INFANTRY MISSION SYSTEM
For Soldier and Small Unit Operations
The Harris integrated system solution provides a toolbox of C4ISR capabilities for infantry mission support.
A simpler approach to C4ISR systems procurement

Providing the right capability to support the variety of potential missions that today’s infantry warfighter must be ready to undertake is a challenge. The Harris Infantry Mission System is a toolbox of equipment and functionality that enables the deployment and support of a wide range of missions and applications, including Platoon/Squad C2, Reconnaissance, Sniper, and HUMINT.

Procuring a C4ISR* system like an infantry mission system is usually no easy matter. Too often customers spend substantial time and resources, only to find themselves behind schedule and over budget, with a system that does not meet their requirements. Harris Corporation’s new, simplified approach to C4ISR systems procurement uses pre-engineered system configurations that provide fast, cost-effective solutions to today’s most critical operational needs, such as infantry mission support.

Instead of designing a unique system for every customer, Harris has developed a comprehensive family of preconfigured systems. Each system is fully integrated and includes all equipment, cables, software, and manuals, with training and installation available. Every system has undergone extensive testing and can be relied upon to meet its objectives.

This executive summary describes the Harris Infantry Mission System and outlines the advantages of our packaged C4ISR systems:

- **Low Risk** – Field proven and comprehensively tested systems provide existing, cost-effective solutions
- **Fast Delivery** – Complete systems can be delivered in a matter of months to meet urgent operational needs
- **Simplified Procurement** – Systems can be purchased as off-the-shelf items, eliminating long system definition and development phases
- **Phased Implementation** – Packaged systems form building blocks that enable the incremental acquisition of capability, protecting current investment and supporting future goals
- **Flexibility** – Systems are readily customized and can be integrated by in-country partners

All this from Harris, a company with over 50 years of large-scale international communications systems experience, the most comprehensive range of tactical communications products, and world-class systems engineering and integration capabilities.

*C4ISR = Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance

Contact Harris now to discuss your C4ISR systems needs: www.harris.com/systems
A symmetric threats are escalating the challenges faced today by soldiers deployed in warfare, policing, security, and peacekeeping assignments around the world. With potential dangers around every corner and a general increase in operational complexity, there is no such thing as a "routine" mission. More than ever before, dismounted armed forces require sophisticated support for planning, executing, and sustaining their critical missions and charters.

Effective, reliable, and secure communications capabilities are foremost among these essential support requirements. While every mission is different, there is an ever-present need for a consistent flow of information from lower-level soldiers up through the chain of command; conversely, command and control information must flow down in a timely, efficient, and secure manner. Commanders need immediate, comprehensive knowledge of battlefield or event conditions, threat attributes, and force location and synchronization, while soldiers or field agents need up-to-date situational awareness (SA) and clear orders.

In addition to voice communications, soldiers now need to exchange data—such as video, digitized biometric data, and messaging—within the tactical environment. To be effective, this data must be gathered quickly and disseminated equally rapidly to local and national command and control facilities, which requires a high-bandwidth transmission capability. Recent technical advancements in wideband tactical radio communications now support the transmission of real-time video and enhanced command and control.

Field commanders are tasked with dynamically organizing and implementing secure communications networks that meet all the above requirements, and more—often while under the duress of battlefield conditions. This calls for rugged, battle-worthy C4ISR systems and supporting applications that are intuitive, easy-to-use, and effective.

These commanders also have to be “ready for anything,” and that necessitates the ability to launch a sniper, reconnaissance, or human intelligence mission with little advance notice. A truly effective C4ISR system at the soldier level would therefore include a wide range of capabilities. Such a system should:

- Maintain a secure communications link between deployed forces and their fixed and mobile command centers
- Enable horizontal communications among deployed forces and with other local combat nets or systems
- Include automatic position reporting and other situational awareness enhancements
- Support battle management and communications planning efforts

THE OPERATIONAL CHALLENGE

Protecting soldiers and supporting their critical missions
Provide a means of transmitting high-bandwidth data (multiple video streams, messaging, etc.)

Include ad hoc support for specialized missions (e.g., sniper and reconnaissance applications)

The Harris Infantry Mission System, a fully integrated C4ISR system, addresses all of these needs while providing the basics: reliable, secure, all-informed communications between dismounted elements and their mobile commanders and land-based headquarters. In delivering these capabilities, our pre-engineered, packaged system solution supports improved mission planning and execution.

The system provides unique benefits to dismounted forces engaged in full military operations or those working against illegal immigration, drug smuggling, piracy, or terrorism. This cost-effective system solution can be used across the breadth of tactical operations where real-time situational awareness and enhanced command and control are crucial to successful and safe mission execution.

**The Harris Infantry Mission System provides commanders:**

- **Real-Time Intelligence** — Real-time situational awareness allows mobile and headquarters commanders to make better decisions

- **Enhanced Command and Control**
  - Secure personal radios using wideband data links support conferenced, secure voice communications between squad members
  - Secure combat net radios for inter-echelon communications can be automatically connected into long-distance command links for common operational picture updates and intelligence dissemination

- **Enhanced Capability to Identify Threats** — Enables experts at the headquarters with a real-time view of the activities and the benefit of additional intelligence to identify threats to dismounted forces

- **Imagery Dissemination** — Imagery from ISTAR assets can be distributed via Infantry Mission System components

- **Support for Interfaces** — The system supports standard data transmission systems as well as target acquisition systems (e.g., laser rangefinders)
The Harris Infantry Mission System is a “system of systems” designed to provide a toolbox of the capabilities required to plan, execute, and sustain dismounted infantry operations. It uses the advanced communications features of the new Falcon III® tactical radio products to support the mission needs of the infantry warfighter. Reliable, long-range communications are provided by VHF Combat Net Radio, while the UHF Secure Personal Radio delivers shorter-range, conferenced squad communications. The system allows deployed infantry units to more effectively execute their missions. Consider the following scenario: An infantry platoon is tasked to perform a foot patrol in an area subject to insurgent activity. The Harris Infantry Mission System provides:

- Mission planning and orders promulgation, together with communications and crypto key planning and distribution.
- Real-time situational awareness of all patrol members to the squad leaders and platoon commander. This information feeds into the higher-level common operational picture (COP) to maximize battle group situational awareness (SA) and minimize potential fratricide.
- Reliable, secure all-informed communications between squad leaders and the platoon commander, and between squad leaders and team members.
- Real-time updates of the platoon-level COP and near real-time updates of the battle group COP of insurgent activity.

**Key Features:**

- **Easy-to-Use Mission Planning Tool** — Application operates in either a standard office environment or in a tactical scenario (both PC and PDA platforms available).
- **Seamless Voice, Data and Situational Awareness Integration** — Platoon members carry the Harris RF-7800S Secure Personal Radio (SPR) which provides secure, team-wide, conferenced voice communications, situational awareness, and data capability; can be augmented to enable real-time video transmissions.
- **Standard Interfaces** — Allow the plug-and-play addition of optional features and enable easy incorporation of technology advances. Examples include the use of a software-defined radio at both squad and command level that is easily upgraded as new waveforms or features are developed.
- **Mission Kits** — Available to provide functionality for specific mission types, i.e., Recce Patrol, Sniper, and HUMINT.
- **IP-Based Communications** — Allow networked distribution of data (including video) and SA information across Harris tactical radios and existing customer communications infrastructure.
- **Customized Off-the-Shelf Availability** — The Infantry Mission System is a Harris packaged system which is available for delivery now and can be readily customized as required.
**Mission Planning** module includes a Harris battle management system for the dismounted infantry that provides automated, real-time situational awareness and the common operational picture.

**Communications Information Management** module is an easy-to-use software package that provides planning and programming capability for Harris radios and networks.

**Platoon Command & Control, Squad Command & Control, and Squad Pack** modules each include a well-planned complement of Harris radios, along with highly specialized software and other ancillaries required for IP-based command and control.

**Sniper and Recce Patrol** subsystems provide specialized equipment, software, ancillaries, and accessories specific to mission requirements; an optional HUMINT (Human Intelligence) Mission Support module is also available.

**Power Management** module provides for the efficient management of Infantry Mission System component-level batteries.
The Harris Infantry Mission System equipment is ready for delivery

Delivery of the Harris Infantry Mission System is a low-risk proposition. The Infantry Mission System is based on our FalconFighter concept. This means that all of the system interfaces have been proven on previous system equipment deliveries to other customers.

A standard Infantry Mission System is delivered with:
- One Mission Planning Kit (FalconCommand™)
- One Communications Information Management Kit
- One rugged laptop
- One Platoon Command and Control Kit
- Three Squad Command and Control Kits
- Three Squad Packs
- Three Sniper Kits
- One Recce Patrol Kit
- One Power Management Kit

This configuration is very flexible, and additional functionality and alternate equipment can be easily incorporated at initial purchase or as a subsequent system upgrade. The standard system can be delivered within approximately four months, as shown on the opposite page.

It is easy to alter the standard Infantry Mission System equipment and features, depending upon customer need. Customization may add up to two months to the delivery schedule. Optional capabilities include:
- Key Management System (KMS) Kit
- Situational Awareness Video Receiver
- Battery Options including Charging Kits
- HUMINT Mission Kit including laptop, Tactical Video Processor, camera, microphone, and additional batteries

Customization of a packaged system is inherently low risk:
- Harris has more than 50 years of experience developing custom solutions
- Data is converted to IP packets for seamless delivery over a variety of Harris and commercial networks, when applicable
- Standard external interfaces are used to support the widest variety of products and to facilitate upgrades and product improvements
Low-Risk System Characteristics:

- Pre-engineered system implementation
- Integration risks are eliminated
- Standard interfaces and protocols ease incorporation of future enhancements
- Leverages Harris Falcon III® radio technology
- Expandable, with ability to add teams and echelons as required
**SYSTEM DESCRIPTION**

The Infantry Mission System toolbox of capabilities meets complex and changing mission needs

The Infantry Mission System is an integrated set of capabilities, providing field commanders and their soldiers with the advanced C4ISR capabilities essential for mission support. The standard and optional components are listed and briefly described below.

**RF-7600P-SU301 INFANTRY MISSION SYSTEM EQUIPMENT**

**STANDARD CONFIGURATION**

- **Mission Planning Kit**
  - The RF-5410FC FalconCommand™ battle management system provides real-time SA and an automated common operational picture. It is available in two platforms—PC version for the tactical operations center and a field version (PDA or equivalent) geared toward the individual soldier.

- **Communications Information Management Kit**
  - The Harris Communications Planning Application (CPA) runs on a PC and provides an intuitive, graphical user interface for the design and deployment of complex radio network topologies. The operator uses drag-and-drop techniques to place radios and other elements into the mission plan.

- **Platoon Command & Control Kit**
  - This module includes an RF-7800V Falcon III® VHF Combat Net Radio, an RF-7800S-LR Harris Falcon III Leader Radio with display, FalconCommand™ and TacChat IP software, with audio, cable and power kits.

- **Squad Command & Control Kit**
  - The Squad C2 subsystem includes the same hardware and software in the Platoon C2 module described above.

- **Sniper Mission Kit**
  - This module includes an RF-3052-PT004 Pressel (remote push-to-talk switch) and a gooseneck antenna for the Falcon III Secure Personal Radio. This enables a vertical antenna position when the user is in the prone position, and provides an appropriate pressel solution so the user’s aim will not be disturbed.

**BASIC C2 SUPPORT**
Recce Patrol Kit  
Designed for reconnaissance missions, the kit has an RF-3161-AT001 extended range antenna for the Falcon III VHF Combat Net Radio and radio batteries scaled for 24-hour mission life. An optional tactical video processor is available for live transmission (or recording) of video imagery.

Power Management Kit  
Two eight-bay tactical battery chargers are included, one each for the RF-7800S Secure Personal Radio and the RF-7800V Combat Net Radio handhelds. The module also includes a camouflaged solar-powered battery charger.

Sniper Mission Kit (Qty: 3)  
- RF-3502-PT004 Pressel (remote PTT switch)  
- Gooseneck antenna for RF-7800S

OPTIONAL CAPABILITIES

HUMINT Kit  
- RF-7400E TVP  
- Laptop plus RF-7400E-CV001 C2View Video Management Application  
- Camera and Microphone

Situational Awareness Video Receiver (SAVR)  
- RF-7800T

Key Management System  
- To generate and manage TEKs

Battery Options/Charger Kits

HUMINT Mission Kit  
This module supports Human Intelligence (HUMINT) gathering missions and includes a laptop, discreetly mounted camera, microphone, and the RF-7400E Tactical Video Processor (TVP). Live video can be streamed via the Secure Personal Radio, and when stations move out of range, up to eight hours of video can be recorded by the TVP for transfer into the intelligence network.

RF-7800T Situational Awareness Video Receiver  
The lightweight, multiband RF-7800T Situational Awareness Video Receiver (SAVR) provides ISR video feeds directly to ground forces, enabling them to see what an aircraft or Unmanned Aerial System (UAS) is observing in real time.

Key Management System (KMS) Kit  
The KMS generates Transmission Encryption Keys (TEK) and manages the security and delivery of these keys.

Battery Options  
Options depend upon customer preference for power supply and recharging of batteries in-theatre.
Advanced wideband tactical radios provide simultaneous voice, video, and situational awareness

**Secure Personal Radio**
Soldiers using the RF-7800S Secure Personal Radio (SPR) will take advantage of the most advanced personal team radio in the world. The SPR Team Radio is designed specifically to provide secure, conferenced voice; wideband data; and situational awareness communications at the soldier level. Much more than a standard push-to-talk voice radio, the RF-7800S provides key benefits in a package that weighs only 300 grams. Its small size and light weight allow the commando to focus on the mission, not his equipment load. The Leader Radio augments the powerful Team Radio capabilities with the addition of a purpose-designed embedded processing module, enabling dedicated command application functionality in a lightweight, soldier-friendly package. A typical example of a command application is the Harris FalconCommand™ application described below.

**VHF Combat Net Radio**
The RF-7800V is the latest in the family of Harris VHF combat net radios, designed to enhance traditional sure voice and data communications as well as integrate into the latest BMS and C4ISR systems. The RF-7800V covers the 30 to 108 MHz frequency band and incorporates the Citadel II® and AES encryption engines. The RF-7800V transceiver’s flexible architecture allows it to be used in many configurations, including battery-powered handheld, clip-in vehicular, and high-power vehicular. It is designed to meet MIL-STD-810F environmental specifications.

**FalconCommand Application**
FalconCommand™ allows leaders to share vital battlefield intelligence with their soldiers during mission planning and as the mission unfolds. By equipping each member of the infantry command staff with up-to-date intelligence, plans, and situational awareness, leaders gain information superiority over the enemy, significantly increasing the chance of mission success. Compatible with military or civilian GPS, the system provides dynamically updated navigational information via radio communications. Real-time troop position updates for both friendly and enemy forces—along with sensor data and status—provide a user-defined common operational picture of the battlefield.

Under the team leader’s control, soldiers automatically receive target acquisition, identification, and target hand-off functions. Audible alerts can be generated to warn when key points or “No-Go” zones are approached. FalconCommand also automatically transmits No-Fire or danger zones and “Man Down” alerts to help account for every soldier.
FalconCommand™ is a Windows and Windows CE based application that enables optimal planning of infantry missions and maintains a common operational picture for all infantry command staff.

**FEATURES**

**Secure Personal Radio (SPR) Team Radio RF-7800S-TR**

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<tr>
<th>Feature</th>
<th>Benefit</th>
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<tbody>
<tr>
<td>Embedded GPS Receiver</td>
<td>Enhances soldier safety by automatically transmitting encrypted information. Team Leader can observe the team member locations using FalconCommand™. Video can be accurately geo-referenced for later retrieval and analysis.</td>
</tr>
<tr>
<td>256 kbps High-Speed Digital Waveform</td>
<td>Provides the necessary bandwidth for transmitting real-time video to the next level. Allows secure, conferenced voice for up to three simultaneous users, and simultaneous voice, data and position data for up to six nets on any one frequency.</td>
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**Secure Personal Radio (SPR) Leader Radio RF-7800S-LR**

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<th>Feature</th>
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<tr>
<td>Seamless Voice and Data Integration with Upper-Echelon Networks</td>
<td>Open, standardized TCP/IP based connectivity into existing networks. An audio/data retransmission capability together with a common user interface for multiple radios in the Leader’s network.</td>
</tr>
<tr>
<td>Situational Awareness at the Point of Command</td>
<td>The Leader Radio comes with a wrist-mounted display that makes full use of the embedded processing capability, providing access to the powerful functionality offered by the FalconCommand C3 application, as well as other mission software packages as they become available.</td>
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**VHF Combat Net Radio (CNR) RF-7800V**

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<th>Feature</th>
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<tr>
<td>High-Speed Data Transfer (Up to 192 kbps)</td>
<td>Delivers the fastest data transfers available over VHF Combat Net Radios, for quicker response and more detailed imagery.</td>
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<tr>
<td>10W Power Output</td>
<td>Provides longer range and greater link reliability in a lightweight, 1.1 kg unit.</td>
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<tr>
<td>Citadel® II and AES Encryption</td>
<td>Provides military-grade security for voice and data transmissions, with customer-unique encryption options available.</td>
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**FalconCommand RF-5410FC**

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<th>Feature</th>
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<tr>
<td>Sharing of Visual Information</td>
<td>Ability to display graphics on the screen locally and share graphics across the network. Compatible with Falcon II/III radios, third party radios, and many other BMS systems.</td>
</tr>
<tr>
<td>Support for Different Mission Types</td>
<td>Reconfigurable design allows tailoring for the unique requirements of Special Operations Forces (SOF), military tactical units, emergency management agencies, and other groups.</td>
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<tr>
<td>Mission Planning</td>
<td>Creation of a tactical plan that is not simply a drawing; the plan retains all object attributes and reasoning behind the plan.</td>
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<tr>
<td>Terrain &amp; Mobility Analysis</td>
<td>Provides point, area, and linear analysis; line-of-sight overlays; mobility corridors; intervisibility diagrams; route planning; and key terrain identification.</td>
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After-sales service supports mission-critical systems worldwide

Harris has earned a worldwide reputation as the low-risk vendor of choice for tactical radios and systems, with 99 percent of our international program customers reporting that Harris meets or exceeds their expectations. Our responsive program management team and customer service organization will deliver and support a highly capable C4ISR system.

An agile manufacturing process enables Harris to modify production to meet customer demands. With one of the highest-volume defense communications manufacturing facilities in the world, we have the commitment and capability to deliver on our promises.

Unlike many other companies, Harris has "boots on the ground" experience, supporting our products from initial fielding to obsolescence. In fact, we are currently servicing systems that have been deployed for more than 20 years, underscoring our absolute commitment to customer satisfaction. Our customers rate Harris an average of two times higher than our nearest competitor.

As a proven provider of advanced radio, sensor, and integrated systems to customers in over 120 countries, Harris has extensive experience in providing logistics and sustainment support throughout the world. We have developed highly successful processes for fielding, maintaining, supporting, repairing, and upgrading our equipment, no matter where it is deployed. Many of our product and technical service representatives have prior military experience, and establish a close, personal bond with our customers. Our comprehensive service offering includes classic telephone and email support as well as web-based services. Harris’s Premier website (https://premier.harris.com/) provides customized access to:

- Computer-based training courses and manuals
- Frequently asked questions
- Application notes
- Purchase of accessories and ancillaries

Customers also can use the website to:

- Download and track software upgrades
- Receive warranty and maintenance support, including RMA numbers and returned goods status

System training is another important consideration. Harris trains approximately 5,000 students per year on the installation, operation, and maintenance of its equipment and systems. This process occurs in Harris’s classrooms, at customer locations, and in the field. Our students (our customers) consistently rate the training they receive as meeting or exceeding their expectations.
The Harris Infantry Mission System provides economic benefits throughout its entire life cycle:

**Low Risk** – Our customer knowledge, program management, technical expertise, and world-class customer support serve to reduce fielding risk.

**High Performance** – The open architecture design capitalizes on technology refresh of components, maximizing the value of customers’ investments over an extended time period.

**System Sustainment and Supportability** – Sustainment issues are reduced by the use of rugged military equipment (with existing training and ILS packages) and the availability of Harris field service representatives.

**Life-cycle costs are reduced by:**

- Use of common equipment and software applications
- 24/7 support capabilities
- Available in-country training and training material
- Common equipment interfaces and programming
- Availability of installation and maintenance by in-country partners
- Availability of extended warranties beyond the standard 12 months
- Low-cost upgrade paths
Harris supplies tactical and public safety radio products in over 120 countries worldwide

Millions of people and hundreds of government agencies throughout the world rely on assured communications® solutions from Harris to deliver critical information to the right place at the right time. They know there is too much riding on the outcome to risk anything less. What sets Harris apart is our depth of expertise, breadth of experience, and focus on providing the most advanced products, systems, and services that meet or exceed the requirements of our customers.

Harris is one of the only companies in the world specializing in advanced technology for capturing, aggregating, distributing, and analyzing the full breadth of wireless communications including voice, data, video, and imaging. We use this unique capability to provide systems and networks for customers in defense, intelligence, government, public safety, healthcare, broadcast, and energy markets.

Harris RF Communications Division (RFCD) is the leading supplier of tactical, secure voice and data communications products, systems, and networks to military, government, and commercial organizations worldwide. Over 50 years of international experience is leveraged into the design and deployment of Harris RFCD’s packaged C4ISR system solutions.

The Infantry Mission System is one more example of Harris responding to the needs of its customers.

I firmly believe that Harris RF Communications really listens to their customer base and lives by the creed: the customer is king. I truly feel that sense of partnership with Harris, and I’ve been dealing with Harris for years now.

Harris has internationally acclaimed products which have left everyone else in the dust. —International Customer

—NATO Staff Member
Always connected. Never alone.

Our proven solutions provide:

- Voice, data, and video where it’s needed, when it’s needed
- Cost effectiveness over the life cycle of the system
  - No long, costly development cycle
  - Unsurpassed in-country support during and after delivery
- Scalability and growth options
- Configurable solution sets
- On-time delivery of quality systems
Harris Corporation welcomes the opportunity to discuss the Infantry Mission System in more detail, and how it can be applied to your missions and applications.

We believe that our packaged systems provide a significant value to you, our customer, in the following ways:

- The systems are available now, eliminating long and expensive development and procurement cycles.
- The use of the latest wideband Falcon III® tactical radios supports new operational capabilities, such as live video and situational awareness, that have not previously been possible.
- Falcon III Software-defined radio technology uses open architectures and standard interfaces, allowing the system to incorporate new capabilities and stave off obsolescence.
- Pre-engineered system designs emphasize commonality of equipment and resources to reduce life-cycle sustainment costs such as training, sparing, and maintenance.
- Harris systems engineers and in-country partners can readily customize the solution, as required.
- The systems are supported by our world-class customer service organization that operates in every part of the world and is second to none.

Harris Corporation is a $5 billion (USD) international communications systems company serving government and commercial markets worldwide. We are confident that our packaged C4ISR system solutions represent the best value with the lowest schedule, cost, and technical risks for meeting your complex operational challenges.

Our solutions leverage:

- Falcon III® wideband radio technology
- Harris’s video processing and management technology
- Open standards and interfaces
- Focused program teams
- Over 50 years experience providing state-of-the-art military systems
- Product service teams that deploy to our customer
- Over 7,000 engineers and scientists throughout the corporation
Always connected, never alone with infantry mission support from Harris