

Flash Drills

Create opportunities for your group to practice skills and prepare for an emergency situation.

Mike Pulley, WB4ZKA

Disaster simulations on the air are far too valuable for training to be relegated to an annual Simulated Emergency Test (SET) every October. However, a worthwhile simulation can be hard to design and conduct more often than that. Flash drills solve that problem so simulations can happen more frequently. They remain interesting and challenging, and exercise decision making and Incident Command System (ICS) principles, not just net protocols in the field.

Field Cell Structure

A unique feature of flash drills is that they're designed in small, manageable cells or modules of deployed and non-deployed role players located near one another, as shown in Figure 1. Each module has a leader, much like we're taught in the ICS. They are the Drill Facilitator for that cell and are responsible for the hams who take care of the simulated disaster.

We're not necessarily conducting an ICS simulation but borrowing the principles so they're familiar when trouble strikes. We're not in charge; we're in service, but we practice principles of modularity, management by objectives, span of control, and other fundamentals that make the ICS so powerful.

Each Drill Facilitator gives out assignments in advance, knows where each role player is and what skills and capabilities each role player has and wants to learn, and visits each role player during the drill. The Drill Facilitator assumes a mobile tactical call sign, a role that is expected to move around solving problems in a disaster.

The Drill Facilitator designs the cell's role-play instructions. As more hams sign up to participate, more Drill Facilitators should be acquired and spawn off cells using the same role-play material. There won't be repetitious duplication on the net because each role player's tactical call sign, traffic, and issues will be different from other hams with the same roles. This cell architecture makes flash drills scalable, so with one set of planning materials, drills can involve only a half dozen or up to several dozen role players.



Listen to Mike, WB4ZKA and his team tackle a flash drill in the digital edition of QST (www.arrl.org/qst).

In addition to the cells, role players need to exchange traffic with the other cell role players. For example, evacuation shelters need to talk with the American Red Cross chapter, someone at a downed power line needs to talk to a utility company liaison and maybe the police for traffic control, and someone monitoring a flooded stream crossing needs to talk to the Flood Control Department liaison at the county Emergency Operations Center (EOC). These role-play instructions are reusable for next time, so no preparation time is wasted.

Drills, Not Performances

One way to design a simulation is to give the role players scripts to read in sequence, like a stage play, which sounds good in theory but you're really only exercising the role player's ability to read aloud over the air. That's a performance, not a drill. Disasters don't come with scripts.

In contrast, flash drills provide instructions and objectives, not scripts, so role players learn to improvise. For instance, the role player is instructed to report when they're on the station. It's up to them to know (or learn) how to check into a net, receive a tactical call sign, note what other stations are on the net, get

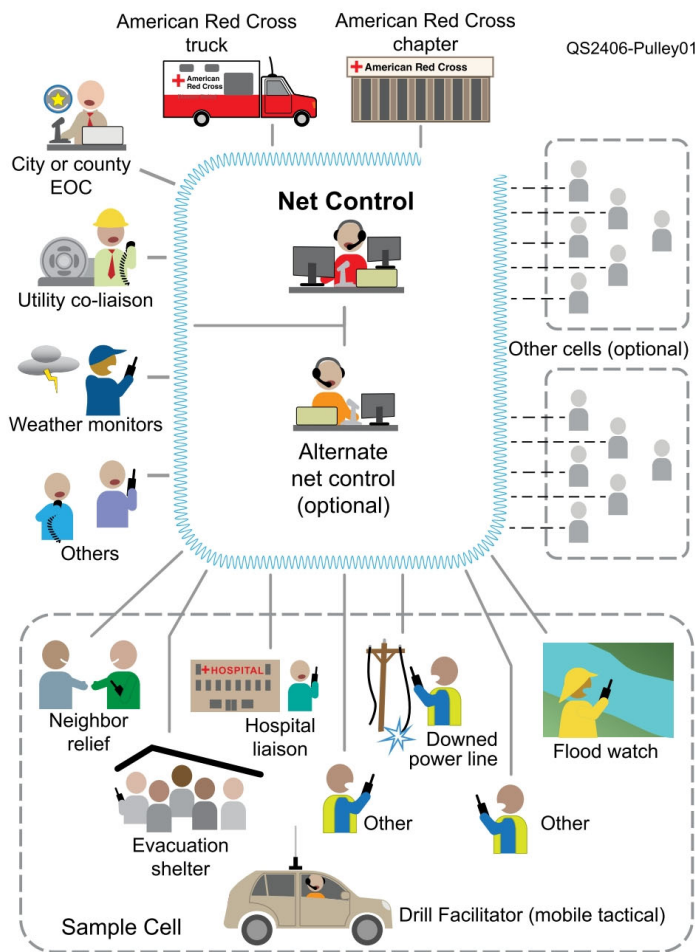


Figure 1 — A sample flash drill tactical net for a destructive storm. Expand the simulation by adding more cells. Design the cells and roles to complement your simulated disaster. You can have multiple evacuation shelters, hospital liaisons, or other roles within a cell, too. Cells don't have to be identical, just manageable by a Drill Facilitator.

net control's attention using their assigned tactical call sign, give their report succinctly and clearly, and close with their FCC call sign. If it's not second nature, it can be challenging. So, we tell them what they need to accomplish but not how. They get to learn these skills for next time.

By not scripting traffic, the role player has more information than they need, and they have to decide what to do with it. Do they blindly blurt out everything they know? If not, what do they report, and what do they keep to themselves unless asked? They must grasp what is important in the moment. Making useful traffic is much more than just saying it clearly over the air.

Furthermore, every flash drill is an exercise for net control and the Drill Facilitators, too. They don't know everything that will happen or when. Their job is to handle whatever comes up. No two drills are the same, based on who participates and what assignments

they're given. So, it's a true drill for these leaders, too.

The results will probably amaze you. Your people will figure out how to adapt and overcome, but mistakes and failures will happen. A simulation is the right place for failures when life, limb, and property don't hang in the balance. So, embrace the mistakes, laugh at the funny ones, and learn and improve for next time.

Directed, Deliberate, and Actionable

One of the central aims of flash drills is to encourage role players to think before keying the mic button. The explanations for the following terms illustrate the importance of learning to make directed, deliberate, and actionable message traffic:

Directed — Who needs to receive your message? Or whom do you need to get information from? Just blurting out to net control isn't usually the answer. For instance, it's best if the role player begins their exchange with "I request direct with county EOC" so net control can connect those two parties and the message can be said once, not fumbled through several hands. Net control has no business relaying a message between stations; their job is to connect those two and let them handle their business directly.

Deliberate — Why does that person need your message? What parts of it do they really need, and what parts are useless to them? Leave out the useless parts.

Actionable — What do you want to happen as a result of your information? Don't throw traffic onto the net and hope someone will guess what to do about it. Tell the station what you want them to do up front.

Use the following command-tense verbs to communicate more effectively:

- Begin your message with "Be advised" if you just want them to know what you are going to say, but not necessarily do anything about it.
- Use "Notify" when you want them to pass your message to someone, such as an evacuation shelter captain.
- If you want the American Red Cross chapter to send more coffee cups, then say, "Send 250 coffee cups to this shelter by 5 AM tomorrow morning." Be specific.

Learn the list of other common command words, such as "confirm," "say again," "acknowledge," and "disregard." They pack a lot of information. Know what you want, and learn to say it clearly.

Directed, deliberate, and actionable traffic is foreign to most hams. Outside of disasters and drills, hams usually make social connections or staccato contest exchanges. They must be trained on the notion of radio with a purpose. A real communicator has a reason to key up and knows how to give or get the help they need.

Keep It Challenging

Because it's not a scripted performance, give every ham a challenging (but not overwhelming) job that can teach them something by doing. Flash drill role-play instructions are designed around a list of training objectives broken into beginner, intermediate, and advanced emergency communications topics. Each category has five levels of increasing skills, capabilities, and responsibilities to master.

Level 1 for beginners focuses on mastering simulation role play, basic net operations, VHF/UHF repeater operations, and making routine reports to the net. Deployed beginner role players get to exercise basic portable operations. They'll be assigned to a simulated evacuation shelter, flooded crossing, a power line that is down, or some other portable role. They'll operate from a school, church, park, or hospital near their home. Non-deployed role players get to practice base station operations. They'll be assigned to simulate a portable role or play a fixed role like an American Red Cross chapter, telephone liaison, or National Weather Service weather monitor.

Intermediate and advanced role players get to do more, from deploying a significant field antenna, passing formal message (radiogram) traffic, leading a field team, operating digital modes on VHF/UHF and HF, to serving as net control.

Each level has different traffic to handle, so even though a ham may simulate an evacuation shelter every time, their traffic will change as they advance up the skill ladder. That helps prevent flash drills from becoming predictable.

What You Need to Craft a Flash Drill

Once you grasp the basic nature of flash drills (the scalable field cell structure, deployed and non-deployed roles, reusable instructions and not scripts, and prescribed training levels), you only need the fiction writer's craft. You are, after all, writing a story for each role player to improvise.

Put yourself in the role, and craft realistic stories that an evacuation shelter might have that require on-air business with a net, an American Red Cross chapter,

or other evacuation sites, and write scenarios that produce useful, relevant message traffic. Include a way to make each person's traffic details different for each role. It can be fun if you have a knack for fiction writing. If you don't, recruit someone who does.

An Hour Well Spent

In the Phoenix, Arizona, area, flash drills run for a single hour. The short time lends urgency to the net — the same feelings that will surface when people and property are really at stake. Adrenaline threatens to unravel you. Learning how to stay calm under stress separates the amateurs in the worst sense from the reliable amateur radio professionals.

For instance, we don't pre-assign tactical call signs. We assign them as stations check in during the simulation, just like it happens in an unfolding disaster. When time is short, and everyone needs the net's help, tensions rise as the net struggles to wrest order from the jaws of chaos. Then traffic can flow.

When the hour is up, regardless of any traffic still pending, we close the drill. Because several stations are deployed, we review what went well and what we could improve while tracking everyone safely back to their homes.

We learn about as much as we can absorb in the hour, and it lets the role players know what time commitment they're signing up for. We've found that longer isn't necessarily better. I confess it took us months to learn how to organize ourselves quickly and then get to the traffic at hand, but we eventually learned.

A World with Affordable Simulations

When disaster simulations are relatively cheap to produce, you can elect to have one a month. All year, you can get the excitement, training, and experience your group needs without burning out the organizers. As the group becomes more efficient, more traffic is handled, and more issues are identified and resolved before the hour expires. Hams grow to fill more responsible roles. The improvements become tangible and measurable.

Spark your fellow hams' imaginations by making the disaster and the stories they play out relevant to what they could likely encounter. Simulate what you would like everyone to gain some 20/20 hindsight on before it actually happens. Your disaster could simulate destruction from a hurricane, a tornado, a microburst, floods, mudslides, a paralyzing winter storm, a burp cloud from a thermonuclear power plant, a train derailment, a multi-vehicle highway pileup that overwhelms local

services, or a ruptured gas line. You could rescue a lost hiker or exercise evacuations for wildfires (possibly including livestock rescue). Maybe build a simulation around Field Day. Sometimes, simulating a calm, routine bicycle or foot race public service event might be a nice change of pace, especially just before the start of the season for such events in your region. Pick your disasters based on what's likely to happen in your area, and mix it up to avoid getting into a rut.

You can find the beginner role-play instructions we've used on the *QST* in Depth web page at www.arrl.org/qst-in-depth to start conducting your own flash drills. You can see the format that has worked well for us, sample net control logs, and other types of assignments. Training objectives for each role-player level are also available so they can have fun, benefit from the situation, and come back next time.

When trouble strikes, you won't have to make everything up on the fly or try to remember what you heard in a classroom or on a discussion net. You've practiced for this very day. Best of all, everyone gets to have a good time honing their skills on something that matters in the company of others doing the same. That's radio with a purpose!

See *QST* in Depth for More!

Visit www.arrl.org/qst-in-depth for the following supplementary materials and updates:

- Flash drill portable operations exercises from various locations
- Net control logs and scripts
- Role-play instructions for various roles
- Sample odometer reading files for various locations

ARRL Life Member Mike Pulley, WB4ZKA, cut his emergency communications teeth on the tornadoes of Alabama. At age 16, he served as net control on the night of the 1974 Super Outbreak, the most violent tornado outbreak ever recorded at the time. Mike has lived, volunteered, and helped train ham volunteers in the Phoenix, Arizona, area for more than 30 years. He invented flash drills to bridge the gap between emergency events and the realities of disaster communications. Mike also invented the exercise-based Arizona Emergency Net — Maricopa (see "Reviving Your ARES Training Net" in the September 2016 issue of *QST*) to help train ham volunteers for public service. He led this net for more than a decade. For a limited time only, Mike is willing to help develop flash drills for your group. Contact him directly at Mike.J.Pulley@cox.net.

For updates to this article, see the *QST* Feedback page at www.arrl.org/feedback.



New Products

Radio Separation Kit

SwapMyRigs (SMR) now has a radio separation system in kit form! The kit lets you swap radios without ever having to install new cables. By routing all the conductors through a common VGA cable, any radio with industry-standard RJ connectors can be installed or replaced without using manufacturers' proprietary, multi-cable separation systems. The photo below shows all the parts included in the kit. No soldering is required; all circuit boards are fully populated and soldered. Assembly requires only common tools.

The patented SMR kits are sold in pairs and include a 15-foot VGA cable with all the shunts and jumpers necessary for configuring the units for supported transceivers. The kit is substantially cheaper compared to assembled and configured units. The chart below shows a list of supported radios and tested separations. For more information or to purchase, please visit www.swapmyrigs.com.



Radios & Tested Separation					
Yaesu		Kenwood	ICOM		
FT-891	100'	TM-D710A/G	75'	ID-880H	15'†
FT-857	75'	TM-V71	75'	IC-2720/30H	100'
FTM-350	75'	TS-480	100'	IC-2820H	25'
FTM-100/400	90'	TM-D700	100'	ID-5100	100'
FTM-200/300	15'†	TS-2000	100'	ID-4100	65'
FTM-500/6000	15'†			IC-7100	100'
FT-7-8xxx*	100'				

† Tested with 15' VGA cable only

*Also TYT TH-9800

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