VOICE OVER INTERNET PROTOCOL COMMUNICATIONS ENTERPRISE (VOICE) COMMAND AND CONTROL (C2)
BENEFITS

Unparalleled operational flexibility gives operators the ability to control any radio, anywhere, at any time.

The intuitive graphical user interface (GUI) provides operational access to both local and remote systems for quicker response times.

Progressive internet protocol (IP) at the core technology allows authorities to take advantage of modern communication enhancements.

Unique system design simplifies complex battlefield requirements.

VOICE C2 INTEROPERABLE COMMUNICATIONS SOLUTIONS FOR YOUR CRITICAL MISSIONS

Harris, a leader in IP-based communications, has built leading-edge solutions serving the C2 market for more than three decades. VOICE C2 is an advanced IP communications system based on simplified hardware and software components that, when combined, deliver a sophisticated communications platform. The system provides users with the ability to access and control radio, telephony, intercoms and paging systems using a single intuitive GUI.

FEATURES

- Role-based free seating
- Radio-to-telephone and telephone-to-group conferencing
- Link multiple systems with additional operator stations or radios
- Fixed command post to large command centres
- Radio interoperability:
  - Land mobile radio (LMR) and tactical radios
  - Radio paging
  - Unit ID, alias, status, messaging
  - Unlimited patching/crossbanding
  - Radio remote control

SIMPLIFYING OPERATOR CONTROL

The VOICE C2 OCU provides an integrated voice communications human machine interface (HMI) that interconnects operators, radios and telephony. With advanced audio and control interfaces, system users can communicate or conference with any available internal or external resources. Operator position hardware is comprised of an OCU, a touchscreen panel computer, and an optional OIU. OIU associated accessories include speakers, handset, wired or wireless headsets and microphones. For positions requiring less capability, the operator position hardware can be streamlined to simply a headset and touch-panel computer or laptop. The GUI that runs on the OCU permits selection and control of all the communications resources connected to the system.

SIMPLIFYING CONFIGURATION

The VOICE C2 OCU provides each user with complete control of their communications environment via an intuitive, highly configurable touchscreen interface. The interface provides users access to all facilities required to perform their allotted tasks including:

- Role logon
- Telephony and radio calls
- Radio control
- Telephone-to-radio patching
- Multiple audio stream conferencing
- Alarm monitoring
- Facilities control

A VERSITILE COMMUNICATIONS PLATFORM

Customized to meet any operational requirement.

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OPERATOR CONSOLE UNIT

Flexible software application

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VARIANTS

- Red/black multi-domain options for secure and non-secure communications
- Secure: Joint Interoperability Test Command (JITC)-certified with option for additional assured services session initiation protocol (AS-SIP) and multi-level precedence and preemption (MLPP) certifications
- Reduced footprint blade option for smaller systems
- Comms on-the-move (C-OTM) option:
  - Mobile command post
  - SUV
  - Transportable
  - Vehicle mounted

VOICE C2 BUILDING BLOCKS

- Operator control unit (OCU)
- Operator interface unit (OIU)
- Secure operator interface unit (SOIU)
- Comms server unit (CSU)
- Radio interface unit (RIU)
**POWERFUL, DEDICATED AUDIO PROCESSING**

**SIMPLIFYING OPERATOR AUDIO**

The VOICE C2 OIU is an optional building block that, when selected, acts as a communications hub for the operator position. It provides operators with dedicated digital signal processor (DSP) audio processing resources that enable efficient support for a diverse range of audio equipment including mono and stereo headsets, headsets with push-to-talk (PTT), microphones and speakers. The OIU efficiently converts audio from these devices to standards-based voice over IP (VoIP) which can be streamed to any compatible device via the local area network (LAN). It supports dual redundant LAN interfaces for mission-critical audio.

**SIMPLIFYING CONNECTION OF OPERATOR AUDIO EQUIPMENT**

The VOICE C2 OIU provides advanced, dedicated DSP audio processing at each operator position. The unit has dual-network LAN interfaces and provides six audio outputs and four audio inputs. These support two headsets, microphone, speakers, line out, mono and stereo headsets for separate left- and right-ear audio programs. The dual operator headset jacks at each position support trainer PTT override.

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**SIMPLIFYING SECURE OPERATOR AUDIO**

The SOIU is the communications hub of the VOICE C2 secure operator position. It provides users with a single access point to multi-security-level domain environments where strict isolation requirements are essential. It provides the operator with dedicated, advanced DSP audio processing resources that enable efficient support for a range of audio equipment. It efficiently converts the audio from these devices to standards-based VoIP which can be streamed to any enabled compatible device via either security domain. Within each domain, it also supports dual LAN interfaces ensuring mission critical secure (red) or clear audio (black) always gets through. The SOIU is used as part of a larger total Harris secure communications solution.

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**POWERFUL, DEDICATED AUDIO PROCESSING FOR ADVANCED OPERATORS IN MULTILEVEL SECURITY ENCLAVE ENVIRONMENTS**

The VOICE C2 SOIU greatly simplifies the operator’s task when operating in environments requiring simultaneous access to multiple security domains. It allows operators to listen to audio from multiple domains in a single headset and, using a single touchscreen, can control communications in both domains.
INTEROPERABILITY BETWEEN 2-WAY RADIO AND ENTERPRISE TELEPHONY VIA OPEN STANDARDS-BASED PROTOCOLS

SIMPLIFYING RADIO-OVER-IP TECHNOLOGY
The VOICE C2 CSU allows the system to integrate telephone services including both public switched networks (PSTN) and private branch exchanges (PBX). It provides flexible call handling and call distribution including conferencing, transfer and hold. The CSU supports SIP trunks, or a range of other physical telephony interfaces when coupled with a Telephone Interface Unit (TIU).

SIMPLIFYING RADIO AND TELEPHONY INTEGRATION
The VOICE C2 CSU is flexible and configurable with the addition of telephony cards. Telephony cards are available in either analog or digital versions with various combinations and quantities supported. For high-availability applications, the VOICE C2 architecture supports dual redundant CSUs with each unit supporting dual LAN interfaces, ensuring that mission critical audio always gets through. The CSU can also be deployed as a standalone as a fully functional soft PBX; integrated with other applications, the VOICE C2 architecture provides flexible call handling and call distribution ensuring that mission critical audio always gets through.

VOICE OVER IP VIA OPEN STANDARDS

INTEROPERABILITY BETWEEN RESOURCES VIA OPEN STANDARDS VOICE OVER IP

SIMPLIFYING RADIO-OVER-IP TECHNOLOGY
The VOICE C2 RIU is a core building block that provides a seamless interface between radios and telephony assets using open standards VoIP technology. Within its compact, ruggedized footprint, the RIU provides support for four programmable audio devices, each with its own serial port for configuration or data transmission. It uses dedicated DSP audio processing resources to efficiently convert the audio to standards-based VoIP which can be streamed to any compatible device via the LAN. It also supports dual LAN interfaces ensuring that mission-critical audio always gets through.

SIMPLIFYING CONFIGURATION
The VOICE C2 RIU can be used standalone as a SIP-based radio gateway or integrated with other open-standards type solutions such as real-time transport protocol (RTP). It is ideally suited for vehicle interoperability solutions, mobile fly-away kits and anywhere you need extensive capability in a small, ruggedized footprint. The RIU is easy to configure and provides direct connection interfaces to a range of audio equipment including conventional and trunked radios, public address systems, monitor speakers and intercoms.

RIU SPECIFICATIONS

PHYSICAL
- Dimensions (H x W x D): 148 x 44 x 380 mm (5.75 x 1.75 x 14 in.)
- Weight: 2.5 kg (5.5 lbs)
- Mounting type: Rack (1U high) or shelf mountable
- Power input (configuration dependent):
  - DC: 44–240 VAC (extended range)
  - AC: Requires use of AC–DC power adapter (PN: 685-335-041)
- Connection interfaces:
  - DC power: Circular push/pull lock/release socket Fischer 3-pin circular DEPC 102 402–103
  - Ethernet: 1 x RJ45 socket (2 ethernet connections)
  - PTT switch: Normally open contact
  - CODAN: 5–25 VDC, optically isolated
  - Audio: 4-wire analog, transformer coupled DC blocked, 0 dBm/600Ω input/output
  - Software protocols: SIP, “Init” RTP

ENVIRONMENTAL
- Protection: IP65 rated enclosure & connector (when connectors covered or sealed)
- Storage temperature: -60°C to +70°C (-76°F to 160°F) (RIU-STD 810G – 501 A & 502 A [Type 3b] test)
- Vibration (vehicle/integrity):
  - MIL-STD 810G – 514.5-C3
  - MIL-STD 810G – 514.6-C17
- Shock (1 g, pulse amplitude, 11 ms duration):
  - MIL-STD 810G – 516.5
- EMI/EMC:
  - MIL-STD 461

CSU SPECIFICATIONS

PHYSICAL
- Dimensions (H x W x D): 483 x 89 x 450 mm (19 x 3.5 x 17.72 in.)
- Weight: 14.4 kg (31.7 lbs)
- Mounting type: Rack (2U high) or shelf mountable
- Power input (configuration dependent):
  - DC: 48 VDC, 500 mA (standard)
  - AC: 24–60 VDC, 24W (extended range)
- Connection interfaces:
  - DC power: 4 x 26-pin high density D-sub connector, 1 per radio connection
  - Audio: 4-wire analog, transformer coupled DC blocked, 0 dBm/600Ω input/output
  - Software protocols: SIP, “Init” RTP

RIU SPECIFICATIONS

PHYSICAL
- Dimensions (H x W x D): 483 x 89 x 450 mm (19 x 3.5 x 17.72 in.)
- Weight: 1.4 kg (3.1 lbs)
- Mounting type: Rack (2U high) or shelf mountable
- Power input (configuration dependent):
  - DC: 48 VDC, 500 mA (standard)
  - AC: 24–60 VDC, 24W (extended range)
- Connection interfaces:
  - DC power: 2 x IEEE 802.3 10/100 Base-T Ethernet
  - Audio: 4 x 26-pin high density D-sub connector, 1 per radio connection
  - Software protocols: SIP, “Init” RTP

Note: Representative only, multiple models are supported including option to use virtual machines (VMs).
About Harris Corporation
Harris Corporation is a leading technology innovator, solving customers' toughest mission-critical challenges by providing solutions that connect, inform and protect. Harris supports government and commercial customers around the world.

Learn more at harris.com.