PacStar 421

Small Form Factor eXtended Radio Interface (XRI)

The Curtiss-Wright PacStar 421 expands the PacStar 400-Series family of tactical computing modules to include radio gateway services for both modern and legacy radios.

When combined with REDCOM Sigma®, it bridges the gap between disparate radio systems used by military units, government agencies, and public safety organizations. This powerful combination creates a full-featured Command and Control (C2) platform where radio users can communicate directly with users on any RoIP/VoIP/SIP endpoint and radios can be controlled and patched together on-the-fly via the REDCOM C2 Console app.

Intelligent radio Interoperability

- Features 4 built in radio interfaces
- Agnostic to radio make, model, encryption, and waveform
- Works with virtually any public safety or tactical Radio
- Communicate seamlessly over multiple nets, including VHF, UHF, HF, SATCOM, and TSM
- Configurable PTT signaling mode per port per caller
- Supports patches, dialed calls and independent monitoring

TSM™ radio integration

- IP-based integration of individual talk groups on a TSM (RF mesh) network via a single donor Trellisware TSM radio
- Support for up to 32 talk groups configured on the TSM network
- Native support for AMR 5.9 and MELPe codecs on TSM Networks
- TSM Talk Group can be bridged together with other TSM talk groups, radio nets and SIP endpoints

Support for various C2 ecosystems

- Gives the warfighter flexibility to connect numerous disparate IP and RF Comms endpoints
- Provides warfighters with a C2 platform (voice, video, chat) for lower echelons that do not rely on higher HQ
- Enables stand-alone comms in DIL (disconnected, intermittent, limited) environments
- Provides warfighters with the ability to interoperate in the CJADC2 (Combined Joint All Domain Command & Control) theater

Key Features

- **Integrates virtually any public safety or tactical radio** into REDCOM Sigma deployments
- **Features four radio interfaces** to allow seamless communications over multiple nets
- **Configurable PTT signaling modes** per port and per caller with support for patches, dialed calls, and independent monitoring
- **TSM support:** monitor and control multiple TSM talk groups simultaneously
- **Mobile client integration** with the REDCOM Secure Client app

Applications

- Where there is a need to bridge the gap between disparate radio systems used by various agency organizations

PacStar

Powered by REDCOM Sigma® software

- The C2 platform of choice for the U.S. Army and USAF
- Built for tactical communicators; software is easy to learn without the need for field service reps and IT experts
- C2 Console app enables an operator to monitor and control all tactical comms from a single pane of glass
- Lightweight selectable video conferencing is ideal for chaotic, congested or contested environments
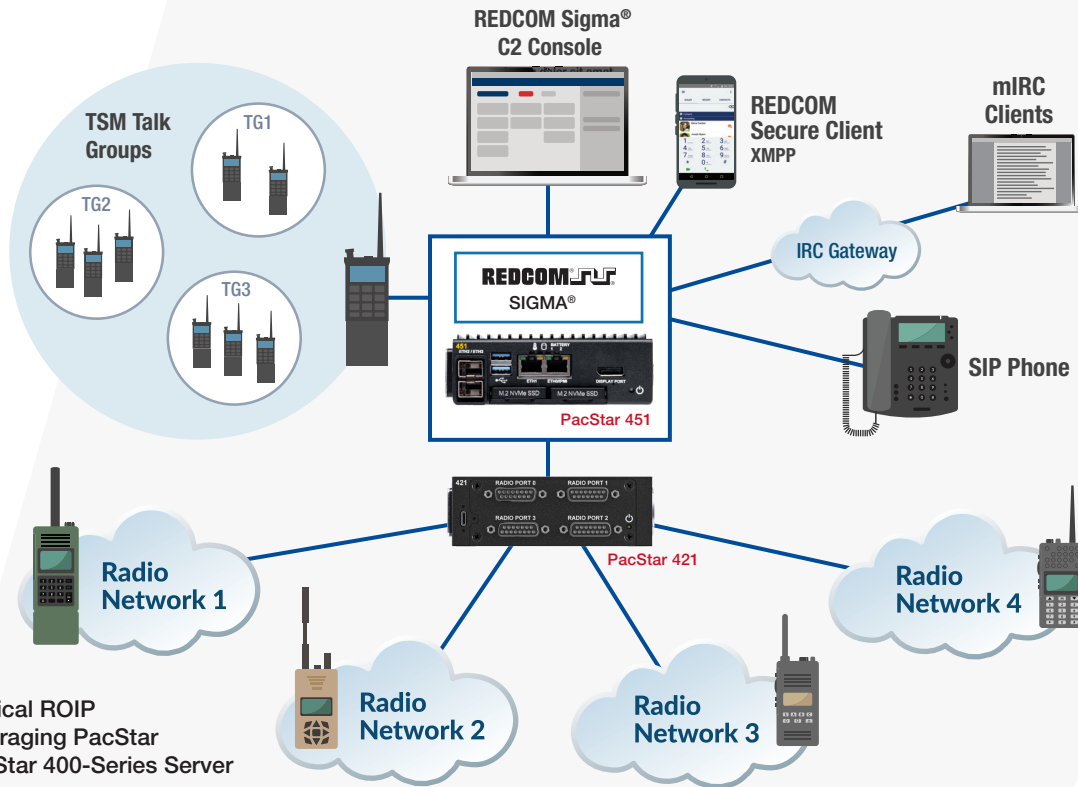

Figure 1: Typical ROIP Network leveraging PacStar 421 and PacStar 400-Series Server

Radio Features

- Dynamic (dialed) call sessions - supports radios with/without DTMF dial pads using three-click seize/answer and automatic dialing
- Dynamic and static patches - for patching a radio port to another radio port or a conference or speakerphone
- Tunable 4-wire TX/RX audio interface - for connection to radios or other devices with balanced or unbalanced audio via the 4 analog radio ports

Flexible PTT/PTS controls:

- Configurable Push-To-Talk (PTT) mode, Push-To-Signal (PTS) trigger mode, and voice detection
- Smart PTS modes are per caller rather than per radio port and allow configurable RFC2833 events and/or DTMF, with an automatic voice-operated transmit (VOX) function
- Block VOX-based PTT/transmission to a radio line while the receiver is active

- Mobile clients - PTT interoperability between radio users and smartphone users with REDCOM's Secure Client app
- Voice queuing - with automatic store & forward to prevent lost syllables at the beginning of each transmission
- Audio monitoring - Each radio port can be monitored by multiple callers from the network and/or other local radio ports or even a conference
- Secure radio over IP - TLS/SRTP encryption for privacy of signaling and audio information over IP networks
- Repeater squelch tail suppression
- Optional RX audio suppression
- User-programmable radio line templates
- Radio ports status dashboard with real-time signal tracking.
- Detect attached donor/gateway radio - when enabled, the radio line's maintenance status will automatically track the presence or absence of the attached radio

Specifications

Physical Specifications

- Dimensions 5.3" x 7.1" x 1.6"
- Weight 1.9 lbs

Power Specifications

- Wide range 10-35V input via 2x AN/PRC-148 and AN/PRC-152 compatible battery coupler plates
- Supports power input from MBITR-type batteries, PacStar Smart Chassis systems or downstream of a PacStar 400-Series module
- Power draw: Less than 8 watts power consumption

Environmental Specifications

- Operational temperature -20C to 60C
- Tested to MIL-STD 810 and MIL-STD-461 (contact PacStar for more details)

Front Panel I/O

- (5) Port Total
    - (4) Radio Ports: DB-15
    - (1) Communications: USB Type-C

Hardware

- To enable functionality of the PacStar 421, it must be connected, via included USB cable to a PacStar 400-Series Server running REDCOM Sigma® Standard Config or Light Config installed and operational

Software

- To enable functionality of the PacStar 421, REDCOM Sigma® Standard Config or Light Config required to enable functionality of the PacStar 421. REDCOM Sigma® must be licensed separately. Note: some REDCOM features, such as TSM talk group integration, require a feature license.

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