QNI—THE NTS NEWSLETTER

OCTOBER 30, 2012

THE DIGITAL FUTURE

It is common for some to view technologies as mutually exclusive. Consider the telegraph. Tom Standage, author of "The Victorian Internet" makes an error common to those without first-hand experience in the industry when he infers that the invention of the telephone rendered the telegraph obsolete. Unfortunately, the uninformed reader is likely to walk away with the impression that telegraphy disappeared in the 1870s or 1880s shortly after the first telephone networks were established.

Yet, the history of telegraphy extended well past the invention of the telephone. Some commercial land-line Morse circuits in the United States remained in operation until the mid 1980s! Even the phone company utilized manual Morse circuits extensively for its own operations through the 1950s!

Digital communications has come a long way!

It is a similar mutually exclusive view of technologies, which tends to distort the perception of some ham radio operators. On one hand, some tend to see digital methods as the only path to the future, rendering traditional modes obsolete. Yet others see digital methods, such as the WinLink2000 System and radio-email as the "enemy," which will displace their favorite voice or CW net. In reality, neither view is likely correct.

NTSD, the WinLInk2000 System, and other radio-email programs are certainly part of our future. They can co-exist nicely with CW and voice methods while providing additional robust circuit capacity and automation ideal for supporting major disaster operations. Such methods should be viewed as complimentary and beneficial as opposed to being seen as a threat. All that is required for new and old methods to work together is good, insightful management and cooperation. This issue is dedicated primarily to the purpose of introducing NTS members to these new and promising techniques.

VOLUME 1, ISSUE 2

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Special NTS-Digital Issue

QNI MISSION STATEMENT

QNI is an *independent* newsletter dedicated to promoting NTS and genuine emergency communications preparedness.

Our newsletter is independently published and distributed free of charge to the Amateur Radio and emergency management community. The opinions contained herein do not reflect the policies or opinions of the *ARRL*, the National Association for Amateur Radio, nor those of any particular NTS net or emergency communications organization.

Our mission is to provide a forum for NTS volunteers throughout North America. We operate on the premise that Amateur Radio public service volunteers should be, first and foremost, communicators and technicians. If you share this vision, please support *QNI*. Submit your news and articles for publication.

An Introduction to NTSD

By Chuck Verdon, W5KAV

The National Traffic System Digital (NTSD) is one arm of the National Traffic System (NTS), which is the traffic arm of ARES. The NTS transmits messages traffic via voice and CW nets, and through the NTSD. In the absence of emergencies or disasters, all parts of the NTS are kept well-oiled and operational through daily exercise, using routine messages, for stations to hone their skills and keep equipment in working order.

In the event of an emergency or disaster, NTS and NTSD can move health and welfare messages or emergency traffic within an ARRL Section, Region, Area, or between Areas using both traditional nets and digital means. The NTSD is capable of handling larger volumes of traffic than the traditional nets and can operate error-free, aside from errors present at input ("Garbage In-Garbage Out").

Although many would-be participants are deterred by the high cost of a PACTOR III modem, many other options are available for those wishing to establish NTSD capabilities. A PACTOR I modem such as a PK232 MBX, certain models of the Kantronics "KAM," or a sound-card device such as a "SignaLink USB" used with WINMOR software, can be used to connect to the Winlink2000 (WL2K) System. Many of these items can be purchased at hamfests for $50 or less. The needed cables can be built or found at swap-meets.

The cost of used desktop or laptop computers may range from free from a friend, to a low priced unit purchased used or from a discount retailer. Most of the needed software runs on Windows-95 or newer platforms.

Options are available for running a NTSD station without infrastructure power, using batteries, a generator and/or a solar panel. If you have a car or truck, which is not running on vapors, you have fuel on hand for a generator.

NTSD Area Digital Hubs

NTSD has a structure that is similar to the traditional NTS net structure. The Area Digital Hubs correspond to the Pacific, Central and Eastern Area Nets. These hubs handle traffic in bulk between NTS Areas, throughout the United States (including Alaska and Hawaii) and Canada. Each area hub has at least one alternate station. Each of the Area hubs uses a store-and-forward message board operation (MBO) system, using Winlink Classic Software and running PACTOR I, II or III modes. These hub stations scan multiple frequencies 24 hours per day, 7 days per week, stopping only to transfer traffic with another Area hub or a Region hub within their Area. The operation, including traffic routing, is automatic and generally does not require any operator intervention.

All hubs also use the Winlink 2000 System to send and receive traffic in the form of radio-email. Radio-email can pass from radio to the Internet and vice versa via a gateway station. It may be in email format or it may carry formal NTS radiograms. Small file attachments, consistent with amateur radio bandwidth limitations, may also be sent. HF PACTOR, VHF packet, and Telnet (conventional Internet all the way) may be used, with RMS Express, RMS Packet or Airmail software.

NTSD Region Digital Hubs

NTSD Region Digital Hubs use the same hardware, software, and mode selection methods as the Area hubs, taking traffic for their Region and sending out long-haul messages. Like the Area hubs, the Region hubs perpetually scan multiple frequencies, automatically routing the traffic and making the appropriate connections to further the messages on their way. Agencies served by ARES, that are equipped to use the Winlink 2000 System may also send and receive their traffic directly via the NTSD, telnet or radio-email by connecting to any station designated as a NTSD Target Station within their own Region or Area, unless there is a disaster or emergency, at which time they may connect to any available NTSD target station.

Digital Relay Stations

Digital Relay Stations (DRS) operate at the state or section level, either scanning as the hubs do, or by connecting once or twice a day to exchange traffic. Messages are automatically routed to them by the Region hub. In the case of routine traffic, the DRS operator may deliver the traffic or may take it to Local NTS nets for distribution.

As with the manual NTS nets, long-haul traffic flows "up" from the Local, Section and Region level to the Area level. It then passes between the Areas and back "down" to the Region, Section and Local levels for delivery. Area hubs handle large volumes of traffic on PACTOR III. Region hubs serve to/from the DRS, who may be using PACTOR I, which, while nonetheless an effective mode, takes much more time.

A major advantage of NTSD is that traffic may be posted at any time of the day or night, independent of NTS net times. The traffic is transferred automatically and very quickly to the Region hub closest to its destination, where it waits for a DRS to pick it up.

WinLink2000 Target Stations

Radio-email is relatively new development in NTS. The Winlink 2000 System Target Stations are another line of defense for forwarding or relaying radio-email traffic if there is a total failure of the Internet. Also, the addition of the WL2K radio-email layer for NTS/NTSD stations enables all ARES®, NTS and NTSD stations to intercommunicate on a common network when needed. For this reason, the ARRL NTS Methods and Practices Guidelines (PSCM Appendix B), Chapter 6 has been revised to include WL2K System functions. This capability not only benefits the NTS and NTSD, but also allows ARES and served agencies to send and receive traffic in familiar email format, via amateur radio, when the infrastructure is compromised.

Within this structure, different types of target stations have been defined from the Section level up thought the Area level. In the future, you will see a national database through which stations can check to see which stations within their section, state or area are available for connections to target stations. This data base will be available both through the Internet as well as through digital connects over HF and VHF. Until then, the three Area Digital Hubs, WB2FTX (Eastern), KB0OFD (Central) and W5KAV are the points of contact as WL2K System target stations .

When no other route is open, Section Target Stations will provide a WL2K System destination for communication with section leadership, connecting them with ARRL Headquarters, government and non-government agencies that may be responding to a disaster. Target stations are expected to be able to expedite time-sensitive traffic either on nets, via the WL2K System or via NTSD. The Target stations will also be the Section Manager's primary contact for out-going traffic in a disaster.

Target Stations need to have the ability to connect to the Winink2000 System without infrastructure. This could be via HF PACTOR, I II or III, or VHF packet along with WINMOR software.

NTSD Leadership

As with the classical NTS, the NTSD leadership consists of three Area Digital Coordinators representing each of the NTS Areas. These Digital Coordinators are part of the Area Staff, and function under the National Traffic System Area Chairpersons. They are elected by the NTS Area Staff where they serve. The NTS Area Staff consists of net managers, voting members, and non-voting members as defined under the *General Procedures* sections of the *NTS Terms of Reference (NTS TOR),* attached to the *PSCM* as *Appendix A.*

NTSD Equipment Bank

For operators who may be interested in getting started with digital traffic, the NTSD operates an Equipment Bank. PACTOR I capable TNCs and packet TNCs are available for loan until such time as the operator either quits NTSD or upgrades to using his own equipment. The Equipment Bank is always looking for donations of equipment or cash to further their program.

Get Involved

Getting involved is easy! Any of the Area Digital Coordinators can put you in touch with a NTSD station operator nearby who can help configure your system. Believe it or not, these so-called "Digital Sysops" do not have two heads and four arms! Yes! They may make your head spin around from time to time with all the information, but they are a friendly group always willing to help.

Amateurs who would like to get involved with the National Traffic System Digital (NTSD) should contact the Area Digital Coordinator either by email, through the WinLink2000 System, or send a radiogram to:

Eastern Area

David Struebel WB2FTX
wb2ftx@optonline.net
WB2FTX@WinLink.org

Central Area

Gary Jones KB0OFD
kb0ofd@centurytel.net
kb0ofd@WinLink.org

Pacific Area

Chuck Verdon W5KAV
Chuckw5kav@comcast.org
W5KAV@arrl.net
w5kav@WinLink.org

A Big Signal

By Jim Wades, WB8SIW

Let's face facts. Many of our fellow traffic handlers have poor signals. Unlike the contester or DX-hound, who will often invest countless hours improving his antenna system, many of our fellow NTS members simply toss a wire in a nearby tree and hope for the best.

Of course, it is much easier to squeeze gain and directivity from an antenna system arranged for 20 meters than it is on 80 meters, where most traffic work takes place. Yet, a traffic handler of modest means can have a good antenna system, even on a modest suburban lot.

Recently, the author made a commitment to put up a decent antenna for traffic work and emergency communications. In the process, a decision was made to return to an old reliable antenna system, with which great success was had in the past: *the horizontal full-wave loop*.

This antenna offers some real advantages. On 80 meters, it offers many of the characteristics of a NVIS antenna, making it ideal for Section and Region Nets. On 40 meters and higher, it begins to exhibit a bit of gain and a lower angle of radiation. One can even successfully compete in pile-ups on 20-meters and up, when chasing a bit of DX.

Being blessed with a fairly deep yard, lined with some very nice mature trees, a horizontal full-wave loop was a great solution. No particular effort was made to ensure resonance at a particular frequency. Rather, the "space available default frequency" was used, which in this case resolved to approximately 2.5 MHz. Nonetheless with a good quality tuner and ladder line, the antenna works great on any ham band.

Shortly after placing the antenna in service, signal reports of 20 db over S-9 were not uncommon on the Michigan "QMN" CW net. This was a bit better than the temporary "rain gutter" antenna with which I had been torturing my fellow NTS members for several months.

Planning the installation:

The first step was to plan the installation. A tour of the yard resulted in a plan incorporating seven suitable trees for support. Once these trees were identified, a sketch was made and the dimensions were "walked off" using a measuring wheel. As it turned out, the total length of the loop antenna would be approximately 414-feet, or roughly the circumference of the yard.

The parts and materials:

Once the length of the antenna was known, a 500-foot spool of antenna wire and a 350-foot roll of good-quality nylon antenna rope were procured from "DX Engineering." Since I'm a horse owner, electric fence insulators and porcelain stand-off insulators were readily available lying about the barn as well as through retail outlets such as "Rural King" or "Tractor Supply." Here you will typically find good, serviceable strain insulators and porcelain stand-offs for considerably less than one pays at some electronics stores.

Electric Fence Insulator

The "Ladder-Loc"

Examine the failure modes associated with a typical open-wire feeder, and one will note that the point where ladder line connects to a wire antenna is always problematic. Fortunately, the creativity of man is practically limitless and someone has come up with an elegant and simple solution to this problem. It is called the "Ladder Loc" by WA1FFL and it is available through the usual ham radio suppliers. This device makes a secure reliable connection between ladder line and the loop antenna a breeze! Add a few pulleys, some tie wraps, and the tool box, and one is good to go!

Once a box full of materials was assembled, the only problem remaining to be solved was that age-old question of "how to get the antenna way up in the trees?" Fortunately, I regularly do business with a natural resources supply company called "Ben Meadows." One of their products is an "arborist's throw bag." Essentially, it is a small leather bag full of shot, which is the ideal weight for launching over a branch. It comes equipped with a very light-weight rope called "slick-line," which is ideal for hoisting one's permanent rope and antenna up into the tree. Using the arborist's throw bag, I can attain any reasonable height in a tree, and I can typically hit the point I am looking for on the first try. Using this device, heights of 60 feet or more are attainable without resorting to expensive compressed air guns, the bow and arrow, the fly rod, or the "retriever trainer." Best of all, the throw bag is ideal for deploying portable antennas during emergencies, ARRL Field Day, camping trips and so forth.

The Arborist's Throw Bag

Hanging the antenna:

Total installation time for hanging up the horizontal loop was less than three hours. On one end of the loop, the height is about 60-feet. It then slopes downward in the vertical plane to about 20 feet on the other end to avoid a power line service drop and similar obstructions. The loop itself is probably more

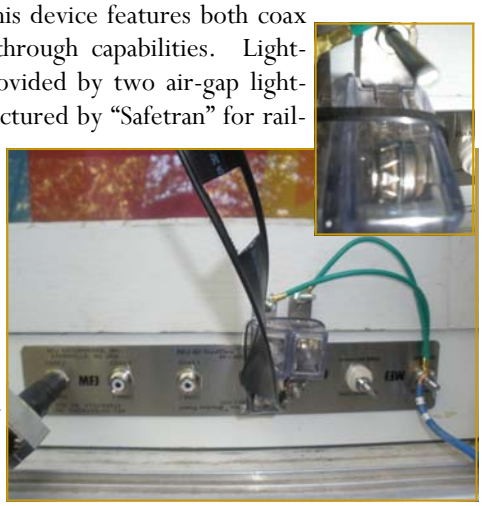
rectangular than square or circular, but it still performs well. Two opposite locations are supported by a pulley and weight arrangement to allow the antenna to absorb the stresses, which occur when trees flex in high winds. Old-time sash weights or a few "plates" of the type used with weight training bar bells are ideal.

Stealth:

The antenna is essentially invisible. As a matter of fact, I have a very hard time seeing it, and I know where to look. Unless the neighbors see you installing it, they will likely never know it's there. The use of black insulators, black wire, and black rope seems to camouflage the antenna quite nicely against the sky and background.

The lead-in:

A MFJ-4602 antenna feed-through panel was used at a window in a spare bedroom. This device features both coax and open-wire feed-through capabilities. Lightning protection is provided by two air-gap lightning arrestors manufactured by "Safetran" for railroad signaling purposes. These air-gap arresters are well suited to the RF voltages associated with my 100 to 150-watt transmitter power output. They provide a first-line of defense should lightning strike a nearby tree and conduct to the antenna. A length of Number 6 "blue flex" railroad signal cable runs to the ground rod.



Lead-in panel showing lightning arrestor along with close-up view of arrestor

In the end, I have an excellent antenna for HF communications in general, but which is ideally suited for traffic work. Total cost for the installation including shipping costs for the parts and materials was approximately $250.00

If you are looking for an easy way to get that "big signal" for traffic work, a horizontal loop may be just the ticket.

Remember. Whether one operates CW, voice, or digital, a good signal is essential to facilitating reliable communications under all propagation conditions. Neither scheduled nets nor disasters wait for optimum conditions. Furthermore, the traffic operator must meet a challenge not confronted by the casual DXer, which is the requirement to communicate over a *specific* distance at *specific* times and to clear message traffic with all of its variations *accurately* regardless of conditions.

Costs associated with the project:

WA1FFL "Ladder Loc"	$	12.95
DX Engineering Rope SYN-DBR-187-350	$	41.95
DX Eng. 14 ga. Wire DXE-ANTW-500	$	74.95
Two light-duty pulleys (Lowes)	$	15.00
Fi-Shock screw-in insulator, TSC 3600655	$	3.00
Zerba corner fence insulator (six) pack Note: A variety of different types available	$	7.95
Weaver Arborist's Throw Bag Note: Ben Meadows No. 146875	$	28.90
MFJ-4602 feed through panel	$	69.95
TOTAL:	$	225.75

Here are some useful web sites:

DX Engineering: www.dxengineering.com

WA1FFL: *www.wa1ffl.com/ladderloc.html*

Ben Meadows: *www.benmeadows.com*

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A Not-So-Idle Committee

By James Wades, WB8SIW

In the September issue of *QNI*, I posted a brief opinion article suggesting that NTS needs a committee to develop a vision for the future as well as a road-map to achieve success. It turns out such a committee does exist, but many of us know little about it. As a result of this comment, I received the following information from Al Nollmeyer, W3YVQ:

> "With respect to the comments regarding the management of the NTS and NTSD, I suggest that they are welcome to send comments to the Chairs of the NTS and the ADCs respectively. A decade of work has already been completed to consider the future of the NTS; the objectives and guidance for modernization articulated in the New MPG-6, and operating guidance articulated in the NTS Methods and Practices Guidelines posted in the PSCM Appendix B. The NTS staff above section level, as well as STMs serving on that staff, consider and implement policies for the operation of the NTS, NTSD, and Radio-email systems."

David Struebel, WB2FTX, who also serves on the Committee added the following:

"As suggested, you, as well as any other interested parties are welcome to attend the weekly Echolink conference of the committee which is held every Wednesday evening at 8 PM Eastern time on the KI4WWI Echolink node. Alternate Echolink nodes are W3YVQ and WX4J in that order.

Also any ideas or comments that anyone might have on the operation of the NTS, NTSD, and Radio-email systems can be submitted to the committee. "

Obviously, these individuals are putting some real effort into preserving and promoting NTS. However, one might be tempted to ask why so many traffic handlers have no idea about the decisions making process carried out by this Committee? Of course, the answer is that it is largely invisible to the broader Amateur Radio community. There is rarely any mention of its existence in "QST." There is no publication, print or on-line, which regularly posts information about these meetings in the form of a report or summary.

While the existence and hard work of this Committee is commendable, such activities should not operate in a vacuum, even if such a "vacuum" is entirely unintentional. The "grass roots" of a volunteer organization must at the very least be aware of the process. The rank and file member must feel like he has the *option* to contribute to the discussion if he so chooses. By doing so, the average member feels as if he is invested in the process. Such personal investment results in better support for Committee initiatives and a sense of "team work" for the entire NTS program.

This situation points to the need for a publication like *QNI*. In the future, we will cover these Committee meetings in the same way your local newspaper or television station covers legislative meetings. Discussions of note will be summarized and decisions will be reported so that interested NTS members can be made aware of the choices that affect them.

As indicated by WB2FTX, NTS members are welcome to offer comments, ideas, and suggestions to the Committee via the NTS Area Chairs. When doing so, however, it is recommended that one be judicious. After all, these individuals are volunteers, and we must use their time wisely. However, if one has constructive ideas or positive input that applies to the process, one should make his or her voice heard.

Here are the email addresses for the NTS Area Chairs:

Marcia Ford, Eastern Area Chair: kw1u@arrl.net

Richard Webb, Central Area Chair: nf5b@arrl.net

Robert Griffin, Pacific Area Chair: k6yr@arrl.org

How do our served agencies communicate?

By James Wades, WB8SIW

Now and then, it is wise to set aside some time to be an observer, rather than a participant in the World around oneself. For example, take some time and watch as the proverbial "world passes by," then ask yourself "how do people communicate?"

In the short period of a decade, the relationship between the average person and telecommunications technology has shifted dramatically. Consider these points:

1. Most individuals expect information to arrive almost immediately. Email and text-message services are practically instantaneous, thereby inculcating an expectation of "instant information."

2. Individuals today have a large degree of perceived "direct control" over their communications capabilities. While email and cell-phone capability may disappear in a major disaster, these expectations will remain. Served agency officials and others will have a difficult time (psychologically) turning to others to facilitate a communications process.

3. Many management systems are built around dynamic, "in the moment" problem solving techniques. This default mode of thinking is encouraged by instantaneous personal communications. Many have lost the capacity to plan in advance or engage in complex logistical tasks, which require preplanning and delegation of responsibility.

4. The Internet and similar communications technology functions as a "force multiplier," allowing fewer people to perform as a larger unit. It has eliminated a wide array of labor ranging from clerks to administrative assistants and so forth. The temporary loss of such a force multiplier will cause short-term inefficiencies, which served agency officials will have a difficult time dealing with.

One of the advantages of NTSD and the Winlink 2000 System is the capacity to provide an interface to served agency officials, which is comfortable and familiar. The message handling process may be varied, perhaps utilizing multiple modes and networks, but Winlink offers an interface, which is transparent and comfortable to the addressee. The addressee can use the same telecommunications tools he uses every day to manage his tasks, even if a message originates on a CW net in Michigan, is then transferred to the WL2K System, and then arrives at a computer hundreds of miles away a short time later.

In other cases, radio-email capability may provide the "last mile" of connectivity for a served agency by replacing damaged local telecommunications infrastructure. In such cases, the WL2K System might allow for a comfortable email origination in email format, which passes seamlessly through the digital

network on a HF circuit to eventually appear at an email in-box on the addressee's office computer. Even in the event of a state-wide, regional, or even national infrastructure failure, NTSD has the proven and demonstrated ability to handle radio-email cross country via a peer-to-peer transfer using high-speed PACTOR 3 the entire way.

Another advantage of programs like NTSD and the WL2K System is the fact that they can be pressed into service at any time of day or night when NTS nets may not be scheduled. They also have the capacity to support high volume circuits while incorporating automatic routing features. These new digital programs offer Amateur Radio an opportunity to remain relevant in an era of rapid changes in the world of telecommunications. Yet, the fundamentals of NTS should NOT change.

Despite advances in technology, the radiogram format continues to provide excellent accountability and important administrative data, which can be of great value to the addressee while also being useful for solving delivery and routing problems and for providing accountability data that can protect the individual radio operator and his ARES or NTS program from liability.

Traditional modes and methods will continue to have a very relevant place in terms of *survivability* and *flexibility*. For example, a small portable CW transceiver can operate indefinitely under difficult conditions using renewable energy sources. Voice modes continue to offer universality and convenience as a "common denominator" method. A hand-held VHF transceiver can be used to originate record message traffic from almost anywhere, even if the operator is standing out in the pouring rain using a waterproof notebook and pencil to transcribe message traffic.

Because NTS continues to have a significant "human" component, networks can be managed on a dynamic basis, with individual operators and ARES groups making real-time decisions as to the best methods for routing important message traffic in time of emergency. In some cases, a CW net may be ideal. In other cases, NTSD may be pressed into service to originate hundreds of health and welfare messages or to serve as a gateway between an incident command post or EOC and the outside world. A voice net might be sufficient in other instances.

Ultimately, there is no "us versus them" in NTS and emergency communications. With good management, a team-work approach, and an open minded attitude, there is room for all modes and methods in today's NTS. We should all do our best to ensure that NTSD capabilities are developed in our communities and ARRL Sections. It is another tool in the telecommunications "tool box," which can be used to solve some of the new problems that arise in today's environment. However, we also should remember that the "traditional" NTS modes of CW and voice are also important capabilities in today's NTS. For more information on NTSD, please take some time to review the NTS Methods and Practices Guidelines Chapter 6. A copy of this document may be found at the following URL:

http://wx4j.com/MPG6_NTSD_RADIOEMAIL.htm

The Care and Feeding of a NTS Section

by Kate Hutton, K6HTN

A little over a year and a half ago, the previous LAX Section Traffic Manager (STM), Bill, K6IFF recommended me to the Section Manager as his successor and quit, in order to concentrate on learning the more esoteric area level net skills.

At that point I had been licensed for only about 15 months. I had my General, I was on HF, completely self-taught and self-motivated on CW. Early on, after passing my Tech exam, I'd read the ARRL Operators Manual cover-to-cover to see what I might want to do with my new license. For some reason, the chapter that attracted my interest the most was the one on traffic handling. I wasn't quite sure how to get involved, however.

I joined SKCC and FISTS to get some support on my CW learning curve. One day not long after that, I answered the phone to hear some guy say he had a radiogram for me! In retrospect, it was ARL SIXTY NINE FISTS. Perhaps to make conversation, the delivering ham asked me what FISTS was. When I told him it was a CW club, he invited me to the Southern California Slow Net, SCN. I did listen to it, but it was still too fast and I could not follow, nor did I have an 80-meter antenna yet. So, I just continued my daily code practice, my ragged rag chews and SKCC sprint contests.

During one of the latter events, I made a contact with Dave, KI6BHB. Upon looking him up on www.QRZ.com, I learned that he was involved in a trivia contest (http://ntstalk.wikidot.com/activity:trivia-traffic) where questions and answers were sent via radiograms. He was patient enough to start skeds with me at 7-8 WPM, taking and delivering trivia traffic. One day, he sort of set me up; he gave me a question that he had authored, meaning that I could not give the answer directly to him. It would need to go through the NTS. So one evening, in the dead of winter when 80-meters was long, I went to the club station on the campus where I work and checked into the Northern California Net NCN (I could not hear SCN). When acknowledged, I announced DE K6HTN FIRST TFC NET PSE QRS QTC SCN 1. I sent Dave his trivia answer. I then went to an ARES meeting and inquired about traffic training. Six months later, I was the STM.

A couple of years before that point, the NTS in Southern California had nearly died, as rumor would have it, from a "spam overdose." Most of the active members had become dissatisfied with the quality of the traffic and quit. K6IFF, KI6BHB and Bruce KI6RUW (now W6WW) - the latter two in the ARRL Orange Section - were in the process of trying to revive the NTS presence. They had re-instituted the SCN/CW net twice a week and organized SCN/V (VHF) three nights a week on a repeater at 8,000 ft elevation, which has an awesome coverage footprint.

A few months before my appointment, the SM, David N6HD, had started the Los Angeles Net (LAN) on a linked repeater system, two nights per week. K6IFF and KI6BHB served as RN6 liaisons. Often we received no traffic; sometimes we didn't have check-ins. Usually, it was three or four messages, most often trivia or "friendly reminders."

My first tasks were to figure out where to get more traffic handlers and more traffic. I did not think shuffling traffic in itself was going to appeal to our section hams, with their smart phones and I -Pads. But I did think the skills needed to handle traffic would be of great value for the ARES operators, even if the emergency messages they passed were tactical and not actually radiograms. So I expanded a bit on class material that N6HD and N6VI, the SW Division Vice Director had been using. I gave it a catchy name ("TFC School") and arranged for ARES to sponsor it in each of our five Districts. TFC School is a lively three-hour class, that involves writing radiograms, "passing them" to classmates and mock net activity. I am now starting the second round through the Districts.

Only about 5% of the students become active traffic handlers. But that is enough for some growth. We have about six regulars on LAN and a few on SCN/CW and SCN/V. We are a chummy group and we enjoy taking over the back row at ARES meetings. I've had a few proud moments watching a couple of guys whom I trained, shuffling out of a local radio club meeting to the parking lot and coming back later with a stack of paper.

We now have a Morse code class. I've tried to promote interest in the WinLink 2000 System (packet & HF) and NTSD. This is starting to pay off, with a few ARES packet nodes popping up where there were none before.

Obtaining quality traffic was a little bit harder, at first. We had the local trivia and otherwise it was mostly bulk traffic. On Field Day, I sent out quick and easy instructions through the Section email database, describing how to earn up to 200 bonus points using NTS. Some of the earthquake drills and public preparedness events have had traffic handlers attending, ready to "send a sample message to your out-of-town contact."

At the SW Division Convention, we staffed a table, collecting radiograms and sending them on the spot through a portable packet WL2K System node on the 17th floor of the hotel. We organized a panel discussion, which included some TCC ops all the way up to the Chair of the Pacific Area Staff (K6YR). Not expecting a huge interest, we reserved a small room; instead, we packed it.

Our first big break came when W6WW decided to go into the bulk mail business, with traffic specifically aimed at new licensees. These messages are the most fun to deliver (especially when they are going to young people) and the project gave our members a good dose of enthusiasm. Out of his fire hose of output, Bruce gave me a few per day for "code practice," making me an active and eventually more proficient member of RN6.

After a few months of this, Bruce had enough and he passed the effort on to a group of four LAX NTS operators: Robert, W0RJA, Jutti, K6FRG, Paul, K6GPZ and myself. We divided the U.S. up by calling area, researched the most reliable telephone directory look-up sites and learned to create NTSD batch files from ULS downloads, using Excel and Mailmerge. This effort has created *plenty* of outgoing traffic; the magic HXC creates a fair supply of incoming traffic.

Our second big break was the formation and growth of radiograms@groups.yahoo.com. Just the presence of a database of hams interested in conversing by radiogram has been extremely stimulating. It gave us an outlet to expand Trivia Traffic continent-wide. The phenomenal growth of the reflector as a resource to ask questions of the top people is also very much appreciated.

The third break was making arrangements to exchange traffic with the Sixth Region NTSD MBO, Jim, K6RXX. We have software issues and skip problems (we are a geographically small Section), but we have three DRS now. This NTSD connection has provided an influx of traffic for our local nets and an outbound channel for our new hams traffic.

At least some percentage of interesting traffic seems to be the key to getting and keeping the interest of the local traffic handlers. A reasonably large volume of traffic is also necessary to challenge skills and maintain interest. It is one thing to know how to format a radiogram and send it. However, for true emergency preparedness, it is also necessary to deal with net issues under mild pressure. The NTS is the only branch of ham radio that I know of that practices for disaster 365.25 days per year, so let's do enough of it to stay awake.

LAN sessions are now lasting an average of 45 minutes and handle 20 to 30 messages. Our record is 58 messages, on a net that lasted rather longer than 45 minutes. We have rotating liaisons (in other words, it's not me all the time) to RN6 and SCN/V. We have half a dozen net control ops, who get better at it every time they do it. We are learning to use "QSY" to simplex or to use the WL2K System to make things more efficient. We are learning to work around propagation problems on HF and linkage problems on the repeaters. We all work together to gently remind each other about writing good service messages, correctly voicing traffic and not speaking before the linked repeaters have time to link-up

Most of the steps in the re-growth of LAX NTS have been baby steps. Some, though, have been leaps of faith, such as planning the convention effort without knowing for sure whether we had a working WL2K System node to send to, or taking net control on RN6 for the first time. I'm sure we have plenty of other adventures ahead of us.

But every day, it is something. What do I have to say to someone that I can say by radiogram? What will my next trivia traffic question be? What needs to be discussed at our monthly post-

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ARES meetings? Who has the traffic and who is the liaison? What is the health of the repeater system today?

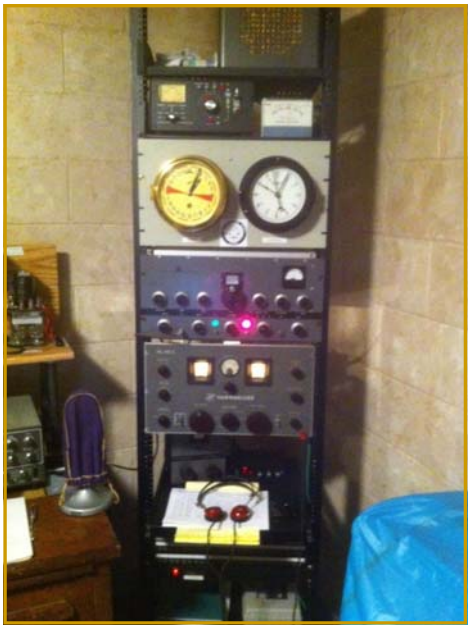
I guess the bottom line is that if you want to expand your local NTS, you have to be very enthusiastic yourself and have a lot of energy. You need to make it interesting. You need a lot of ideas, either yours or those you can borrow (with credit, of course). Thank people constantly. Be prepared to spend a lot of time on it and check into a lot of nets. Just like code practice, just keep at it. It will come.

Correction

We really dropped the ball! In the September 2012 issue of *QNI,* we published the 3438-kHz as the frequency of the newly reorganized Illinois CW Net (ILN).

No. ILN is not a MARS or FAA network! Rather, we made a typographical error. **The correct frequency is 3538-kHz.** The correct net time will be 0115Z (7:15 PM Central Time) daily.

NTS is Universal



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THE ORIGIN OF THE PROSIGN "AR"

Those that operate CW are likely quite familiar with the prosign "AR," transmitted as "di-dah-di-dah-dit. "AR" is typically transmitted at the end of a radiogram or a CW transmission to signify the fact that the message is completed.

In reality, when one transmits "di-dah-di-dah-dit," he is transmitting an abbreviation for "finished."

Commercial telegraphers who were employed by companies such as Western Union, Postal Telegraph, CN and CP Telegraphs or the like utilized the original *American Morse Code*. In this code, the letter "F" is "di-dah-dit" and the letter "N" is "dah-dit." Put "FN" together in American Morse Code, and one has "di-dah-di-dah-it!"

Another American Morse character, which one will hear on CW traffic nets is the "comma." At one time, it was customary to write a comma after each line of an address. Those old enough to have attended a one-room school house may remember this ancient rule of grammar, which has since disappeared with the passage of time….except when transmitting telegrams or radiograms.

It remains customary to this day to transmit the American Morse comma after each line of the address when transmitting the radiogram. This is the "AA" or "di-dah-di-dah" commonly heard on traffic nets.

Many traffic handlers today assume the "AA" is a prosign unique to CW traffic nets. They give little thought to the fact that this procedure, like the basics of the radiogram format, were imported directly from the business-like procedures of the commercial telegrapher.