

Ship-To-Shore Integrated Fire Control

Challenge	Solution	Result
<ul style="list-style-type: none">▪ Limited ship-to-shore integrated fire control training opportunities▪ Travel adds to training costs▪ Link 16 communication complexity	<ul style="list-style-type: none">▪ One system for training and live missions▪ Moveable system supports requirements anywhere▪ User-friendly system simplifies Link 16 communications	<ul style="list-style-type: none">▪ Deliver more training at lower cost▪ Simulate and practice responses to real-world operational environments▪ Dual purpose, portable system used for simulation based training and live missions

Challenge

With integrated fire control, naval ships in missile defense roles can communicate directly with ground-based patriot missile batteries. These direct, ship-to-shore communications eliminate the delays that occur when messages are routed across satellite connections, gateways, and TCP/IP networks to central facilities that pass the message along. In the world of ballistic missile defense, saving time also saves lives.

However, training operators in ship-to-shore integrated fire control is extremely challenging. Some navies have only one training facility for the technology, making it difficult to reserve time on the system. When personnel must travel to a single site from around the world, training time and costs quickly escalate. These restrictions severely limit opportunities to practice these crucial communications.

The challenge is compounded when ships are in dock being outfitted with integrated fire control technology. Depending on the role the ship plays, adding the technology can be a major, time-consuming task. If system operators can't get advance training on the system while the ship is being outfitted, they must wait for the installation to be complete, further delaying the ship's return to live action.

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Solution

Curtiss-Wright understands the need to train naval personnel in ship-to-shore integrated fire control in an easy, efficient, and cost-effective way. We also understand the value of ensuring that systems used for training are identical to those used during live missions. To meet these twin needs, we developed the Curtiss-Wright **TCG GTS® Ground Tactical Data Link System**, an operational tactical data link (TDL) communications station with comprehensive simulation and training capabilities. With the Curtiss-Wright TCG GTS, navies have an all-in-one system that supports:

- Mission rehearsal: Simulate and practice communications for integrated fire control scenarios using the same Link 16 TDL messages as are used in live missions.
- Live missions: Exchange Link 16 messages for integrated fire control with ground-based missile batteries during live ballistic missile operations.

The user-friendly TCG GTS interface makes it fast and easy to learn and use Link 16 communications in simulated and live environments. For maximum flexibility, the TCG GTS is available in single or dual case configurations containing all support equipment for a MIDS-JTRS or MIDS-LVT Link 16 radio and a rack-mounted computer and with dual-screen, pull-out display, or as a desktop system with two monitors. It can be moved from training facilities on land to ships for additional training and for use during live missions.

The TCG GTS is accredited by the U.S. Department of Defense and has full authority to operate when connected to the SIPRNet. The TCG GTS can be designated as the network time reference (NTR) and used in a wide range of training scenarios with virtual assets, command and control functions, and friendly, hostile, and neutral participants. In addition to Link 16, the TCG GTS supports numerous terminals and interfaces, including:

- Link 11
- VMF
- SADL
- JREAP-A
- JREAP-C
- SIMPLE
- ADS-B
- AIS
- DIS

Results

Using a single, moveable system for training and live missions significantly reduces the time and costs required for personnel to travel to remote training sites. Integrated fire control specialists can simulate and practice the required Link 16 communications in realistic scenarios while on land or at sea, anywhere in the world. Training can even continue during live missions so off-duty operators can practice their responses to potential events before they unfold.

Because operators are using the same system for training and for live ship-to-shore integrated fire control, all of the functionality and controls are already very familiar to them. Exchanging Link 16 messages with ground-based missile batteries is second nature, minimizing the risk of delayed reactions and operator errors during live missions.

TCG GTS can also be used to train operators in ship-to-shore communications for integrated fire control while ships are being outfitted with integrated fire control technology. With this approach, operators are ready to efficiently and effectively use the system as soon as it's installed.

Curtiss-Wright's TCG GTS is unique in the industry and has been proven in live missions and training exercises around the world. Our deep understanding of the technologies navies need for ship-to-shore integrated fire control is just one of the reasons we are the trusted, proven leader in defense and aerospace globally.