Connecticut Amateur Radio Emergency Service®
Digital/Data Communications Standard

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Introduction

A well-developed amateur radio emergency communications program must include protocols for digital/data communications. Fortunately, the state of Connecticut has three robust and independent digital/data networks available for EmComm use: Winlink 2000, Winlink classic for NTS "through" traffic, and FlexNet. What follows is a set of guidelines that CT ARES® is asking operators to follow to ensure compatibility of hardware, software, and operating methodologies. This document will be updated by the Digital/Data Coordinator and/or Section Emergency Coordinator (SEC) at least once each year; more often if significant changes occur in the digital/data world of Amateur Radio.

The Protocols

The Winlink 2000 (WL2K) system includes a VHF Packet component useful for both worldwide and short-haul emergency communications. A number of RMS Packet nodes around the state provide RF access to this system. Airmail software provides a user-friendly interface to this network. Modest-sized attachments can be transmitted using Airmail via the Winlink network (<2 KB) or peer-to-peer (<20 KB on frequencies that do not interfere with existing packet networks).

Connecticut's Classic Packet FlexNet system is an RF-linked network that provides statewide as well as interstate coverage. The Outpost application provides a user-friendly interface to this network. Other software (e.g., WinPack) can also be used to access the system. NTS-formatted traffic is handled daily on this system and therefore should be the primary means by which these messages are transmitted when digital modes are used. Currently, traffic coming into CT is routed to the W1HAD PBBS. Therefore liaison with that PBBS needs to be continuously maintained. All written record traffic originated on any CT PBBS is currently routed to W1HAD for further distribution. All long-haul traffic is currently routed to the W1WCG PBBS for further relay to scheduled appointed NTS digital stations using Winlink classic.

QForms allows operators on VHF packet and Airmail to send NTS-formatted traffic (and other forms) that allows the recipient to produce printed documents with a professional appearance.

Classic packet will play an important role in the dissemination of bulletins. Bulletins on any CT PBBS should be originated in "SB ALL @CTARES" format. Operators should check for bulletins written to ARES: L@ CTARES or L> CTARES.

Packet Hardware and Software

Please note that these recommendations exist so that we can work well together today. Nothing here should be taken as an attempt to limit experimentation with any software, any hardware, or any modes. Experimentation is how we learn what we should do next. Please let us know of any new or exciting experiments you are doing, and we will do the same!

Packet Hardware Recommendations

For VHF/UHF TNCs we recommend Kantronics TNCs such as the KPC-3 or KPC-9612. The KPC-9612 will do 9600 baud and should be considered for new purchases, especially in EOCs. We hope to get some 9600 baud links up in the future. This is not to say that users cannot use other TNCs, just that we recommend these for new purchases, especially in EOCs or other places with multiple operators.

Packet Software Recommendations

For VHF packet we recommend the following software be loaded on all EOC and shared computers. Having more than one package available allows for some operator preference and also allows for using the most appropriate software for a given task:

- AirMail – this free software can be used for station-to-station, station to Flexnet/FBB and station to Winlink communications
- Hyperterm – this free software module comes with many versions of Windows and is the ultimate fall-back. Also useful for troubleshooting
- Pacterm for Windows for Kantronics – this commercial fee-based package ($100) works with many TNCs and supports sound card as well as Kantronics TNCs.
- Outpost – this free software provides an easy-to-use interface to a packet BBS.
- QForms – this free software allows the user to easily put written record traffic into NTS format and permits the printing of these and other forms with a professional appearance.

This is not to say that users cannot use other software -- just that we recommend these packages be installed in EOCs and other places with multiple operators.

Conclusion

To be effective in a communications emergency, a significant number of CT ARES® members need to be equipped and trained to conduct digital/data communications. This function would include handling ICS and NTS formatted messages, Red Cross health and welfare traffic, etc. Developing a significant number of amateur radio operators who are proficient in the use of these systems should be part of the training objectives for all CT ARES® Regions.

The applications and protocols defined above will serve as a standard for CT ARES® and will provide a consistent and stable platform for use during emergencies and encourage training, education, and experimentation. As new technologies and protocols are developed and tested (an activity we strongly encourage), we will review and update these standards as needed.

When the CT ARES® Digital/Data Coordinator position is vacant, the Section Emergency Coordinator (SEC) will serve that role.