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ROOK: A Digital Oasis in a Challenging Environment

Stationed in southern Afghanistan since the US-led coalition engagement in 2001, the US Marines have learned many lessons about the value of geographic information system (GIS) mapping support in remote and sometimes hostile environments.

Initially, they performed tactical mapping intelligence with a customized software solution from Esri called the Regional Expeditionary Intelligence Portable Resource (REIPR). While effective, this portable geospatial viewer required too much hard-drive space in the high-security environment of Afghanistan and was further complicated with limited bandwidth and hardware restrictions.

The Marines soon realized they needed something more agile with greater capabilities to meet their battlefield mapping needs. They wanted a geospatial viewer that allowed them to quickly sketch nearby battles for situational awareness, as well as capture screen shots for time-sensitive reports and PowerPoint briefings.

Esri developed the Regional Open-source Operations Kit (ROOK) based on ArcGIS® Runtime software, a new technology that gave the Marines the smaller software footprint and greater capabilities they required.

The Challenge

REIPR provided the US Marine Corps in Afghanistan with a geospatial viewer that supported its intelligence efforts. However, because of the viewer's limitations, it didn't completely meet the Marines' needs or objectives.





This screen shot from ROK displays MIL-STD-2525B symbology in Afghanistan.

While using REIPR, the Marines developed four criteria that were essential to the successful implementation of a geospatial viewer for military use:

- Small digital footprint for installation
- The ability to operate in a disconnected environment
- Being preloaded with the data and images needed in deployment areas
- Having no administration privileges required to begin the installation process

The Solution

With the release of Esri's ArcGIS Runtime, new possibilities became available to develop a geospatial viewer for military use. ROK, the resultant viewer, requires less than 300 MB of hard-drive space and can function with or without network connectivity. The application can be loaded onto a single DVD.

In a disconnected environment, ROK gives users the ability to load their laptops with unclassified GIS resources, such as maps, data, and geoprocessing tools. This is important for US Marine intelligence

analysts, whether they are deployed for battlefield assessment or emergency relief efforts.

Publicly available geospatial data and maps can be preloaded on ROK before deployment. This means Marines are not forced to rely on classified government systems that may have limited resources and cumbersome administrative procedures.

New users can easily learn ROK in a single session. The interface is intuitive and includes 19 buttons and one tool bar, making formal training unnecessary.

The Results

The US Marine Corps pioneered ROK and plans to extend its use throughout the USMC ISR Enterprise as a portable dissemination solution.

While ROK was not deployed in Afghanistan because of America's reduction in troop numbers and involvement, Typhoon Haiyan, one of the most powerful storms ever recorded, gave the Marines a chance to field-test its capabilities.

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