REDCOM SIGMA® IP RADIO BRIDGING

Connect multiple IP-based radio networks to the C2 network

The operational demand for a high degree of tactical mobility requires ultra small size, weight, and power solutions. Next-Gen C2 technology needs to enhance transport diversity, increase adaptability, and eliminate hardware lock-in. REDCOM Sigma supports these requirements as a commercial Command and Control communications platform that converges voice, video, chat, and conferencing in a single lightweight software instance. Native to the Sigma platform is interoperability with unicast and multicast IP-connected radios, allowing the software to seamlessly bridge various IP-based radio nets without the need for an external gateway platform.

Key benefits:

- **Provides a software-based, hardware-agnostic bridging solution**
- **Enables seamless integration of new waveforms**
- **Connect to any number of IP-based radio nets, anywhere — no hardware gateway required**
- **Enables mission flexibility by patching disparate, geographically separated, radio nets — statically or on-the-fly**
- **Cost effective solution — functionality is included in Sigma with no additional licenses to purchase**

What is an IP-connected radio?

Everyone is familiar with traditional analog radios, which have formed the backbone of the tactical network for decades. Though they are still in use, analog radios are rapidly being replaced by modern IP-connected radios. Sometimes referred to as Software Defined Radios (SDR), these IP-based radios deliver numerous benefits over their analog predecessors, such as better audio quality, improved security, and the ability to transmit data.

IP-based radios can also provide mobile ad-hoc network (MANET) capabilities, allowing Sigma to leverage the data network for PTT voice, video, and chat directly from an end user device.

IP-connected radios are available from proven vendors such as L3Harris, Silvus Technologies, Persistent Systems, DTC, and Thales.

Connecting to Sigma

A key advantage of an IP-connected radio is the interface. Whereas many analog radios often require proprietary cabling, IP-connected radios can connect to the network via Ethernet without requiring an adapter or gateway. Since REDCOM Sigma is entirely standards-based, it can connect to and interoperate with any of these radios on the IP network.

Setup with Sigma is a breeze. A donor IP radio can be added to Sigma as an endpoint or it can be configured to use a direct RTP stream. Once connected, Sigma offers users numerous options for bridging radio traffic across waveforms and frequencies. Note that this feature requires Sigma version 4.2 or newer.

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**Point-to-point radio bridging:**

REDCOM Sigma enables remote IP radios to connect to any other endpoint on the C2 network, including other radio nets or SIP endpoints. Radios with a numeric keypad can simply dial a number to establish a connection, and those radios without a keypad can use Sigma's "3 click" method to connect to a predetermined endpoint (or conference call). Remote radios can be assigned a routable number in Sigma, making them reachable from anywhere.

Multi-party radio bridging:

- **Conferencing:** Radio nets can either call into a conference at a predetermined time ("meet-me"), or Sigma can "blast dial" a group of radio nets and endpoints at once to bring everyone together into a conference call.
- **Channels:** Channels in Sigma are akin to virtual radio nets. A Sigma admin can set up each network-based radio as their own channel or group them together for a persistent connection. These channels can then be accessed with the push of a button from the REDCOM Sigma Client on Windows or ATAK.
- **C2 Console Patches:** The REDCOM C2 Console is a GUI for monitoring, controlling, and patching together various connections. An operator can use the Sigma C2 Console to join various network-based radio nets together on-the-fly.

REDCOM SIGMA: A NEXT-GEN C2 SOLUTION

Sigma software brings together disparate IP-based radio networks, regardless of make, model, encryption, or waveform. As long as the radio can connect to an IP network, no adapter or gateway is required. When IP radios are added to Sigma, they gain the ability to talk to each other and can communicate seamlessly with any Sigma-reachable endpoint on the network, including softphones, desk phones, mobile devices, and across SATCOM.
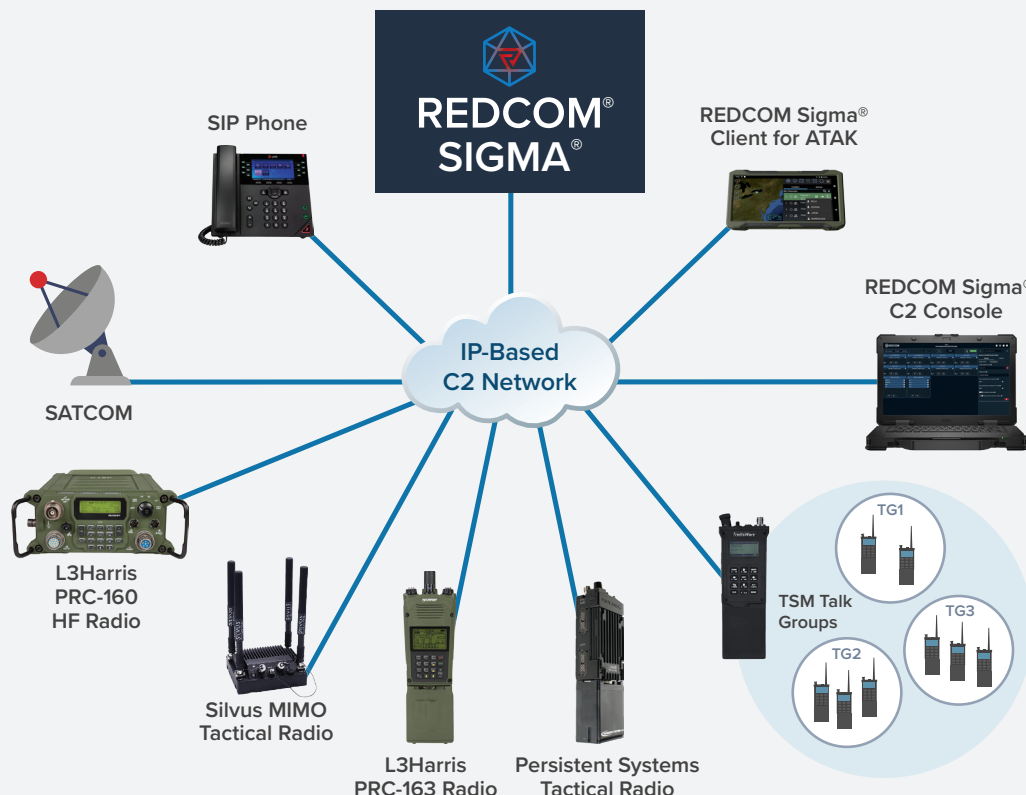
Note: some features, such as TSM talk group integration, require a feature license. Please consult with your REDCOM solution advisor for pricing and configuration options.

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