. These include STANAG 4677 Joint Dismounted Soldier System and STANAG 5527 – Friendly Forces Tracking. Dedicated gateways can also be supported for further integration with proprietary protocols.



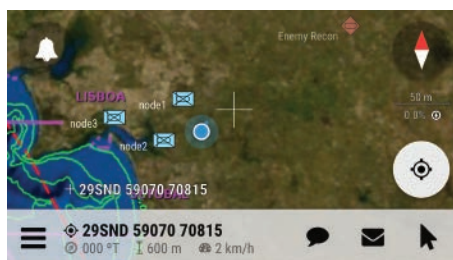
Terrain analysis



Line of sight calculation



Geo-fencing



APP-6 tactical symbols

BENEFITS AND ADVANTAGES

WHY EYECOMMAND BATTLEFRONT?

- Easily integrates with different types of transmission equipment (e.g. HF, VHF/UHF, TCP/IP, GSM)
- Easily configurable based on adaptable based on changing user requirements and lessons learned
- Intuitive HMI makes it easy for new users to quickly become proficient
- Facilitates change management processes and the adoption of new technologies
- A wide range of NATO standards are supported, maximising interoperability

ABOUT CRITICAL SOFTWARE

Critical Software provides systems and software services for safety, mission and business-critical applications. We work closely with our clients, helping them to meet the most demanding standards for performance and reliability.

We were founded in 1998, with NASA our very first client. Today, we work across many international industries and have offices across the globe.