

Case Study: Composite JTRS Projects  
January 2005 – September 2011

# National Defense Contractor

## Software Communications Architecture

### Original Challenge

Software for the Software Defined Radio (SDR) provides emergency communications capabilities based on Joint Tactical Radio System (JTRS) Software Communications Architecture (SCA). With maximum interoperability, SCA's open system architecture provides an up-to-date, common framework for component management.

One key software component — Cryptographic Security Services (CSS) — controls communications between secure and non-secure portions of the radio. The challenge brought to Genova engineers was to design a software bypass mechanism that would circumvent the CSS to enable emergency communications between secure and non-secure radio boundaries.

### Genova Solution

With 23 Genova individuals working more than 40,000 hours on several combined JTRS projects, we developed applicable radio security service software directly for the SDR. This software interacted with CSS modules by virtually separating secure and unsecure portions of the radio.

Our new programs performed the following high-level functions:

- Supported system functions with cryptographic operations.
- Set an accessible, centralized, and encrypted file system.
- Bridged messages through CSS modules for communication between secure and unsecure software components.
- Developed waveform software.

### Future Benefits

Many organizations developing JTRS software today struggle with the problem of allowing message bypassing through CSS modules. Genova's engineering team established a Software Defined Radio bypass solution that effectively met our client's technological needs. Through a formal verification process, we also designed test plans and successfully tested the outcome.

Genova provided ongoing support for internal groups interacting with the JTRS software. Because of our customer's expressed satisfaction with the initial work we had performed on the SDR program, this client requested assistance from Genova on significant followup contracts and with other related programs.