



National Public Safety Telecommunications Council

Radio Interoperability Best Practices

Best Practice #3: Training and Proficiency in the Management and Usage of Interoperability Equipment and Systems

This Best Practice is part of a larger, ongoing effort on the part of NPSTC to identify best practice recommendations for a variety of topics dealing with interoperability. Readers are encouraged to read the [Radio Interoperability Best Practices Report](#) companion document for a more detailed explanation of the history, development process, and intent of this document.

Best Practice Statement

Radio Interoperability (I/O) equipment and systems should be used and managed only by personnel who have been properly trained and who have demonstrated proficiency with the appropriate technical, operational, and procedural aspects. This Best Practice applies to technicians, responders, dispatchers, and managers, and includes both operational and interoperability issues.

Statement of Importance

Insufficiently trained personnel have incorrectly activated radio gateways/patches, programmed radios incorrectly, and failed to identify readily available interoperability solutions, all of which have led to major communications failures.

Successfully managing the communications aspect of a critical incident involves significant investment by each participating agency – weeks, months, or even years prior to an incident occurring. This investment is not just a budget line item, but rather an investment in human resources and management priority. Personnel with responsibility for interoperability components include:

- The radio and IT technicians (who design, implement, and maintain the solution).
- Users (including communications center dispatchers/telecommunicators, emergency responders, and incident Communications Unit personnel).
- Their supervisors (in their role as instructors, mentors, schedulers, and evaluators), and of course management (overall responsibility for policy and budget).

The common thread is each of those personnel receiving targeted, adequate training for their specific aspect of the interoperability puzzle. The term "adequate" may mean watching a 20-minute awareness video by first responders as part of their training program. It may mean a Communications Center staff member receiving a 4-hour introduction to the region's Tactical Interoperable Communications Plan (TICP). Or it may mean the considerable investment in attending an Incident Communications Technician (COMT) or All-Hazard Communications Unit Leader (COML) course, including the requirement for demonstrated proficiency at exercises or real incidents before becoming fully qualified.

Training on interoperability is multi-faceted. Prior to procurement, the initial and ongoing training and staffing to support interoperable solutions (such as fixed/infrastructure, mobile, or portable equipment) must be addressed. Every department member should receive at least a minimum baseline of awareness training, including terminology and an overview of available resources and assets.

This should include the following:

- A basic understanding of portable and mobile radio features by field personnel including how to change groups/zones/channels, expectations of performance coverage for each channel (especially as it relates to tactical, simplex, or interoperability channels), and troubleshooting.
- Communications center personnel need information on interoperable channel assets and options available during major or multi-jurisdictional incidents and system failures.
- Individuals with basic or intermediate understanding who show a willingness or desire to become more involved should be given opportunities for advanced training regarding interoperability including COMT and COML.
- Personnel who have received incident communications training and those who supervise them should be intimately familiar with their agency and regional Tactical Interoperability Communications Plan (TICP) and Statewide Communications Interoperability Plan (SCIP), and actively participate in their maintenance and revision.

An engineered solution to an interoperability problem is worthless without the proper training of and demonstrated competence by those who use that option in the midst of a critical incident.

Supporting Elements

Successful management of mission critical communications interoperability requires time sensitive action by personnel with very little margin for error. Employees with responsibility for interoperability include agency, contract, and vendor personnel as described below:

- Radio and IT technicians, who develop, implement, deploy, and maintain interoperability equipment/systems.
- Users of the I/O equipment/system; including emergency responders, incident commanders, communications center telecommunicators, and ICS Communications Unit personnel.
- Supervisors in their operational role and as instructors, mentors, schedulers, and evaluators.
- Executive level management staff that provide overall responsibility for policy and budget.

All personnel should receive both orientation and focused training which is appropriate for their specific role. All training provided should result in demonstrated proficiency to the level documented by agency policy.

- Technicians, users, and supervisory personnel need generalized training which provides an overarching view of the interoperability system. This should include:
 - Knowledge of all subscriber unit radios, consoles, gateways, features, and accessories, including recovery (back up) from system failure.
 - Knowledge of radio network infrastructure and capabilities, including specialized interoperability resources managed by the PSAP, dispatch center, and field users.
 - A variety of delivery systems should be developed to supplement formal classroom instruction, including the use of multi-media components to engage the student and maintain their attention. The use of systems that simulate the live environment (or the use of the live environment when appropriate) is recommended.
- Technical personnel, who program, maintain, or repair interoperability equipment and systems need training on existing and/or new systems and system enhancements. This should include:
 - The ability to maintain the systems, troubleshoot problems, program subscriber devices, deploy the equipment, and knowledge of console operations.
 - The ability to demonstrate proficiency in the operation and maintenance of those networks.
 - Training on all relevant RF and network systems and software applications.
- Users need initial **and recurring** training on the proper use of I/O resources and have demonstrated proficiency in effective decision making and operational use of equipment and systems. This shall include:
 - Knowledge of how and when to contact appropriate support personnel when systems do not operate as expected.

- Communications center personnel need specific training and readily accessible information (such as TICPs, Operations Guides, contact information both internal and external to their agency, etc.) on interoperable channel options. This should include-
 - Knowledge of resources, proper usage, coverage area limitations, and console capabilities and functions.
 - Identifying and securing available options or resources during major or multi-jurisdictional incidents or system failures.

SAFECOM Continuum

Training touches every lane of the Continuum which proves its importance in the overall success of any interoperability challenge.

Use Case Example

A police officer is in pursuit of a bank robbery suspect and is approaching the county line where he will lose coverage from his home agency radio system. The home agency dispatcher broadcasts and coordinates with the agencies that may be affected by the pursuit to identify an available interoperability channel which is available in the officer's radio. The channel name and location in the radio is broadcast by the respective dispatcher to their units. The officer accesses the channel and follows appropriate protocol for calling the adjacent county. The dispatch facility in the adjacent county is prepared to take over at the appropriate time.

Agency wide training in interoperability policies and procedures enabled a seamless and successful outcome.

- Corrections, law enforcement, EMS, and fire all have this issue.
- Implementation of this Best Practice also supports incidents in which a first responder is outside of his/her jurisdictional area.
 - First responder selects a preprogrammed interoperability calling channel, which shall be dispatch monitored 24x7x365.
 - Dispatch may need to activate, and, in some cases, disable, repeaters to provide radio coverage for multiple responders as they travel in and out of coverage.
- During a planned event, an incident occurs and additional communications resources are needed.
 - The Communications Unit Leader (COML) is trained to contact the Communications Coordinator (COMC) at the dispatch center to coordinate for available interoperability resources.
 - Communication Centers are trained to patch an operational channel to an interoperability resource if needed.
 - ICS205 form should be prepared in advance and list the available channels.

Migration Path

This Training Best Practice can be both the easiest and most important of all of the Best Practices to implement. Most agencies already have a training program in place into which this Best Practice can be incorporated.

Agencies may adopt this Best Practice statement by taking incremental steps:

- **Establish policies** for supporting the best practice.
 - Management with the overall responsibility for interoperability, meets with colleagues and established groups and organizations (such as the SIEC) to determine any existing plans or programs.
- Develop a **training plan** which ensures that all department personnel receive baseline training, with some persons identified for advanced training, as relevant to their position.
 - Involve supervisory personnel in the development process to ensure consistency regarding participation and evaluation.
 - Existing DHS/FEMA/NWCG training courses and materials should be used which support a national/international standard.
 - FCC rules and regulations for use of communication resources should be followed.
 - In addition to necessary changes as situations develop, established training plans should be reviewed and revised annually.
 - Communications Center personnel are a critical component of a successful interoperability solution.
- Provide **initial training** to agency personnel.
 - Documentation of this training should be retained by the agency and the employee.
- Establish performance objectives and evaluation criteria to document each **employee's proficiency** in using I/O systems.
 - Employees who have been trained on the use of I/O systems are then individually assessed to demonstrate proficiency.
 - Documentation of their proficiency level should be retained by the agency and the employee.
- Implement a schedule for **recurring training** for all personnel.¹
 - Operability and interoperability training can be incorporated into other existing training programs.
- Develop a **regional approach** to interoperability training to ensure consistency.
 - Regional approach to training should be reviewed on a recurring basis.
 - Agencies which may become involved in an interoperability incident should be encouraged to participate in initial and recurring training and exercises.

¹ Executive level management staff, Users of the I/O equipment/system, Supervisors, and Radio and IT technicians should all receive recurring training consistent with the level of initial training received.

- Effective communications between agencies is critical during incidents and should be stressed during training exercises

Related Documents

The following links point to reference materials were used in developing this Best Practice or otherwise referenced in the document. Additional supporting documents can be found on the Best Practice Working Group page on the NPSTC website at www.NPSTC.org or by joining NPSTC Committees Community on the National Interoperability Information eXchange at www.NIIX.org.²

[Radio Interoperability Best Practices Report](#)

[Navy Yard Shooting - DC Police After Action Report](#)

[NIFOG](#)

[Colorado Interoperability Web Training Module 1](#)

[Colorado Interoperability Training Program - Module 2 Interoperability Basics](#)

[Yarnell Hill Fire After Action Report](#)

[Tactical Interoperable Communications Plan \(TICP\) Template](#)

[ICS Form 205](#)

[Florida Region 9 Plan](#)

State Interoperability Statewide Communications Interoperability Plans³

[ANSI Common Channel Naming Standard](#)

[NPSTC Intrastate Channel Naming Recommendations](#)

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Contributors List

Numerous members of the Radio Interoperability Best Practices Working Group representing the public safety, government, academia, and industry communities contributed to the creation and review of this document.

² Select Interoperability Committee -> Best Practices -> Shared Documents

³ www.npstc.org -> Resources -> Broadband Directory -> Organizations -> National Council of Statewide Interoperability Coordinators (NCSWIC) -> SCIPs

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