REDCOM SIGMA® C2 CONSOLE

VOICE + PTT MODERNIZATION

Push-to-talk solutions currently employed within the DoD are complex, expensive, and challenging to maintain. The warfighter at the tip of the spear requires a powerful but easy-to-use solution that enhances current capabilities while minimizing cognitive overload. REDCOM technology increases the warfighter's effectiveness and security posture while reducing lifecycle, training, and maintenance costs. Additional benefits include:

- **Intuitive and simple GUI interface** — minimizes 'button presses'
- **Perpetual licensing model** — REDCOM software can still be used without annual maintenance agreements
- **Integrated RoIP** — reduces the complexity and cost to bring RoIP onto the command and control network by simplifying network architecture and eliminating additional hardware and software from the network
- **Interoperability** — mitigate obsolescence with hardware and software that are fully interoperable with existing deployed equipment
- **Enhanced mobility** — REDCOM solutions are incredibly easy to use, setup, configure, deploy, and are resilient to hard shutdowns
- **Supports DOTMLPF-P Analysis** — REDCOM technology is already included in the U.S. Army baseline and included in existing ATOs

THE CURRENT PROBLEM

In voice communications, multiple hardware and software solutions are often cobbled together to provide critical capabilities. The result is a complex, increasingly hard-to-manage solution set as each of these individual products need to be procured, configured, tested and documented. Subsequent upgrades require additional testing which compounds the effort required to maintain a multi-vendor solution. Advancements in technology often increase complexity and add to the cognitive burden of the warfighter. Furthermore, these multi-vendor solutions require extensive training and re-training of personnel and contractors in theatre, impacting operational readiness. This is notably expensive and time-consuming, especially with the personnel changes that occur regularly.

From a lifecycle management standpoint, some applications in use today only offer a subscription-based model. This model, while beneficial to the manufacturer, leaves military customers in a vulnerable position and increases sustainment costs with the number of software solutions required. From a security perspective, some applications in use today must utilize Microsoft Windows STIGs. A large effort is necessary to adhere to these STIGs and can delay delivery to the government and/or require the government to assume risk.

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RECOMMENDATION

Choose a flexible, easy-to-use solution that converges capabilities onto one low-SWaP package that is tailorable and scalable to mission specific requirements. These capabilities include: voice, video, chat, audio and video conferencing, transcoding, secure soft clients, console, and TSM integration.

This approach enables the end user to divest multiple pieces of hardware and software in use today which greatly reduces maintenance, lifecycle, training costs, and the cognitive burden on the warfighter. To increase interoperability, the solution should be standards-based to allow for the rapid insertion of new technology while ensuring backwards compatibility with already fielded devices and systems.

There are two Courses of Action (COA) available to customers that wish to replace their existing voice+PTT management solutions.

COA 1: REDCOM SIGMA® C2 SOFTWARE-ONLY SOLUTION

REDCOM Sigma® is an intuitive software-based command and control (C2) platform that is designed to increase operational flexibility while minimizing size, weight, and power (SWaP) requirements. With a rapid boot time, quick setup, and resilience to hard shutdown, REDCOM Sigma delivers a fully-scalable feature set including voice, video, chat, conferencing, and an integrated C2 console.

Sigma Key Benefits
- Entirely software-based solution; hardware- and hypervisor-agnostic
- Flexible deployment options: Virtualized, CMOSS, Bare metal, and Cloud
- Works with already fielded RoIP gateways and SIP devices
- Removes expensive voice management solutions
- Scalable up to thousands of users
- Transport Agnostic
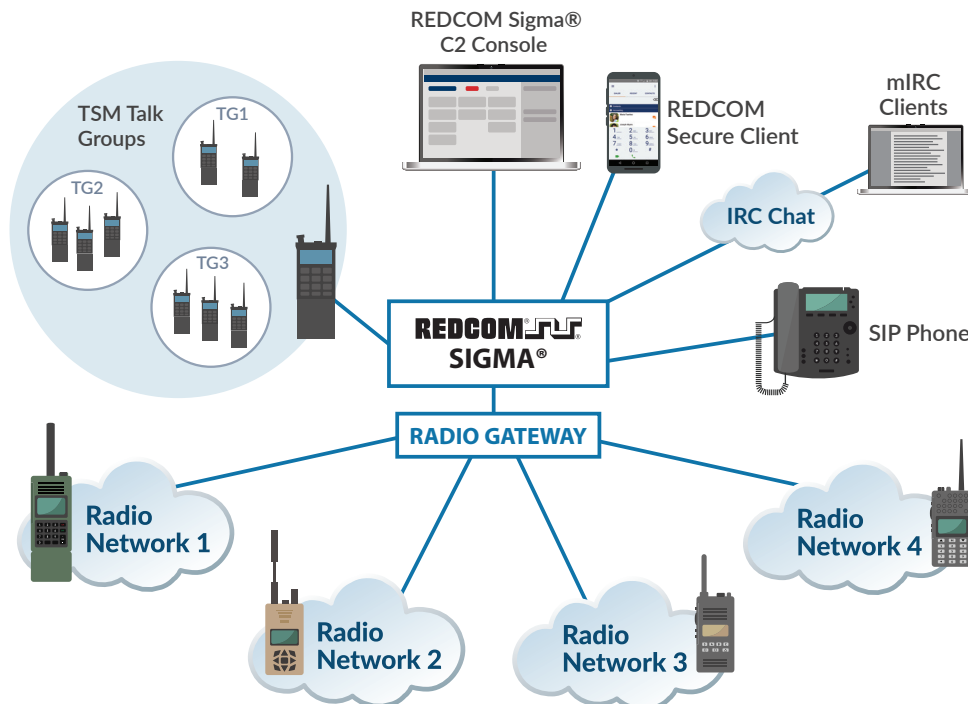
COA 2: REDCOM SIGMA® XRI-400

The REDCOM Sigma Extended Radio Interoperability (XRI-400) platform is a small form factor command and control (C2) platform that contains all of the capabilities of REDCOM Sigma software. The XRI-400 delivers voice, video, chat, and radio interoperability in a single low-SWaP ruggedized box, making it the perfect solution for all tactical echelons.

Sigma XRI-400 works with virtually any public safety or tactical radio, including portable radios, mobile radios, base stations, and repeater units, and it does not emit radio frequency radiation that might interfere with radios or other nearby electronic equipment.

Sigma XRI-400 Key Benefits

- Maximizes cost savings by using one integrated, low SWaP box
- Removes expensive voice management solutions
- Works with existing gateways, and in many scenarios can outright replace existing gateways
- Increases resiliency by enabling C2 comms even when disconnected from higher headquarters
- Increases operational flexibility by enabling the radios to be placed away from the TOC due to terrain
- Transport agnostic: works with any form of encryption, waveform, and transmission path
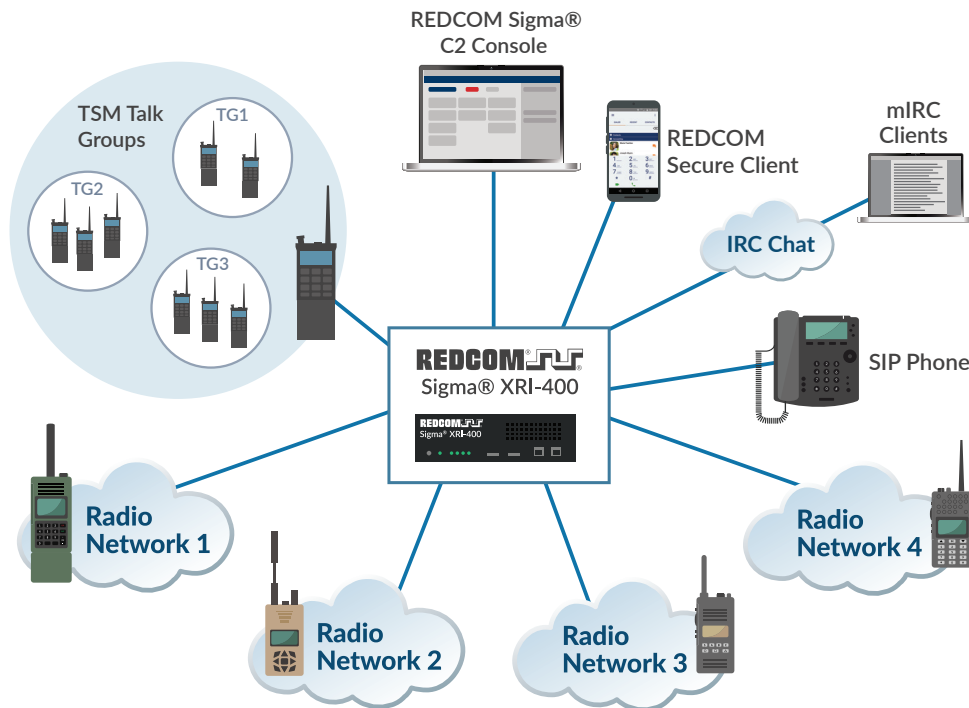
COA FEATURE COMPARISON TABLE

CAPABILITIES	SIGMA	SIGMA XRI-400
Voice calls	✅	✅
Video calls	✅	✅
Chat (XMPP & IRC)	✅	✅
Conferencing (Audio; Video; Display security classification of conference and members)	✅	✅
C2 Console	✅	✅
SDR Integration	✅	✅
Transcoding	✅	✅
Radio Interoperability (Three-click method; Dial from DTMF pad; Flexible PTT/PTS controls; Voice queueing)	✅	✅
Drag-and-drop Radio Cross Banding	✅	✅
TLS/SRTP	✅	✅
FIPS 140-2 certified	✅	✅
JITC Certified	✅	✅
Call Monitor	✅	✅
REST API	✅	✅
REDCOM Secure Client for Windows® & Android™	✅	✅
Suite B	✅	✅
IP Sec	✅	✅
GUI Interface	✅	✅
Auto Attendant	✅	✅
Standards-Based	✅	✅
Software (hardware agnostic)	✅	
Scalable	✅	
Sensor Input/Driver Outputs		✅
Hardware		✅
MIL-STD 810G (Temperature; Altitude; Vibration; Shock)		✅
Radio Gateway		✅
Fixed Sigma software license		✅
Flexible 4W audio ports		✅

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KEY SOLUTION REQUIREMENTS

C2 CONSOLE

The REDCOM Sigma® C2 Console app offers a complete command and control (C2) management solution where a console operator can quickly establish connections and create persistent patches to facilitate immediate communication between various parties, even those with differing communication platforms. The C2 Console works with any reachable endpoint, including a SIP device, an analog phone over a SIP trunk, a radio voice net, or a talk group on a TSM mobile ad-hoc network (MANET).

Using this app, console operators can create ad-hoc connections and patches, talk to a single connection or patch or a group of connections or patches using push-to-talk (PTT) functionality, and establish a listen-only path to any number of existing connections and patches. Console operators can also add connections and patches as members of monitor groups and select an output address or port to establish a listen-only path that continuously receives the combined audio from those members.


AUTO ATTENDANT

Auto Attendant is used to automatically distribute calls to phones, radio networks, or trunks based on input from a user. When a user dials the auto attendant code, an automated greeting will be heard. The user can then dial 0-9, *, or #, and the call will be distributed accordingly. The greeting describes the options to the user.

TSM INTEGRATION

REDCOM Sigma includes native interoperability with TSM mesh networks, extending voice talk groups beyond the TSM network by linking them with other analog radios and the rest of the C2 network. A simple IP connection to a gateway radio is all that is needed for Sigma to access all of the talk groups on a TSM mesh network. Because each talk group is a virtual radio network, Sigma treats each talk group as its own independent radio net.
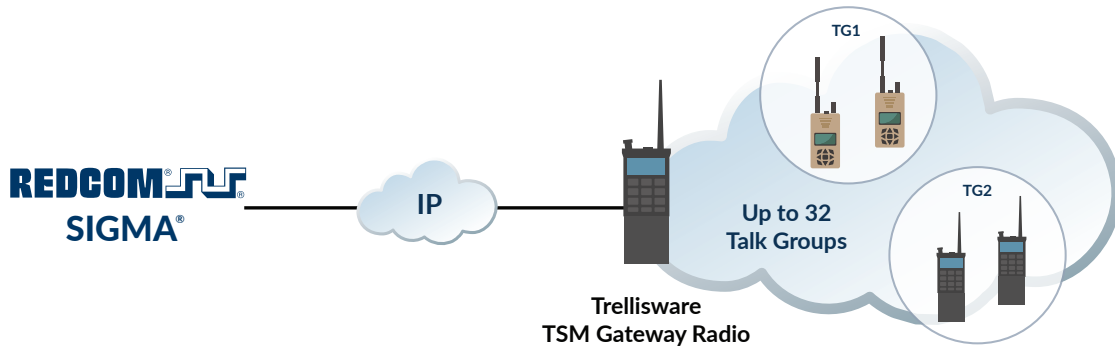
Simultaneous Sigma access to all non-classified talk groups.
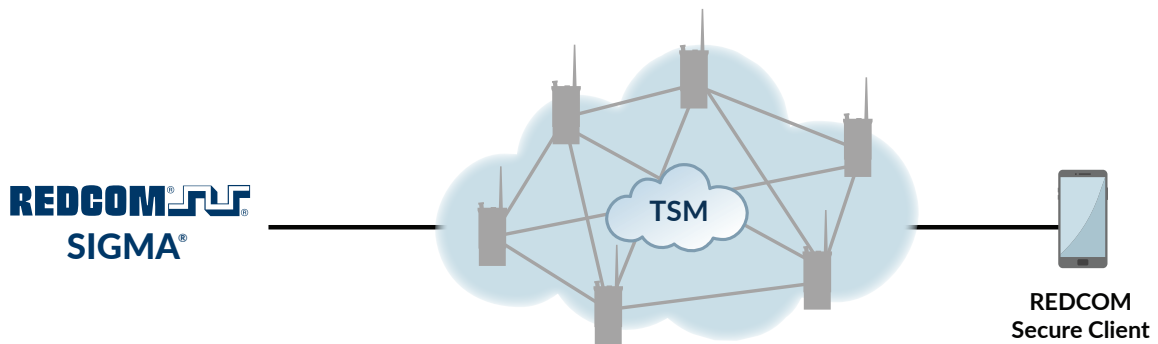
Independent of TSM talk groups

REDCOM SECURE CLIENT

The REDCOM Secure Client is a softphone app for Windows® and Android™ that provides seamless secure communications — including voice, video, and chat with presence — from the convenience of your PC, smartphone, and tablet.

REDCOM Secure Client Key Benefits:

- Secure communications
- Push-to-talk (PTT)
- Full Multi-Level Precedence and Preemption (MLPP) support
- Intuitive user interface
- Dual registration
- Interoperability with industry-standard devices
- Chat functionality
  - Sigma uses Extensible Messaging and Presence Protocol (XMPP) and offers an IRC gateway allowing the Secure Client for Windows App to access both XMPP and IRC chat sessions within one app.
  - Provides one chat interface for all phases of an operation and eliminates the need to jump from mIRC in planning to XMPP during execution. It also diminishes the need for a human relay and allows the ability to stay connected into the constant and critical coordination that takes place on mIRC during an operation. Jabber, Transverse, TAKchat, etc. all use XMPP.
  - Chat panels can be resized, tiled, and moved around, placing the most important chat panels where you want them. Unnecessary elements can be hidden to maximize space for chat panels.
  - Users can flag individual chat messages sent as urgent. This highlights the chat message in red for both the sender and receiver.
  - Users can tag chat rooms with keywords and keyphrases to help certain messages stand out. The app supports local key phrases (unique to the end user) and room key phrases (set by the chat room organizer).

SECURITY POSTURE

REDCOM Sigma includes built in security pre-requisites to simplify management and delivery while decreasing security risks.

- FIPS 140-2 validated with a roadmap for FIPS 140-3.
- Our software goes thorough interoperability and cyber security testing to become certified as a Local Session Controller at JITC.
- We apply DISA STIGs to secure our systems and release a STIG guide for our customers.
- Each version of software is scanned by a NESSUS Tenable scanner and compared to the CVE database to search for vulnerabilities. In both cases, vulnerabilities are promptly addressed and patched.
- Sigma meets National Institute of Science and Technology Risk Management Framework checklist requirements. Sigma evaluated under FIPS 199, SP 800-37 Risk Management Framework establishes the risk of Sigma to "organizational operations, organizational assets, individuals, other organizations, and the Nation due to the potential for unauthorized access, use, disclosure, disruption, modification, or destruction of information or IT" as Low.
- REDCOM is Trade Agreement Act Compliant (TAA). All research, development, and manufacturing are conducted at REDCOM's Victor, New York facility with 167 US Citizen REDCOM employees.

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OPERATIONAL BENEFITS

The Operational Benefits provided by this effort fall under three categories: reduction of lifecycle costs, sparing of resources, and increased resiliency:

1. REDUCTION OF LIFECYCLE COSTS

REDCOM technology reduces lifecycle costs by providing a single platform solution that reduces licensing costs and minimizing support and training requirements. The DoD will reap significant cost savings through the change from the current batch annual licensing to a truly scalable perpetual licensing model. Due to the reduction of hardware and software, the government will reap additional savings by reducing the amount of required training and supporting documentation.

2. SPARING OF RESOURCES

Resource sparing will be realized through the reduction of required contract support as well as Signal resources. The simplified REDCOM solution enables the system to be managed and maintained with organic resources within the unit. In addition to reducing the number of required Signal resources, REDCOM technology minimizes the need to bring contractor support into hazardous areas. REDCOM Sigma effectively spares resources and increases efficiency without impacting effectiveness or resiliency.

3. INCREASED RESILIENCY

Resiliency is a key attribute for any system required for Operations and is realized through distributed management and redundancy. REDCOM Sigma software operating at higher levels is the same software that is used within the Sigma XRI-400 hardware. Due to this distributed architecture and redundant paths, control will be maintained regardless of the loss of communication paths.

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ABOUT REDCOM

REDCOM specializes in the development of advanced strategic, operational, and tactical communication solutions designed to support DoD modernization efforts. REDCOM's MIL-spec products are optimized for low size, weight, and power (SWaP), making them the ideal communications core for deployments to the tactical edge. All REDCOM products are proudly designed, developed, engineered, and supported in the USA. Learn more at www.redcom.com.

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