Pinellas County ACS Winlink Training Plan

31 October 2023 Revision (B)

Abstract

This document defines the minimum set of Winlink skills needed to support the deployment of Pinellas County Auxiliary Communication Service (ACS) volunteers during an activation exercise or emergency.

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FOREWORD

This document defines the minimum set of Winlink skills needed to support the deployment of Pinellas County (PinCo) Auxiliary Communication Service (ACS) volunteers during an activation exercise or emergency. The document provides detailed steps that should be followed during training nets and exercises to demonstrate proficiency with each Winlink skill.

The completion of the training defined in this document does not by itself signify that an individual is qualified to support an activation event. Readers should refer to the *Pinellas County ACS Emergency Communications Plan and Standard Operating Procedures* document for a complete set of training requirements.

Although this document describes the skills, rationale, and training approach that will be used to qualify PinCo ACS Winlink operators, it does not provide the step-by-step information needed to install and configure the applicable computer programs or a description of the steps needed to perform the identified tasks.

The document is divided into six sections and five appendixes.

Comments, suggestions, or questions on this document should be addressed to Michael Drake, WA1RYQ, email: WA1RYQ@arrl.net.

Record of Changes

REVISION	DESCRIPTION	DATE
REV (-)	Initial Release	02/6/2022
REV (A)	• Corrected minor formatting and spelling issues. • Updated the version and date associated with the *Pinellas County ACS/ARES® Emergency Communications Plan and Standard Operating Procedures document* and the AUXC PTB in Section 2.1. • Added *P4dragon DR-7X00 Installation Guide* to Section 2.2. • Replaced SHARES SpotRep-2 with Field Situation Report everywhere in the document. • Deleted references to VARA Chat and its associated skills from section 3.5. • Updated detailed Winlink Check-in message skills in section 4.1.7.1.2 to align with updated message format. • Updated detailed Winlink Check-out message skills in section 4.1.7.2.2 to align with updated message format. • Updated the detailed description of the ICS 217A in section 4.3.3.6. • Added a note to section 4.3.3.7.2 describing the how to select the appropriate column delimiter. • Updated description of Mapping-GIS template forms in section 4.3.10 to include a reference to KML files. • Updated list of Mapping-GIS forms in section 4.3.10. • Updated the skills listed in section 4.3.10.2 to align with the new Field Situation Report. • Updated description of Mapping-GIS filter function in section 4.3.11. • Replaced Figure 25 and Figure 26 with the latest Winlink versions. • Replaced Figure 35 with an image that shows two digipeaters. • Added detailed descriptions for PACTOR® station configuration and message send-receive operations.	06/30/2022

REVISION	DESCRIPTION	DATE
REV (A)	• Deleted Vara FM Chat and Vara HF Chat sections 4.5.4, 4.5.5, and 4.5.6. • Added DYFI, FSK, KML, PSK, and USGS to Appendix A.1, Acronyms. • Deleted Vara Chat from Section A.3, Definitions. • Updated Figure C- 1, Figure C- 2, Figure C- 5, and Figure C- 7 to latest Winlink version. • Replaced SHARES SpotRep-2 form with Field Situation Report in Figure C- 10. • Deleted Vara Chat skills from TABLE E- V. • Following the release of Winlink Express version 1.5.38.0, the "//WL2K" is no longer required when specifying message precedence. Additionally, the priority indicator can be placed anywhere within the subject line. The text in section 4.3.4.1.2, Table I, and Figure 18 have been updated to reflect the change. • Added a new skill to Deployment Ready VHF/UHF Communications Skill set. Configure Winlink to annotate Priority, Immediate, and Flash messages. Section 4.3.5.	06/30/2022
REV (B)	• Corrected minor formatting and spelling issues. • Replace ACS/ARES® with ACS throughout the document. • Replaced Pinellas County with PinCo. • Updated reference to PinCo ACS Emergency Communication plan and SOP to latest version in section 2.1. • Added Foreword and Record of change to TOC. • Updated field descriptions for Winlink Check-in and Check-out forms. Paragraphs 4.1.7.1 and 4.1.7.2. Document now conforms to Winlink standard template version 1.0.241.0. • Replaced Figure 6, Figure 7, Figure 14, Figure 19, Figure 27, Figure C- 1, -Figure C- 2, Figure C- 3, Figure C- 4, Figure C- 5, Figure C- 8, and Figure C- 10. The new figures conform to Winlink Express version 1.7.9.1 and Winlink standard template version 1.0.241.0.	10/31/2023

REVISION	**DESCRIPTION**	**DATE**

REV (B)	• Deleted old Figure 5, ICS 205 – 20 rows. No longer supported by Winlink.
	• Updated notes in section 4.1.6.1 and 4.2.4.1 to include references to ICS 204 and PinCo ACS IAP.
	• Replaced Figure 18, Figure 21, and Figure 22. The new figures conform to Winlink Express version 1.7.9.1, standard template version 1.0.241.0, and latest Winlink tactical addresses defined in *PinCo ACS Emergency Communications and SOP version (C)*.
	• Replaced the term "Thumb Drive" with "Flash Drive".
	• Updated List of Mapping GIS template forms in section 4.3.10.
	• In section 4.3.7, added steps needed to export Winlink HTML template files onto a USB Flash drive for use by served agency partner. Changed import of template-based text files from optional to mandatory.
	• Added Figure 23 to section 4.3.9.
	• Added a note in section 4.3.10 about attaching GPS location data to all Winlink message headers. Added Figure 24 and steps to section 4.3.10 to perform this configuration.
	• Added HICS and SDG to list of acronyms.
	• Added PinCo ACS Groups.io and EmComm Training Organization Website to Appendix B.
	• Updated task codes in Appendix E to better align with code definitions used in AUXC PTB.
	• Updated VARA HF P2P skill set in section 3.2.2 to include the use of all VARA P2P Bandwidth settings.
	  ○ Updated skill set description in section 4.2.4.2.
	  ○ Added Figure 10 and Figure 11.
	• Added an optional skill to Basic Winlink HF Communications. Creation of VARA HF P2P session favorites.
	  ○ Added Figure 12.
	• Added a note to section 3.3 that defines the term "remote location".
	• Changed abbreviation for kilobyte from KBytes to the IEC standard kB.
		10/31/2023

REVISION	**DESCRIPTION**	**DATE**

REV (B)	• Add Hz to the list of abbreviations.
	• Added UZ7HO digipeater skills to the Advanced Winlink HF/VHF/UHF Communications skills.
	  ○ Configure a VHF/UHF station to operate as a UZ7HO digipeater.
	  ○ Send Winlink messages to and receive messages from a VHF RMS via a UZ7HO Packet digipeater.
	  ○ Send and receive P2P Winlink messages through a UZ7HO Packet digipeater.
	  ○ Added Figure 32.
	  ○ Updated Figure 35. The figure now shows a generic VHF Digipeater.
	• Added VARA HF Auto-connect skill to Deployment Ready HF Communication Skills.
	  ○ Added Figure 31.
	• Added Pactor® auto-connect skill to Send and receive Winlink messages via HF PACTOR®.
		10/31/2023

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1 SCOPE

This document defines the minimum set of Winlink skills needed to support the deployment of Pinellas County (PinCo) Auxiliary Communication Service (ACS) volunteers during an activation exercise or emergency. The document provides detailed steps that should be followed during training nets and exercises to demonstrate proficiency with each Winlink skill.

2 APPLICABLE DOCUMENTS

2.1 RELATED DOCUMENTS

The *Pinellas County ACS Winlink Training Plan* was developed to support the communication and training plans listed below.

a. ARES® Standardized Training Plan, Version 2.1.1
b. Florida ARRL® Tri-Section ARES® Standardized Training Plan Emergency Communicator Individual Position Task Book; January 2020
c. Pinellas County ACS Emergency Communications Plan and Standard Operating Procedures; Rev (C); September 2023
d. Position Task Book (PTB) for the Position of Auxiliary Communicator (AUXC), Version 2.0; January 2022
e. West Central Florida Section ARES® Communications Plan, March 2011

2.2 WINLINK REFERENCE DOCUMENTS

Additional information about Winlink and its associated applications can be found in the following documents.

a. Amateur Radio Digital Open Protocol (ARDOP) Windows Terminal Node Controller (TNC) integrated Help documentation

b. P4dragon DR-7X00 Installation Guide SCS Special Communications Systems; Version 2.0; May 2020

c. Winlink Book of Knowledge (BOK)

d. Winlink Express Application integrated help documentation

3 General Description of Winlink Skills

This section contains an overview of the skills needed to participate in PinCo ACS Winlink digital training networks, exercises, and deployments. Five skill sets have been identified.

a. Basic Winlink VHF/UHF Communication Skills
b. Basic Winlink HF Communication Skills
c. Deployment Ready VHF/UHF Communication Skills
d. Deployment Ready HF Communication Skills
e. Advanced Winlink HF/VHF/UHF Communication Skills

3.1 Basic Winlink VHF/UHF Communication Skills

This section lists the basic skills that are needed to exchange messages using VHF/UHF Winlink. The nets used to practice and demonstrate proficiency with this skill set may include Winlink telnet, Winlink VHF, VHF voice, and on-line training meetings (Zoom, Microsoft (MS) Teams, Google Meet, etc.).

3.1.1 Assumptions

a. No previous Winlink experience is required.
b. The Winlink operator must have a Technician, General, Advanced, or Amateur Extra class Federal Communication Commission (FCC) License.

3.1.2 Skills

a. Install the software required to support VHF/UHF Winlink communications.
b. Configure a VHF/UHF Winlink station that supports Packet and VARA Frequency Modulation (FM).
c. Send and receive messages via Telnet.
d. Send and receive messages via VHF/UHF Radio Message Server (RMS) stations.
e. Add contacts and a delivery group to the Winlink address book.

f. Send and receive messages via VHF Peer-to-Peer (P2P) Radio Frequency (RF) links.

g. Create, Send, and receive messages using Winlink Standard Template Forms.

(1) WINLINK CHECK-IN

(2) WINLINK CHECK-OUT

(3) RADIOGRAM

3.1.3 Optional Skills

The skills listed below may simplify or streamline operations; however, they are not required to perform basic communication tasks.

a. Create message favorites

b. Establish message acknowledgement defaults

3.2 Basic Winlink HF Communication Skills

This section lists the skills needed to exchange messages using HF Winlink. It builds upon the basic VHF/UHF communication skills previously mastered.

PinCo ACS HF digital training nets, HF voice, VHF voice, and on-line training meetings (Zoom, MS Teams, Google Meet, etc.) will be used to practice and demonstrate proficiency with each of the identified skills.

3.2.1 Assumptions

a. The operator has demonstrated proficiency with basic Winlink VHF/UHF Communication skills.

b. The Winlink operator must have a General, Advanced, or Amateur Extra class FCC license.

3.2.2 Skills

a. Install the software required to support HF Winlink communications.

b. Configure an HF Winlink station that supports VARA HF and ARDOP.

c. Send and receive messages via HF RMS stations.

d. Send and receive VARA HF P2P messages using each VARA HF bandwidth setting.

(1) 500 Hz

(2) 2300 Hz

(3) 2750 Hz

3.2.3 Optional Skills

The skills listed below may simplify or streamline operations; however, they are not required to perform basic communication tasks.

a. Create VARA HF P2P session favorites.

3.3 DEPLOYMENT READY VHF/UHF COMMUNICATION SKILLS

This section lists the additional skills needed to support the deployment of VHF/UHF Winlink operators to remote locations within or outside Pinellas County. Operators may be deployed to Served Agencies such as evacuation shelters, critical infrastructure sites, Non-Government Agencies (NGOs), or other locations as required by PinCo Emergency Management.

***NOTE**: A remote location is defined as any location within or outside Pinellas County that does not correspond to the user's home address.*

PinCo ACS VHF/UHF digital training nets, VHF voice, on-line training meetings (Zoom, MS Teams, Google Meet, etc.), drills, and deployment exercises will be used to practice and demonstrate proficiency with each of the identified skills.

3.3.1 Assumptions

a. The operator has demonstrated proficiency with basic Winlink VHF/UHF communication skills.

b. The deployed Winlink operator must have a Technician, General, Advanced, or Amateur Extra class FCC license.

3.3.2 Skills

a. Set-up a VHF Winlink station at a remote deployment site.

b. Create an event specific personal folder within Winlink.

c. Create, send, and receive messages using Incident Command System (ICS) template forms.

(1) INCIDENT RADIO COMMUNICATIONS PLAN (ICS 205)

(2) GENERAL MESSAGE (ICS 213)

(3) GENERAL MESSAGE REPLY (ICS 213 Reply)

(4) RESOURCE REQUEST MESSAGE (ICS 213RR)

(5) ACTIVITY LOG (ICS 214)

(6) COMMUNICATIONS RESOURCE AVAILABILITY WORKSHEET (ICS 217A)

(7) COMMUNICATIONS LOG (ICS 309)

d. Create and send messages using ***Priority*** and ***Immediate*** precedence.

e. Configure Winlink to annotate ***Priority***, ***Immediate***, and ***Flash*** messages.

f. Send and receive messages using a tactical address.

g. Import Served Agency data into the Winlink computer.

(1) Add attachments to and remove attachments from Winlink messages.

h. Import, resize, send, and receive photographs.

i. Send an ICS Template-based message form as a Portable Document Format (PDF) using Telnet.

j. Create and send messages using Mapping- Geographical Information System (GIS) template forms.

(1) FIELD SITUATION REPORT Form

k. Graphically display event specific Mapping-GIS message data.

3.4 DEPLOYMENT READY HF COMMUNICATION SKILLS

This section lists the additional skills needed to support the deployment of VHF/UHF and HF Winlink operators to remote locations within or outside of Pinellas County.

PinCo ACS HF digital training nets, HF Voice, VHF voice, on-line training meetings (Zoom, MS Teams, Google Meet, etc.), drills, and deployment exercises will be used to practice and demonstrate proficiency with each of the identified skills.

3.4.1 Assumptions

a. The operator has demonstrated proficiency with Deployment Ready VHF/UHF communication skills.

b. The operator has demonstrated proficiency with basic Winlink HF communication skills.

c. The deployed Winlink operator must have a General, Advanced, or Amateur Extra class FCC license.

3.4.2 Skills

a. Set-up a Winlink station that supports VHF/UHF and HF communications at a remote deployment site.

b. Send a Global Positioning System (GPS) position report.

c. Use Winlink to obtain local weather and Winlink station location data.

d. Send and receive messages using the radio-only hybrid network.

e. Send and receive messages using the VARA HF auto-connection feature.

3.5 ADVANCED WINLINK HF/VHF/UHF COMMUNICATION SKILLS

This section lists the advanced set of Winlink skills needed to support the deployment and operation of VHF/UHF digipeaters and the advanced networking protocols of PACTOR® and Amateur Radio Emergency Data Network (AREDN™) mesh.

Although these capabilities are not part of the minimum Winlink skills required for deployment, real world events may occur that require PinCo ACS to deploy and implement one or more of these capabilities to close critical communication gaps. Therefore, users are encouraged to become proficient in these skills.

3.5.1 Assumptions

a. The operator has demonstrated proficiency with the Deployment Ready VHF/UHF and HF Communication Skill sets.

b. The Winlink operator must have a Technician, General, Advanced, or Amateur Extra class FCC License to perform the digipeater and AREDN™ mesh skill sets.

c. The Winlink operator must have a General, Advanced, or Amateur Extra class FCC License to perform the PACTOR® protocol skill set.

3.5.2 Skills

a. Configure a VHF/UHF station to operate as a Winlink digipeater.

(1) VARA FM Digipeater

(2) UZ7HO Packet FM Digipeater

b. Send Winlink messages to and receive messages from a VHF RMS via a Winlink digipeater.

(1) VARA FM Digipeater

(2) UZ7HO Packet FM Digipeater

c. Send and receive P2P Winlink messages through a Winlink digipeater.

(1) VARA FM Digipeater

(2) UZ7HO Packet FM Digipeater

d. Configure an HF Winlink station capable of supporting PACTOR® protocols.

e. Send and receive Winlink messages via HF PACTOR®.

f. Configure a Winlink AREDN™ mesh station.

g. Send and receive Winlink messages via AREDN™ mesh.

4 Detailed Description of Winlink Skills

This section contains a detailed description of the skills needed to participate in PinCo ACS Winlink digital training networks, drills, exercises, and deployments.

4.1 Basic Winlink VHF/UHF Communication Skills – Detailed Description

This section contains a detailed description of the skills needed to exchange messages using VHF/UHF Winlink. The nets used to practice and demonstrate proficiency with this skill set may include Winlink telnet, Winlink VHF, VHF voice, and on-line training meetings (Zoom, MS Teams, Google Meet, etc.).

No previous Winlink experience is required. However, the operator must have a Technician, General, Advanced, or Amateur Extra class FCC license.

4.1.1 Install the software required to support VHF/UHF Winlink communications.

The computer applications identified in this section can be found at the websites listed below.

a. (Winlink Express) downloads.winlink.org/User%20Programs/
b. (UZ7HO) www.uz7.ho.ua/packetradio.htm
c. (VARA FM) www.rosmodem.wordpress.com/

4.1.1.1 Assumptions

The Winlink operator has access to the internet; a VHF/UHF amateur radio and antenna system; and a computer capable of interfacing with the radio.

No previous Winlink experience is required.

4.1.1.2 Skills

a. Download and install the following applications onto the Winlink computer.

(1) Winlink Express

(2) UZ7HO Sound-modem Software TNC (or Equivalent)

(a) This step can be skipped if the user is using a hardware TNC.

(3) VARA FM

4.1.2 Configure a VHF/UHF Winlink station that supports Packet and VARA FM.

This section describes the skills needed to connect the Winlink computer to a VHF/UHF transceiver; configure the application software and transceiver settings; and adjust the system receive and transmit audio gain levels for proper operation. Because a wide variety of radio and sound card configurations exist, it is not practical to include detailed instructions for any specific configuration. Users are encouraged to seek guidance from the web site references documented in Appendix B.

Winlink Express can be configured to import National Marine Electronics Association (NMEA) 0183 formatted GPS data through a serial COM port. Once configured, grid square information can be automatically determined, and position data automatically entered into many of Winlink's templated messages.

4.1.2.1 Assumptions

The computer applications identified in paragraph 4.1.1 have been successfully installed.

4.1.2.2 Skills

a. Connect the Winlink computer to the VHF/UHF amateur radio. Connection can be via a radio's existing Universal Serial Bus (USB) interface (if available) or an external sound card (e.g., SignaLink™, DRA Series, etc.).

b. Configure the Winlink Express application for Packet operation.

c. Configure UZ7HO Sound-modem application sound card, Push-to-Talk (PTT), and modem setting.

d. Configure the Winlink Express application for VARA FM operation.

e. Using the VARA FM application's VARA setup menu, enter the users callsign and configure the TNC for Narrow or Wide operation.

f. Configure the VARA FM application sound card and PTT settings.

g. Disable the Automatic Gain Control (AGC) setting on the Winlink computer's audio input (This control option may not be available on newer versions of windows.)

h. Adjust the system's (i.e., radio, sound card, computer) audio settings for proper operation.

i. [***Optional***] Connect a GPS receiver to the Winlink computer and configure Winlink to import GPS position data via a serial COM port.

4.1.3 Send and receive messages via Telnet.

Winlink is designed so that operators can exchange messages without the use of a radio. There is no limitation on the type of Winlink messages Telnet users can send and receive.

Figure 1 displays the topography of a Winlink network containing multiple Winlink Telnet users. Each Telnet user is connected to the internet and can send and receive information from any other Winlink participant.

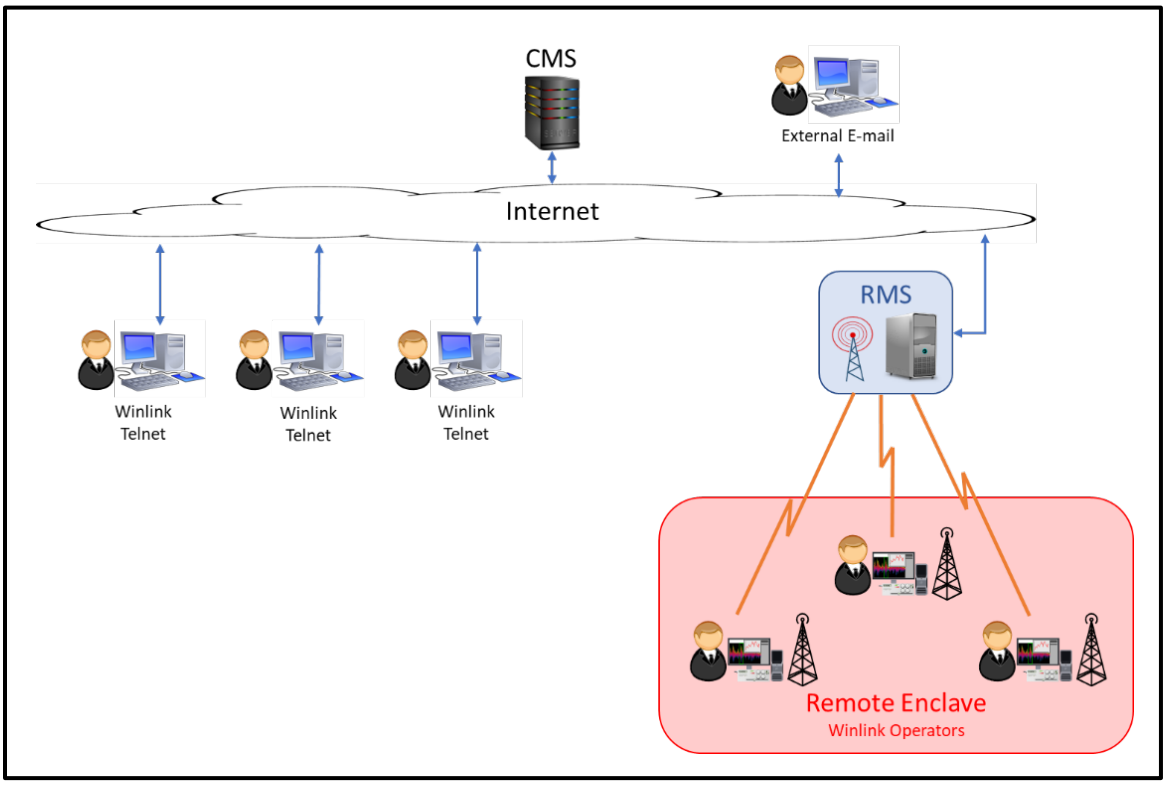

Figure 1. Telnet Communications

4.1.3.1 Assumptions

A working radio interface is not required to perform this task.

4.1.3.2 Skills

a. Compose, post, and send a Winlink message via telnet to another Winlink user. Confirm that the message was received by the recipient.

b. Receive a Winlink message via telnet.

4.1.4 Send and receive messages via VHF/UHF RMS gateway stations.

Figure 2 displays a network topography with individual Winlink VHF stations within a local enclave communicating with a VHF RMS. Within the remote enclave, the users could be communicating with either a VHF or HF RMS.

This topography represents the default (conventional) configuration users should encounter on a day-to-day basis when power, cell, and internet service is fully available.

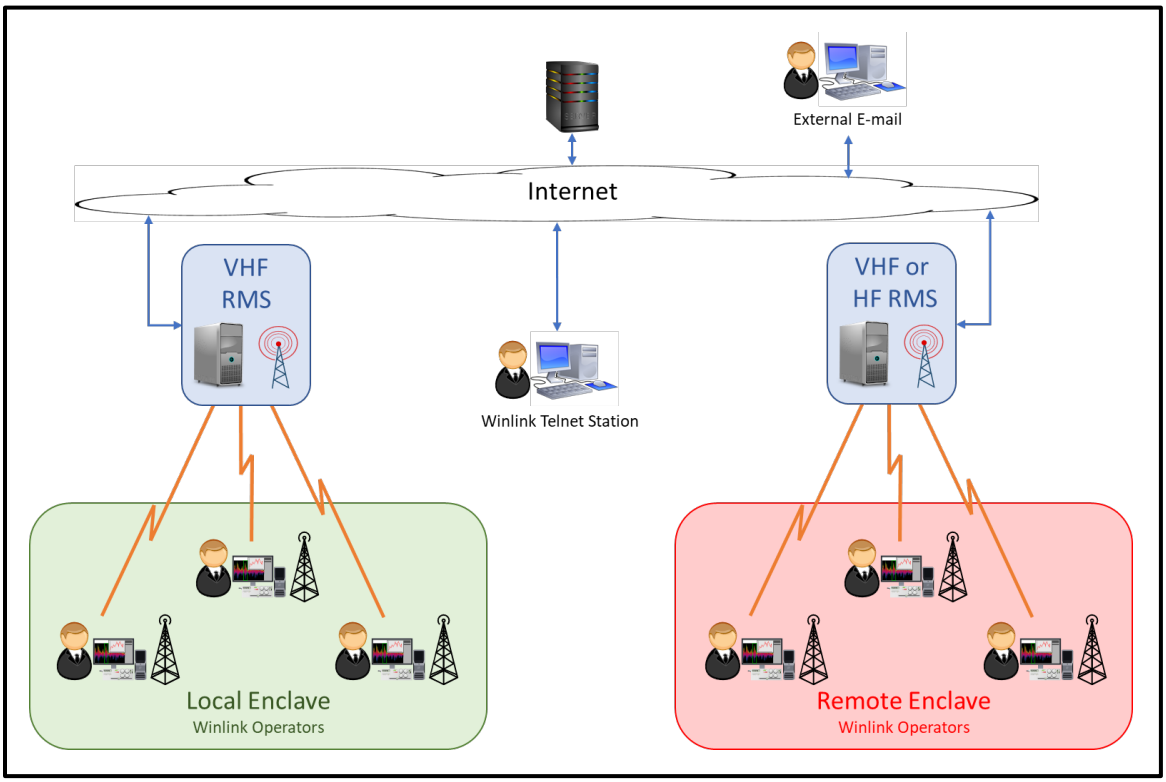

Figure 2. VHF RMS Gateway Communications

4.1.4.1 Assumptions

The Winlink computer, sound card, and radio have been properly configured. A VHF RMS Gateway station is within RF range, is operational, and has internet access. All messages are sent and received via RMS gateways.

4.1.4.2 Skills

a. Update the channel selection table for VHF Packet by using the internet.

b. Update the channel selection table for VHF Packet by using the radio.

c. Send and receive a message via a VHF RMS gateway using Packet. Confirm that the message was received by the recipient.

d. Update the channel selection table for VARA FM.

e. Send and receive a message via a VHF RMS gateway using VARA FM. Confirm that the message was received by the recipient.

f. Use the VARA Ping command to determine the audio level (VU) and signal-to-noise ratio (S/N) reported during a data exchange with the RMS gateway. Refer to Figure 3 for an example of the VARA FM RF link quality report. The following information is contained in the report.

(1) The RMS Gateway's signal strength and audio level as seen by the local Winlink station.

(2) The local Winlink station's signal strength and audio level as seen by the RMS Gateway station.

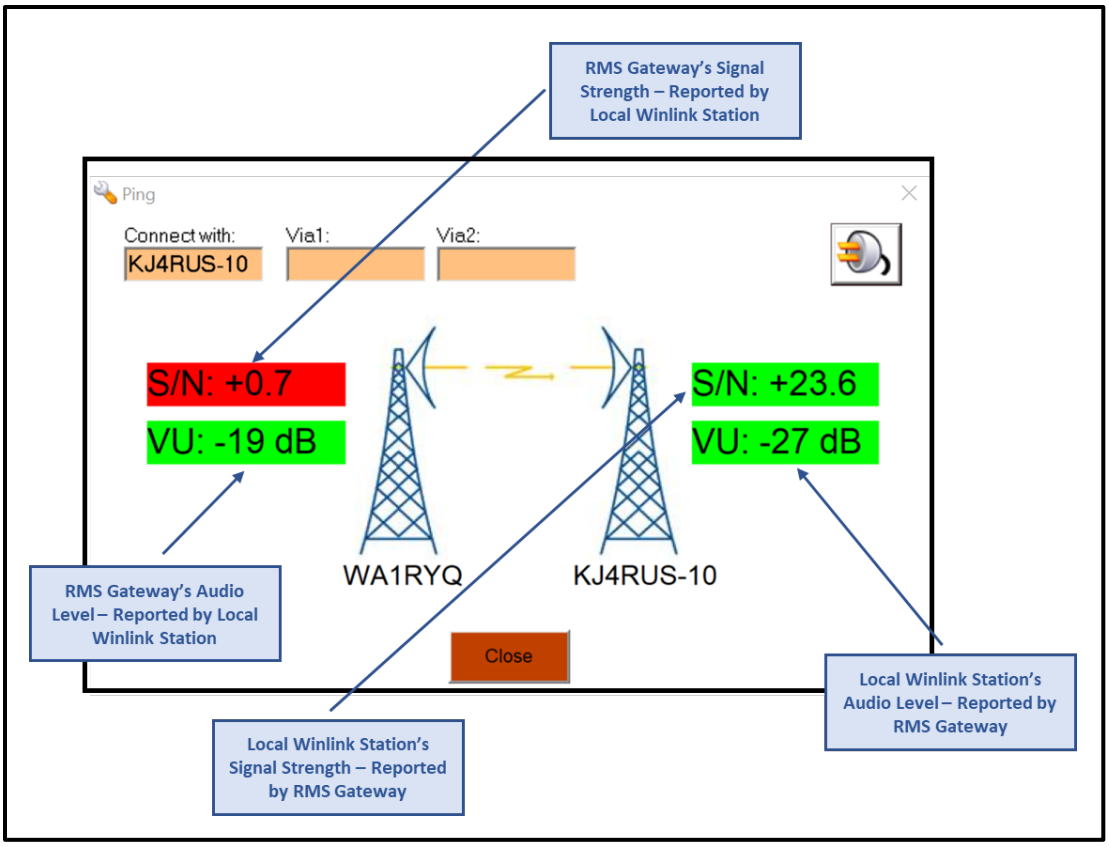

Figure 3. VARA FM RF Link Quality Report

4.1.5 Add contacts and a delivery group to the Winlink address book.

The use of predefined contacts and groups will simplify the exchange of information within a Winlink exchange.

NOTE: *Caution should be used when adding non-Winlink contacts (e.g., xxx@gmail.com) to the address book. When a Winlink operator sends a message to a non-Winlink address, the recipient's email address is automatically added to the user's Winlink whitelist. Each time a user adds an internet email address to the user's whitelist, the user grants Winlink permission to accept email messages from the whitelisted address and deliver them to the user. Since Winlink email content must conform to FCC Part 97 requirements, it is important that the user carefully manage whitelist entries.*

4.1.5.1 Assumptions

The operator can use either Telnet or VHF RMS exchanges (i.e., Packet or VARA FM) to demonstrate this skill.

4.1.5.2 Skills

a. Add both Winlink and internet email contacts to the Winlink local address book.

NOTE: *When adding internet email contacts to the address book, the display name should always include the "@" symbol. This addition will allow the user to quickly identify internet addresses and ensure that the PDF conversion feature (paragraph 4.3.9) of Winlink works properly. Refer to* Figure 4 *for an example of a properly formatted internet email contact.*

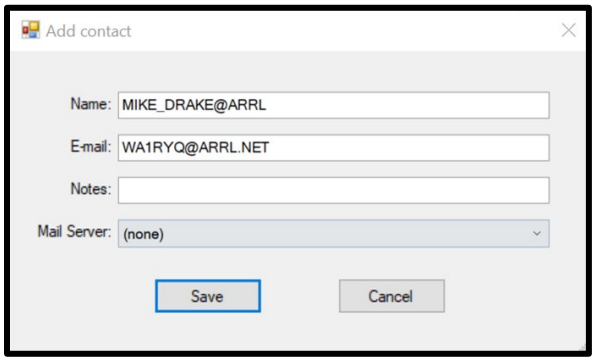

Figure 4. Creating Internet Email Contacts

b. Create a group address and add the group to the Winlink local address book. The Group should include members of the PinCo ACS Winlink team.

c. Use the information in the address book to send messages to each listed contact. Confirm that each contact received the message.

d. Use the information in the address book to send a message to a group address. Confirm that each contact within the group received the message.

4.1.6 Send and receive messages via P2P VHF links.

In many of the deployment scenarios PinCo ACS is likely to encounter, the power grid, cell service, and/or internet access are likely to fail. The VHF RMS gateways within the affected area may not be configured to exchange local messages during an internet outage. To maintain digital connectivity within the local area, Winlink users will need to exchange messages using a P2P network protocol.

Figure 5 displays the topography of a P2P VHF network. There is no limit to the number of VHF units that can participate in the network. Each VHF unit within the network can exchange information with any other network participant within VHF range.

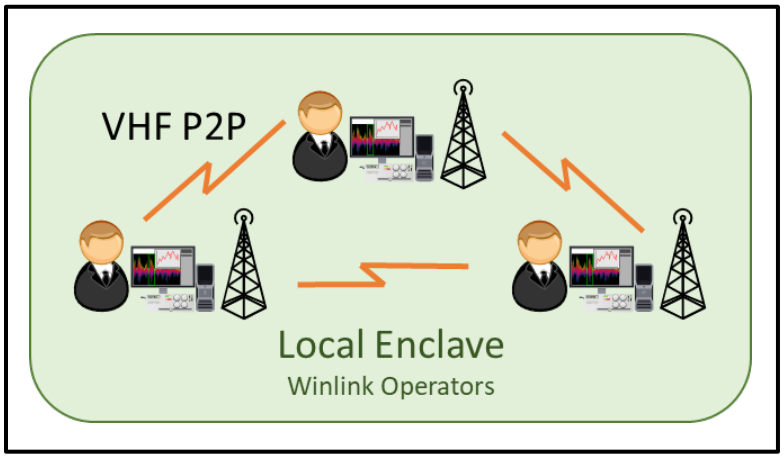

Figure 5. VHF P2P Communication

4.1.6.1 Assumptions

All Winlink stations within the local Enclave can maintain VHF/UHF simplex communications. Neither a VHF RMS nor a VHF digipeater is available. Voice and digital communication take place on the same frequency. All digital exchanges are coordinated by net control. Three or more stations are needed within the P2P network to exercise this skill set.

NOTE: *The voice and digital frequencies used during an activation event will be assigned by the PinCo ACS Leadership Team; documented in the ICS 205 and ICS 204s that are incorporated into the PinCo ACS Incident Action Plan (IAP); and distributed to all ACS communication teams prior to deployment.*

4.1.6.2 Skills

a. Net Control

(1) Send messages to and receive messages from network participants.

(2) Forward messages received from one network participant to a second network participant.

(3) Coordinate exchange of digital messages between two network participants.

b. Network participant

(1) Send messages to and receive messages from net control.

(2) Send a message to and receive a message from a network participant other than net control.

(3) Forward a message received from one network participant to a second network participant.

4.1.7 Create, send, and receive messages using Winlink standard template forms.

The Winlink development team has created a significant number of Hypertext Markup Language (HTML) based templates that support both routine and emergency communication environments. The objective of this skill set is to gain familiarity with Winlink template-based messages.

4.1.7.1 WINLINK CHECK-IN Form

During local Winlink nets, drills, exercises, and activation events, users will notify net control that the Winlink station is operational and ready to exchange traffic by sending a Winlink Check-in form. Refer to Figure C- 1 for an example of this form.

4.1.7.1.1 Assumptions

The user has access to GPS location data.

4.1.7.1.2 Skills

a. Create and send a Winlink Check-in template-based message to net control.

(1) Update the Message Title to include the name of the net that the operator is supporting.

(2) Enter the following information into Block 1 (STATION):

(a) Date and time

(b) Message recipient's FCC call sign (Net Control Station)

(c) Sending station's FCC call sign.

(d) Station Contact – The name of the individual on site authorized to send messages.

(e) Initials – The FCC Call sign of each radio operator on site.

(3) Enter the following information into Block 2 (SESSION):

(a) Type, service, band, and Winlink session.

(4) Enter the following Information into Bloc 3 (LOCATION):

(a) A description of the site location (e.g., *Evacuation Shelter - Bauder Elementary School*)

(b) GPS Coordinates, Military Grid Reference System (MGRS), and Grid information in the message.

(5) In Block 4 (COMMENTS), document any limitations or issues that could impact the operational readiness of the site.

4.1.7.2 WINLINK CHECK-OUT Form

At the conclusion of local Winlink nets, drills, exercises, and activation events, users will notify net control that the Winlink Station is exiting the net and is no longer available to exchange traffic. Refer to Figure C- 2 for an example of this form.

4.1.7.2.1 Assumptions

The user has access to GPS location data.

4.1.7.2.2 Skills

a. Create and send a Winlink Check-out template-based message to net control.

(1) Update the Message Title to include the name of the net that the operator is supporting.

(2) Enter the following information into Block 1 (STATION):

(a) Date and time

(b) Message recipient's FCC call sign (Net Control Station)

(c) Sending station's FCC call sign.

(d) Station Contact – The name of the individual on site authorized to send messages.

(e) Initials – The FCC Call sign of each radio operator on site.

(3) Enter the following information into Block 2 (SESSION):

(a) Type, service, band, and Winlink session.

(4) Enter the following Information into Bloc 3 (LOCATION):

(a) A description of the site location (e.g., *Evacuation Shelter - Bauder Elementary School*)

(b) GPS Coordinates, Military Grid Reference System (MGRS), and Grid information in the message.

(5) In Block 4 (COMMENTS), document any limitations or issues that could impact the operational readiness of the site.

4.1.7.3 RADIOGRAM Form

The RADIOGRAM form embedded within Winlink conforms to the format specified by Radio Relay International (RRI). Upon close examination, the contents of the form closely align with those used by the American Radio Relay League (ARRL®) National Traffic System (NTS™). The traffic system used to process the message, RRI or NTS™, is contingent only upon the identity of the receiving station.

Radiograms can be a useful tool during any deployment when health and welfare information needs to be sent from an impacted area. Refer to Figure C- 3 for an example of this form.

4.1.7.3.1 Assumptions

Users are familiar with the format and contents of a standard Radiogram.

4.1.7.3.2 Skills

a. Create and send a Winlink RADIOGRAM template-based message to net control. The net control unit will forward the message to the appropriate RRI or NTS™ liaison.

(1) Address the message to an individual within the PinCo ACS Winlink training team.

b. Confirm that the message was received by the intended recipient.

4.1.8 Create message favorites (Optional).

The Message Favorites capability enables the user to select and display up to four message template buttons on the New Message window. Once enabled, users can select a favorite

template directly from the new message window rather than scrolling through all the templates available to find the desired form. Refer to Figure 6 for the location of the template favorites.

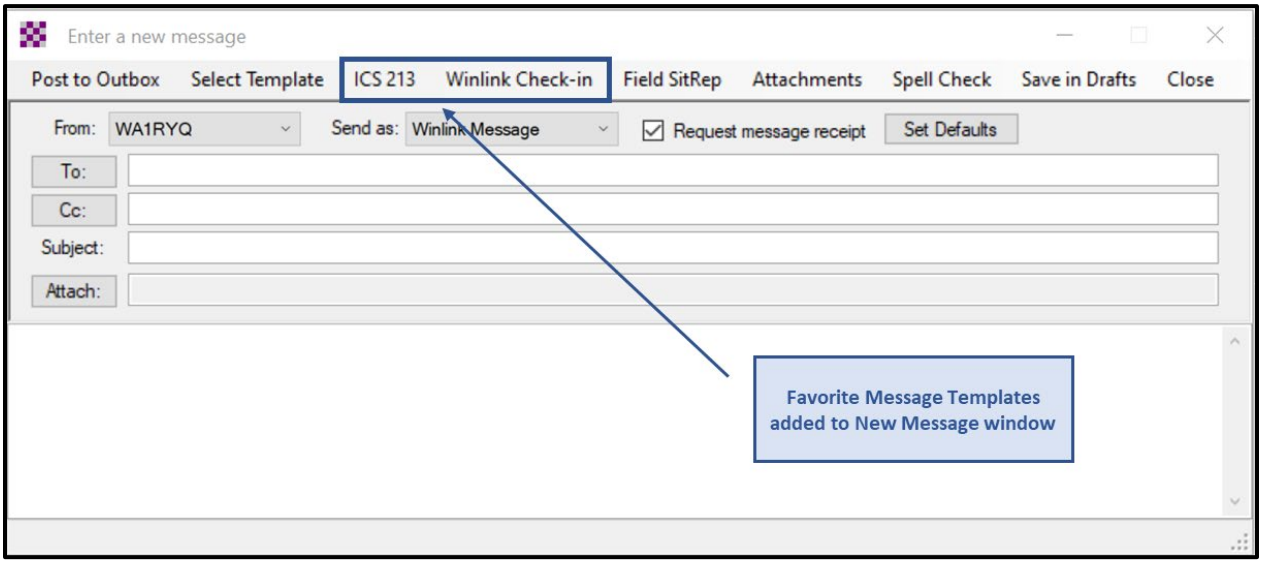

Figure 6. Message Template Favorites

4.1.8.1.1 Assumptions

None

4.1.8.1.2 Skills

a. Use the "Set Favorite Templates…" option on the Message pull-down menu and create one or more message template favorites.

b. Create a new message and confirm that the selected templates are displayed in the New Message Screen Menu Bar.

c. Select each template and confirm that the correct template is displayed.

4.1.9 Establish message acknowledgement defaults (Optional).

Message Acknowledgements (receipts) can be a critical part of the documentation and audit trail created during an exercise or activation period. Even though the user can manually request a message receipt or send a receipt on a message-by-message basis, this manual process is prone to error. A better approach would be to configure Winlink so that it automatically

requests message receipts and automatically sends receipts upon request. Refer to Figure 7 for the location of Message Acknowledgement Settings.

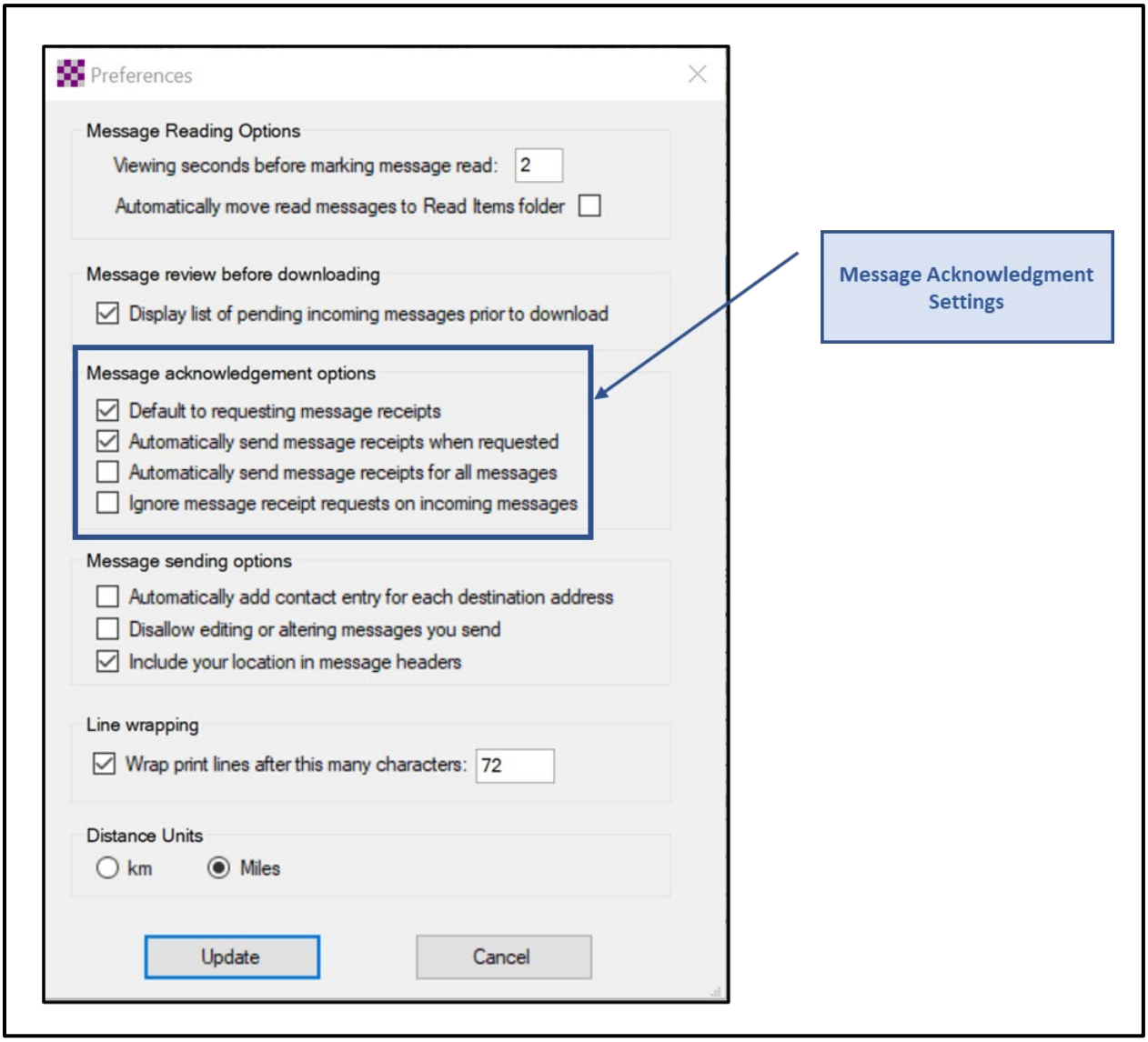

Figure 7. Message Acknowledgement Settings

4.1.9.1 Assumptions

None

4.1.9.2 Skills

a. Using the "Preferences…" option under settings, configure Winlink to automatically request a message receipt and to automatically send a message receipt upon request.

b. Create a new message and confirm that the "Request Message Receipt" box is checked in the header of the new message.

c. In the body of the message, request that the recipient respond with a message that also requests a message receipt. Send the message.

d. Upon receipt of a message requesting a message receipt, Read the message.

e. Confirm that Winlink has placed a message in the outbox addressed to the requesting station.

NOTE: *Winlink will not place a message receipt in the outbox until after the requesting message has been selected for reading. The message receipt will be sent to the requesting station during the next Winlink session.*

4.2 Basic Winlink HF Communication Skills – Detailed Description

This section contains a detailed description of the skills needed to exchange messages using HF Winlink. PinCo ACS HF digital training nets, HF voice, VHF voice, and on-line training meetings (Zoom, MS Teams, Google Meet, etc.) will be used to practice and demonstrate proficiency with each of the identified skills.

Prior to beginning work on this skill set, operators should demonstrate proficiency with basic VHF/UHF Communications skills (Section 4.1) and have a General, Advanced, or Amateur Extra class FCC license.

4.2.1 Install the software required to support HF Winlink communications.

The computer applications identified in this section can be found at the websites listed below.

a. (VARA HF) www.rosmodem.wordpress.com/

4.2.1.1 Assumptions

The Winlink operator has installed the computer programs identified in paragraph 4.1.1; has access to the internet; an HF amateur radio and antenna system; and a computer capable of interfacing with the radio.

4.2.1.2 Skills

a. Download and install the following program onto the Winlink Computer.

(1) VARA HF

4.2.2 Configure an HF Winlink station that supports VARA HF and ARDOP.

This section describes the skills needed to connect the Winlink computer to an HF transceiver; configure the application software and transceiver settings; and adjust the system receive and transmit audio gain levels for proper operation. Because a wide variety of radio and sound card configurations exist, it is not practical to include detailed instructions for any specific

configuration. Users are encouraged to seek guidance from the Web site references documented in Appendix B.

4.2.2.1 Assumptions

The computer applications identified in paragraph 4.1.1 have been installed and properly configured. The computer application identified in paragraph 4.2.1 has been successfully installed.

4.2.2.2 Skills

a. Connect the Winlink computer to an HF amateur radio.

   (1) Radio Control: Connection can be via a radio's existing USB interface (if available) or an auxiliary control jack.

   (2) Transmit and Receive Audio: Connection can be via a radio's existing USB interface (if available) or an external sound card (e.g., SignaLink™, DRA Series, etc.).

b. Configure the HF radio to communicate with Winlink.

c. Open a Winlink VARA HF session and configure the following session settings.

   (1) VARA TNC Settings.

   (2) VARA HF Winlink Radio Selection, Radio Control, and PTT settings.

d. Using the VARA HF application's VARA setup menu, enter the user's callsign.

e. Configure the VARA HF application sound card settings and transmitter drive levels.

f. Close the VARA HF session.

g. Open an ARDOP Winlink session and configure the following session settings.

   (1) ARDOP TNC Capture and Playback Device Settings.

   (2) ARDOP Winlink Radio Selection, Radio Control, and PTT settings.

   (3) ARDOP Session band width and drive level.

h. Close the ARDOP Winlink session.

4.2.3 Send and receive messages via HF RMS gateway stations.

Figure 8 displays a network topography with individual Winlink HF stations communicating with an HF RMS.

This topography represents the default configuration users should encounter on a day-to-day basis when power, cell, and internet service is fully available at HF RMS sites.

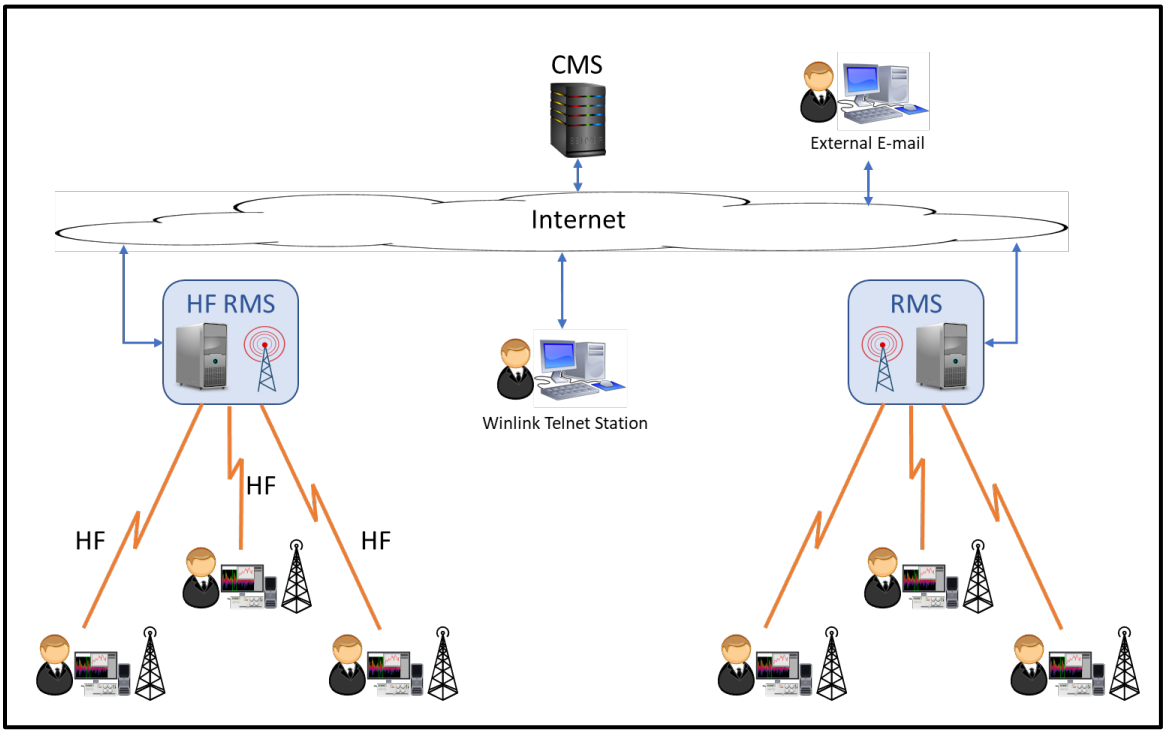

Figure 8. HF RMS Communications

4.2.3.1 Assumptions

HF RMS Gateway stations are operational and have internet access. All messages are sent and received via HF RMS gateways.

4.2.3.2 Skills

a. Update the channel selection table for VARA HF.

b. For each of the HF bands listed below, compose, send, and receive a Winlink message via an HF RMS gateway using VARA HF. Confirm that the message was received by the recipient.

(1) 80 Meters

(2) 40 Meters

(3) 30 Meters

c. Update the channel selection table for ARDOP HF.

d. Compose, send, and receive a Winlink message via an HF RMS gateway using ARDOP HF. Confirm that the message was received by the recipient.

4.2.4 Send and receive VARA HF P2P messages using each VARA HF Bandwidth Setting.

In many of the deployment scenarios PinCo ACS is likely to encounter, the power grid, cell service, and/or internet access are likely to fail over a region spanning multiple counties. In some cases, the internet outage could encompass a large area of the country.

To maintain digital connectivity with served agencies that are outside of VHF range, an HF P2P bridge can be established between two regions (e.g., counties). Figure 9 displays a network topography using an HF P2P bridge to exchange data between two enclaves that have no VHF connectivity.

The VARA HF P2P capability supports three bandwidth settings: 500, 2300, and 2750 Hz. The default setting is 2300 Hz. When operating in a noisy or crowded RF environment, users can select the 500 Hz bandwidth setting to reduce adjacent signal interference and the impact of noise on the Winlink session. If instead, the user is operating in a clear RF environment with stations presenting a high signal to noise ratio, users can select the 2750 Hz bandwidth setting. This higher bandwidth setting has the potential to enhance system performance by up to 20% over the 2300 Hz setting.

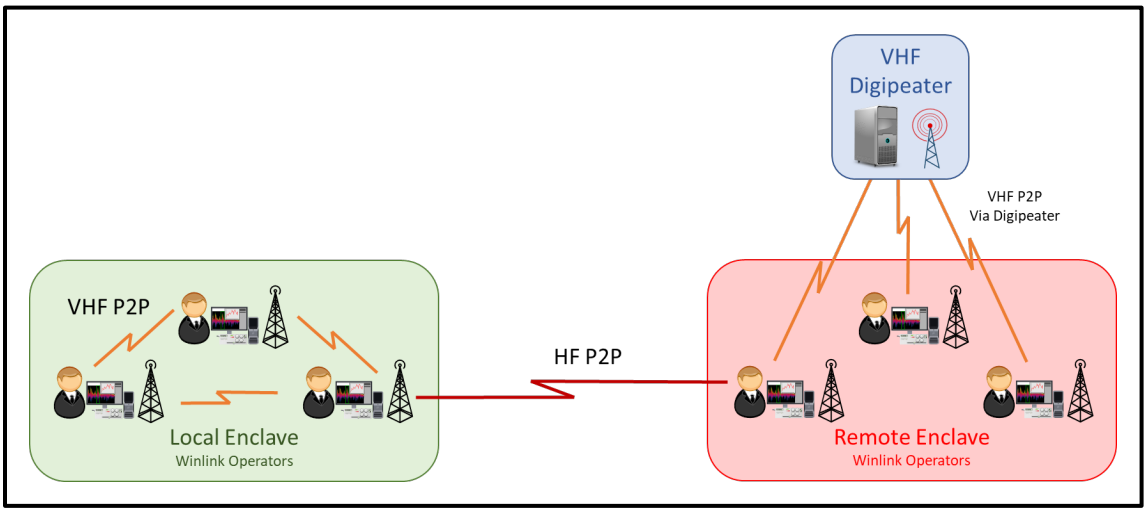

Figure 9. HF P2P Bridge Between two Enclaves

4.2.4.1 Assumptions

A communications plan has been previously established with defined voice and digital HF frequencies. The exchange of digital traffic will be managed via an active voice network.

The Winlink user has access to an HF station with the following operational characteristics.

a. Transmitter filter setting of 100 to 2900 Hz.

b. Receiver filter setting of 0 to 3000 Hz.

c. A Near Vertical Incident Skywave (NVIS) antenna system.

NOTE: *The voice and digital frequencies used during a deployment will be assigned by the PinCo ACS Leadership Team; documented in the ICS 205 and ICS 204s that are incorporated into the PinCo ACS Incident Action Plan (IAP); and distributed to all ACS communication teams prior to deployment.*

4.2.4.2 Skills

a. Net Control

(1) Coordinate the VARA HF P2P exchange of digital messages between two network participants.

b. Network participants

(1) Use the VARA HF Setup… menu to enable VARA to accept 500 Hz connections. Refer to Figure 10 for setting location.

(2) For each of the VARA bandwidth settings listed below, compose, send, and receive a VARA HF P2P Winlink message. Confirm that the message was received by the recipient.

(a) 500 Hz

(b) 2300 Hz

(c) 2750 Hz

NOTE: *The **Winlink Settings - Vara TNC Setup** menu is used to select the appropriate session bandwidth for each message exchange. Refer to Figure 11 for setting location. The current VARA HF bandwidth setting is displayed on the VARA HF status bar. Refer to Figure 10 for the location of the bandwidth status indicator.*

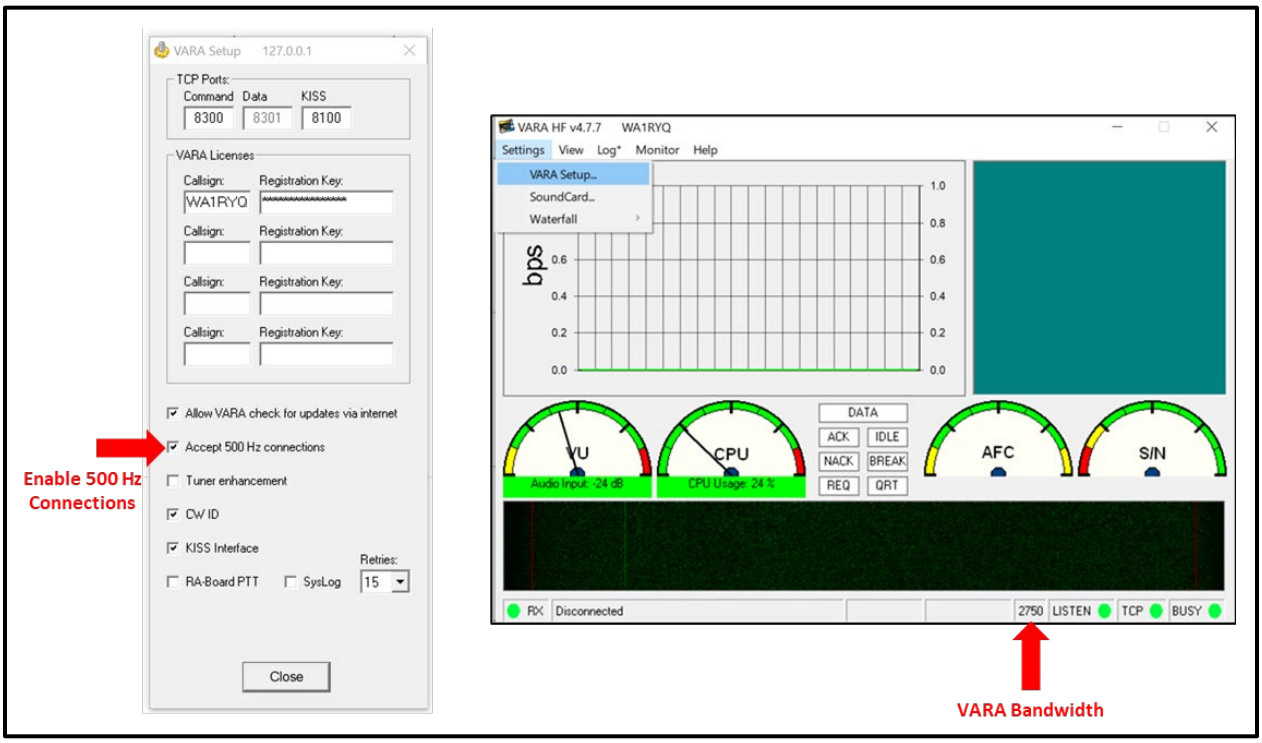

Figure 10. VARA HF Settings and Status

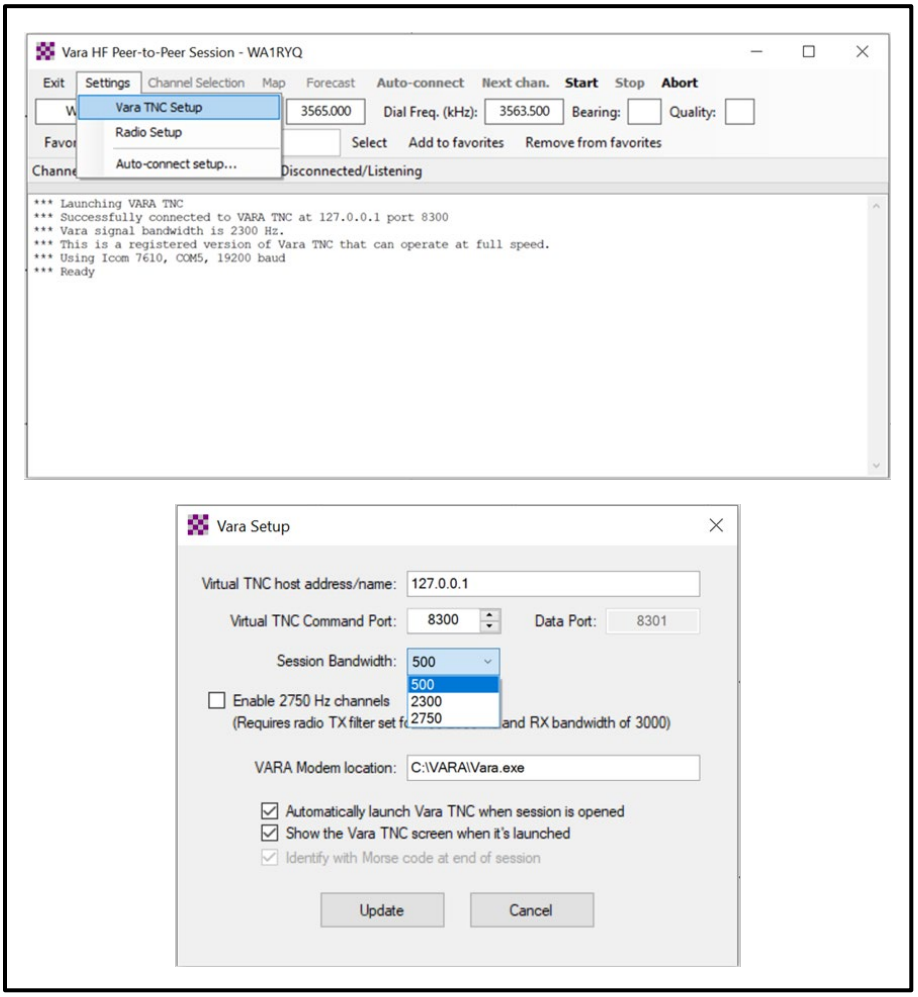

Figure 11. VARA HF Session Bandwidth Settings

4.2.5 Create VARA HF P2P Session Favorites (Optional).

During an exercise or activation event, Winlink station, frequency, and bandwidth information will be documented in the Incident action plan and distributed to all PinCo ACS communication teams. Propagation and deployment locations will likely mandate that multiple Winlink channels be created. Winlink users can simplify the Winlink channel selection process by storing the defined channel information within Winlink. Once stored, the appropriate channel can be selected from a drop-down list of favorites.

4.2.5.1 Assumptions

The Winlink operator has successfully completed the Winlink P2P tasks listed in section 4.2.4.

A communications plan has been previously established with defined voice and digital HF frequencies. The exchange of digital traffic will be managed via an active voice network.

The Winlink user has access to an HF station with the following operational characteristics.

a. Transmitter filter setting of 100 to 2900 Hz.

b. Receiver filter setting of 0 to 3000 Hz.

c. A Near Vertical Incident Skywave (NVIS) antenna system.

4.2.5.2 Skills

a. Net Control

(1) Coordinate the VARA HF P2P exchange of digital messages between two network participants.

b. Network participants

(1) Open a Winlink HF P2P session and enter the call sign and center frequency that will be used during the P2P session.

(2) Use the ***Winlink Settings – Vara TNC setup*** menu to select a session bandwidth of 500 Hz.

(3) Depress the ***Add to favorites*** button to add the session information to the list of favorite channels.

(4) Create a favorite channel selection for a 2300 and 2750 Hz session.

(5) Use the ***favorites*** menu to ***select*** the channel to be used during a P2P exchange. Refer to Figure 12.

NOTE: *Winlink will automatically adjust the session bandwidth and radio frequency used during the session to the values stored in the selected favorite channel.*

(6) Examine the VARA HF status bar and confirm that VARA is operating at the selected bandwidth setting.

(7) For each of the VARA bandwidth settings listed below, compose, send, and receive a VARA HF P2P Winlink message. Confirm that the message was received by the recipient. Select the session frequency and bandwidth setting from the list of favorite channels.

(a) 500 Hz

(b) 2300 Hz

(c) 2750 Hz

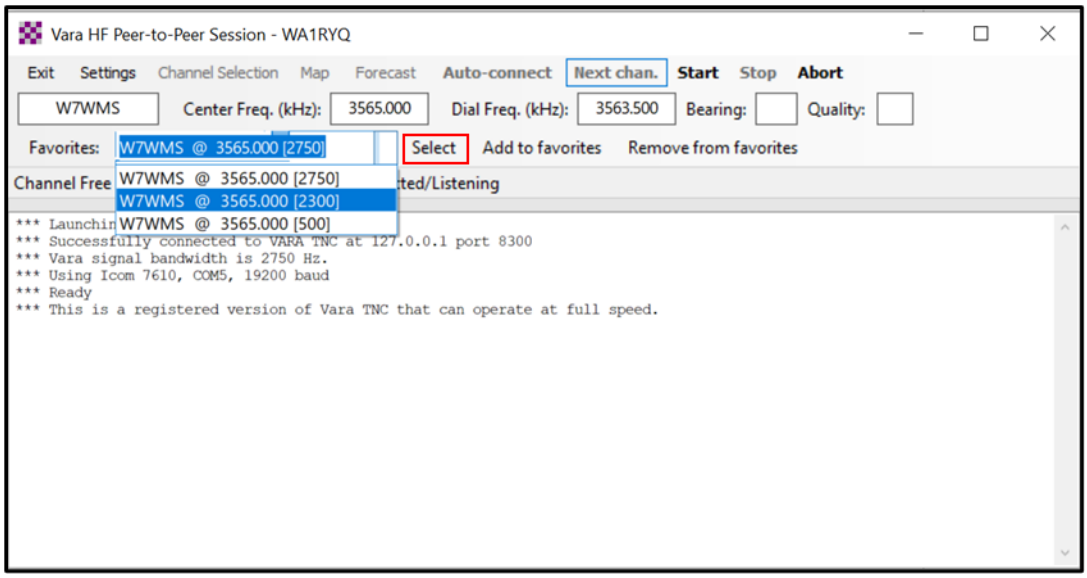

Figure 12. Winlink HF P2P Favorite Channel Selection

4.3 DEPLOYMENT READY VHF/UHF COMMUNICATION SKILLS – DETAILED DESCRIPTION

This section contains a detailed description of the skills needed to support the deployment of VHF/UHF Winlink operators to remote locations within or outside Pinellas County. Operators may be deployed to served agencies such as evacuation shelters, critical infrastructure sites, Non-Government Agencies (NGOs), or other locations as required by PinCo Emergency Management.

PinCo ACS VHF/UHF digital training nets, VHF voice, on-line training meetings (Zoom, MS Teams, Google Meet, etc.), drills, and deployment exercises will be used to practice and demonstrate proficiency with each of the identified skills.

Prior to beginning work on this skill set, operators should demonstrate proficiency with basic VHF/UHF Communications skills (Section 4.1) and hold a Technician, General, Advanced, or Amateur Extra class FCC license.

4.3.1 Set-up a VHF Winlink station at a remote deployment site.

During an exercise or activation period, users may be sent to locations that no longer have RF connectivity with the VHF RMS sites that they have traditionally used at or around their home address. To re-establish connectivity, users will need to identify different VHF RMS sites within the RF line-of-sight range of their deployed location.

4.3.1.1 Assumptions

The deployment location is significantly outside the Grid Square normally used by the operator.

4.3.1.2 Skills

a. Update the *My Grid Square* information stored within the Winlink program. The Grid Square information must correspond to the deployment location of the Winlink system. GPS information can be entered into the system manually or by using an attached GPS device.

b. Update the channel selection table for VHF Packet and VARA FM. The internet can be used to perform this operation if it is available.

c. Send a Winlink Check-in form to net control.

4.3.2 Set-up an event specific personal folder within Winlink.

During local Winlink nets, drills, exercises, and activation events, the Winlink message traffic unique to the event should be filed within a separate folder to simplify the management of event data and the creation of an ICS 309 Communication Log.

4.3.2.1 Assumptions

None

4.3.2.2 Skills

a. Create a new personal message folder for the event.

b. Move all incoming event messages into the event folder.

c. Move all outgoing event messages into the event folder from the Winlink *Sent Items* folder.

4.3.3 Create, send, and receive messages using ICS template forms.

The National Incident Management System (NIMS) ICS has developed a set of standardized forms for use during deployment activities. Many of these forms have been incorporated into Winlink as HTML templates.

Served agency personnel will provide message data to the Winlink operator as handwritten text, MS Excel Spreadsheets, MS Word documents, or text files. It is the responsibility of the Winlink operator to enter the served agency data into the correct ICS form and send the information to the intended recipient. Served agency personnel will not operate the Winlink computer.

4.3.3.1 INCIDENT RADIO COMMUNICATIONS PLAN (ICS 205)

Under normal circumstances, the Incident Radio Communication Plan (ICS 205) will be developed by the PinCo ACS Leadership Team and sent to all potential Winlink users before an exercise or activation event. However, as events unfold during a deployment, it may become necessary to update the communications plan and send it to currently deployed PinCo ACS communication teams. Refer to Figure C- 4 for an example of this form.

4.3.3.1.1 Assumptions

Incident Radio Communication Plans will be developed by the PinCo ACS Leadership Team.

4.3.3.1.2 Skills

a. Create an ICS 205 template-based message. Enter the required information into the form manually. Save the form contents and then send the message to each network participant.

b. Upon receipt of updated worksheet information from the ACS Leadership Team, create a second ICS 205 template-based message, reload the previously stored worksheet data, manually update the contents, and send the updated form to each network participant.

c. (***Optional***) Upon receipt of a USB flash drive containing worksheet data (e.g., MS Excel, Tab delimited text file), copy and paste the imported data into the ICS 205 using the built-in parsing function.

4.3.3.2 GENERAL MESSAGE (ICS 213)

The General Message (ICS 213) is used to send messages between served agency personnel that require a written record of transmission and therefore cannot be transmitted orally. Refer to Figure C- 5 for an example of this form.

In addition to the standard ICS form, agency, or state versions of this form may also be encountered (e.g., American Red Cross (ARC 213)).

4.3.3.2.1 Assumptions

All served agency information imported into the Winlink computer is performed via "Sneaker-net". The Winlink computer is never connected to a served agency computer, network, or another digital device (e.g., Phone, tablet, etc.). Information is entered into the computer via USB flash drives. These procedures are implemented to mitigate the potential transmission of malicious software between systems.

4.3.3.2.2 Skills

a. Create an ICS 213 template-based message. Enter the required information into the message manually. Send the message to net control.

b. Create an ICS 213 template-based message. Save the message text and then send the message. Create a second ICS 213 template-based message and reload the text from the previous message into the new ICS 213. Update the message for a new recipient and send the second message.

c. Save a copy of each ICS 213 as a PDF to a folder on the desktop of the Winlink computer.

4.3.3.3 GENERAL MESSAGE RESPONSE (ICS 213 Reply)

During a deployment, the operator will receive ICS 213 messages that require the recipient to respond with specific information in the reply portion of the original ICS 213 form.

4.3.3.3.1 Assumptions

None

4.3.3.3.2 Skills

a. Upon receipt of an ICS 213 message requesting information, the operator will notify the intended recipient of the message.

b. When the recipient provides the operator with a response, the operator will enter the response into the Reply section of the ICS 213 and send the updated ICS 213 back to the originator.

c. Save a copy of the ICS 213 as a PDF to a folder on the desktop of the Winlink computer.

4.3.3.4 RESOURCE REQUEST MESSAGE (ICS 213RR)

The Resource Request (ICS 213RR) is utilized to order resources and track resource status. The ICS 213RR is initiated by the resource requestor and initially approved by the appropriate Section Chief or Command Staff. The Logistics and Finance/Administration Sections also complete applicable sections of the form. Refer to Figure C- 6 for an example of this form.

As with the ICS 213 General Message form, agency and state versions of this form may also be encountered (e.g., WA State ICS 213RR).

4.3.3.4.1 Assumptions

None

4.3.3.4.2 Skills

a. Create an ICS 213RR template-based message. Enter the data provided by the served agency into the message. Send the message to net control.
b. Save a copy of the ICS 213RR as a PDF to a folder on the desktop of the Winlink computer.

4.3.3.5 ACTIVITY LOG (ICS 214)

The Activity Log is used to record all significant events that occur during an exercise, event, or activation period. Significant events include but are not limited to ACS communication team arrival, station availability, task assignments, task completions, injuries, difficulties encountered, etc. For additional information about the significant events that should be recorded in the ICS 214, refer to paragraph 5.2,1 of the *Pinellas County ACS Emergency Communications Plan and Standard Operating Procedures* document.

The Activity Log is provided to the PinCo ACS Admin officer at the conclusion of the exercise, event, or activation period. Refer to Figure C- 7 for an example of this form.

NOTE: *In addition to the ICS 214, a template for the ICS 214A is also included within Winlink. The ICS 214A is a non-standard ICS form that can be used to document the activities associated with a single individual.*

4.3.3.5.1 Assumptions

None

4.3.3.5.2 Skills

a. At the beginning of the exercise, create an ICS 214 template-based message.
b. Maintain / Update the ICS 214 template-based message throughout the exercise recording all significant events on the form.
c. At the conclusion of the exercise, send the completed ICS 214 template-based message to the PinCo ACS Admin officer.
d. Save a copy of the ICS 214 as a PDF to a folder on the desktop of the Winlink computer.

4.3.3.6 COMMUNICATIONS RESOURCE AVAILABILITY WORKSHEET (ICS 217A)

The Communications Resource Availability Worksheet (ICS 217A) is used to identify each VHF Repeater, UHF Repeater, Winlink RMS Gateway, Winlink Digipeater, APRS® Digipeater, HF and VHF simplex frequency that is accessible and available for use within a region during an activation event or exercise. It is the master list of all the resources that could *potentially* be used during an event. It is not the list of all the resources that *will* be used during the event.

Prior to an activation event, the PinCo ACS Leadership Team will use this master list of resources to build a communications plan, ICS 205, that is appropriate and meets the needs of the specific event. Refer to Figure C- 8 for an example of the ICS 217A.

4.3.3.6.1 Assumptions

None

4.3.3.6.2 Skills

a. Create an ICS 217A template-based message. Enter the required information into the form manually. Save the form contents and then send the message to each network participant.

b. Upon receipt of updated worksheet information from the PinCo ACS Leadership Team, create a second ICS 217A based message, reload the previously stored worksheet data, manually update the contents, and send the updated form to each network participant.

c. (***Optional***) Upon receipt of a USB flash drive containing worksheet data (e.g., MS Excel, Tab delimited text file), copy and paste the imported data into the ICS 217A using the built-in parsing function.

4.3.3.7 COMMUNICATIONS LOG (ICS 309)

The Communications Log records the details of all event specific message traffic and is initiated and maintained by each Winlink operator. These logs provide the basic reference from which to extract communications traffic history. Refer to Figure C- 9 for an example of this form.

4.3.3.7.1 Assumptions

The Winlink Operator has previously created an event specific personal mail folder and filed all exercise specific messages within the folder.

4.3.3.7.2 Skills

a. Create a PDF ICS 309 for the exercise. The information on the form must only contain information related to the exercise.

(1) Use the *Message- Generate ICS-309 Communications Log* menu to enter/select the information listed below. Refer to Figure 13.

(a) The personal folder containing the exercise message traffic.

(b) The start and end times and dates for the exercise.

(c) The ICS 309 header information for the exercise.

(d) Output PDF file location.

(2) Send the completed ICS 309 PDF form to the PinCo ACS Admin Officer via Telnet.

b. Create an ICS 309 template based Winlink message for the exercise. The information on the form must only contain information related to the exercise.

(1) Use the *Message- Generate ICS-309 Communications Log* menu to enter/select the information listed below. Refer to Figure 13.

(a) The personal folder containing the exercise message traffic.

(b) The start and end times and dates for the exercise.

(2) Generate a Comma Separated Variable (CSV) File.

(3) Use the *Generate CSV File with message records* screen to enter/select the information listed below. Refer to Figure 14.

(a) The ***Time***, ***From, To*** and ***Subject*** columns.

(b) Column Delimiter.

NOTE: *If Notepad will be used to open the CSV file, then set the Column Delimiter to* ***Tab.*** *If Microsoft Excel will be used to open the CSV file, then set the Column Delimiter to* ***Comma.***

(c) CSV Output file location.

(4) Create a new message and select the ICS 309 from the list of templates.

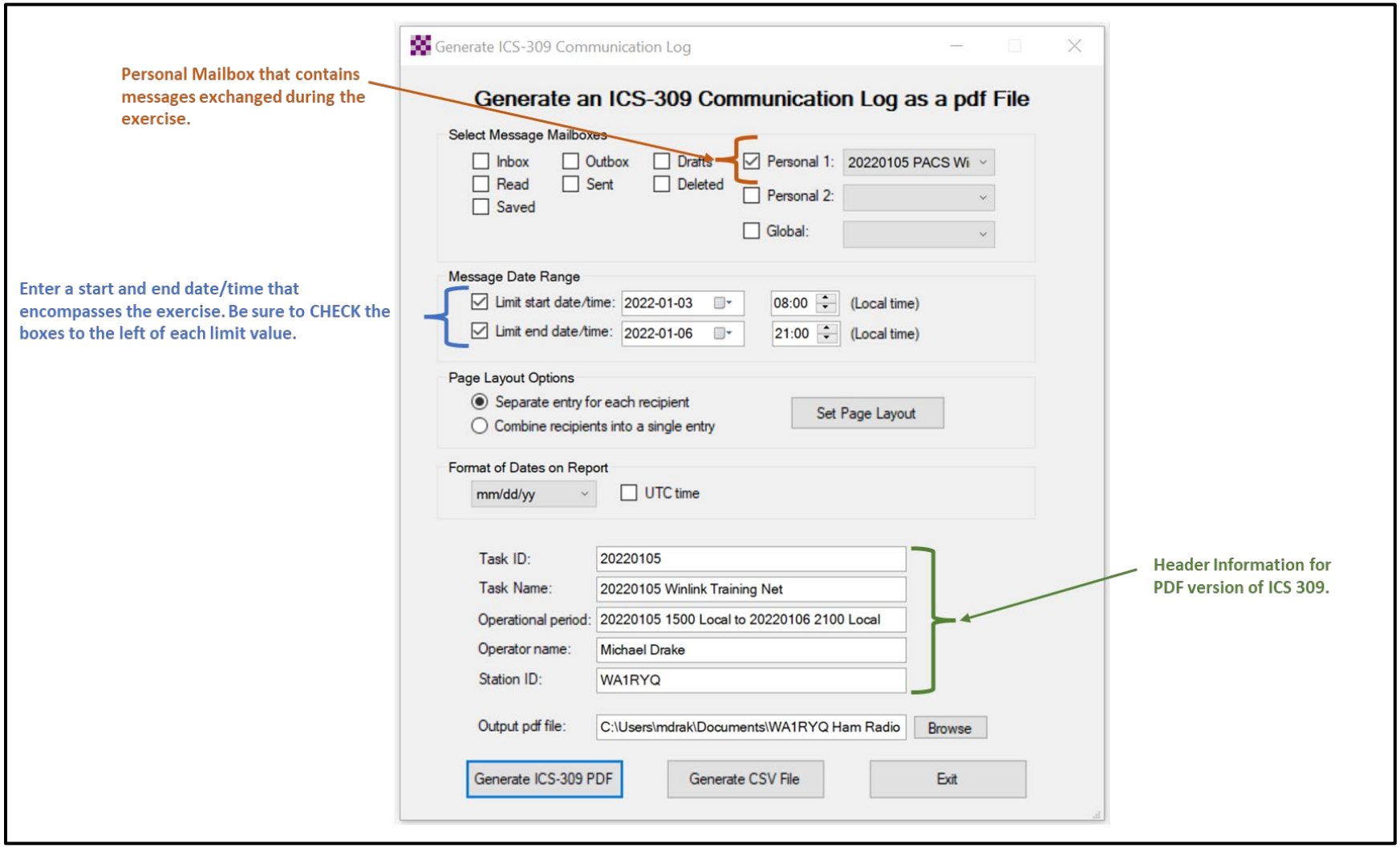

Figure 13. Winlink Generate ICS-309 Communication Log Window

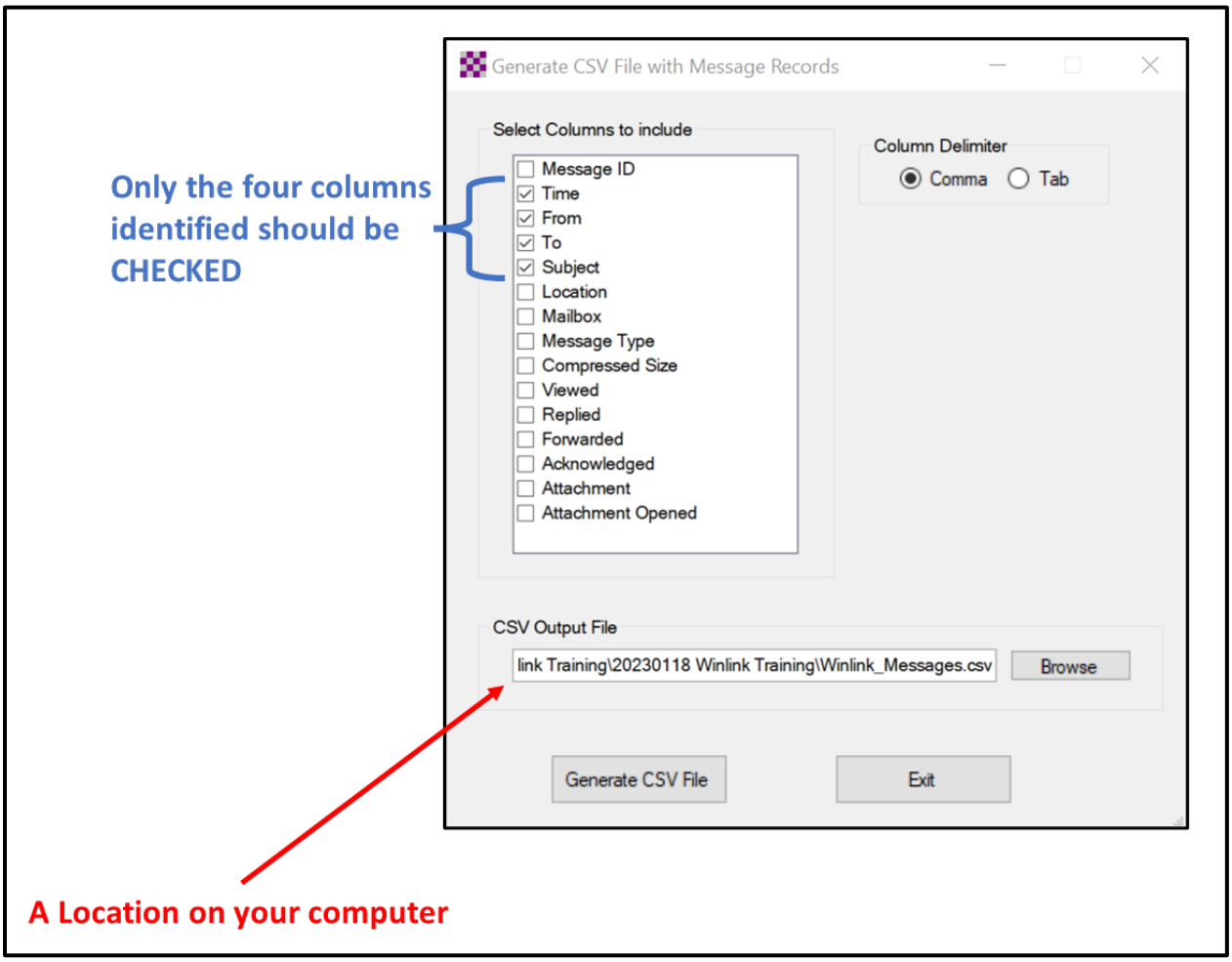

Figure 14. Generate CSV File with Message Records Screen

(5) Enter the CSV data into ICS 309 template-based message form.

(a) Depress the ***Paste Data from a Spreadsheet*** Button. Refer to Figure 15.

(b) Open the ICS 309 CSV file previously created and then select and copy the exercise data. Refer to Figure 16 for information about the ICS 309 CSV file.

(c) Paste the data into the blank field of the Copy and Paste screen, Figure 17.

Figure 15. Winlink ICS 309 Data Entry Form

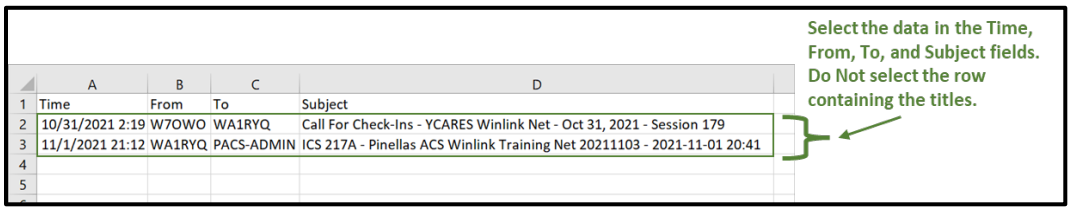

Figure 16. ICS 309 CSV File

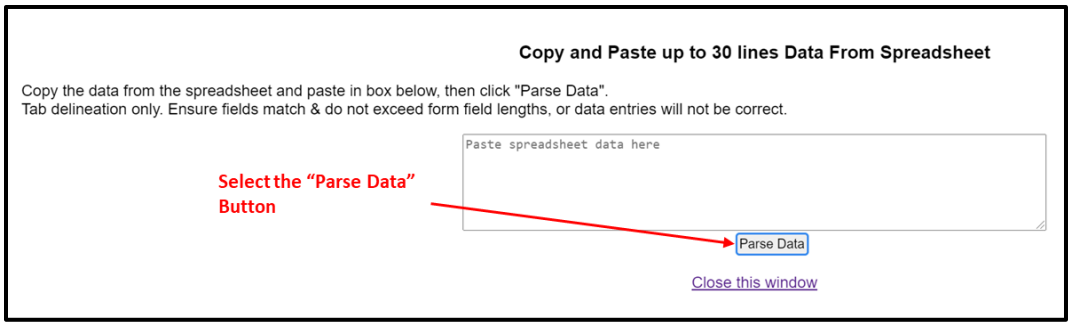

Figure 17. Winlink ICS 309 Paste Data from a Spreadsheet Screen

(6) Parse the Spreadsheet Data.

(7) Populate the remaining ICS 309 fields with the exercise specific information.

(8) Send the completed ICS 309 template-based message to the PinCo ACS Admin officer.

4.3.4 Create and send messages using *Priority* and *Immediate* precedence.

During an activation event, prioritizing the flow of information is a critical component of information management. Precedence is the message attribute that enables a user to prioritize each message properly.

Four precedence levels are defined within Winlink. Messages generated by PinCo ACS will only be assigned a Winlink precedence of ROUTINE, PRIORITY, or IMMEDIATE. Under no circumstances will any message be assigned a Winlink precedence of FLASH. When creating a new message, Table I should be used to identify the Winlink precedence that corresponds to the appropriate ARRL® NTS™ precedence definition. For additional information about message precedence, refer to paragraph 5.1.2 of the *Pinellas County ACS Emergency Communications Plan and Standard Operating Procedures* document.

Table I. WINLINK Message Precedence

Winlink Precedence	ARRL® NTS™ Precedence	SUBJECT LINE Priority Indicator	Notes
FLASH (Z)	N/A	Z/	***DO NOT USE***
IMMEDIATE (O)	EMERGENCY	O/	
PRIORITY (P)	PRIORITY	P/	
ROUTINE (R)	ROUTINE	R/	Default for all messages

4.3.4.1.1 Assumptions

During a training event, it is important to ensure that no one mistakes a training message as a message reporting a real-world emergency. Therefore, any Winlink message assigned a precedence of PRIORITY or IMMEDIATE must clearly indicate that the message is associated with a training exercise. Refer to Figure 18 for an example of a PRIORITY Winlink EXERCISE

message. Additional information about formatting a Winlink EXERCISE message is contained in paragraph 5.1.6 of the *Pinellas County ACS Emergency Communications Plan and Standard Operating Procedures* document.

4.3.4.1.2 Skills

a. Create an ICS 213 template-based message. Enter the required information into each field of the message and clearly indicate that the message is associated with an exercise.

b. Add the subject line priority indicator for a PRIORITY message (P/) to the message subject line.

c. Create a second ICS 213 template-based message. Enter the required information into each field of the message and clearly indicate that the message is associated with an exercise.

d. Add the subject line priority Indicator for an IMMEDIATE message (O/) to the message subject line.

e. Send both messages to net control.

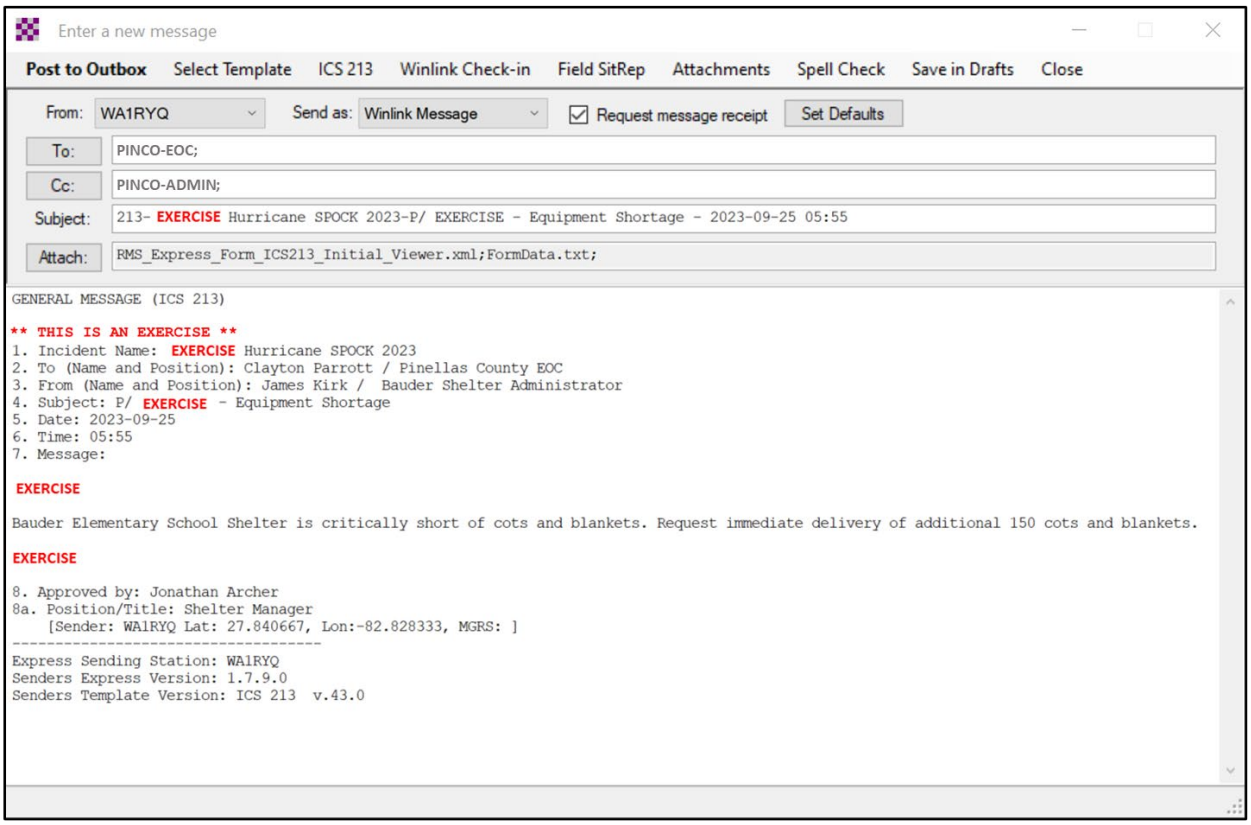

Figure 18. Priority Winlink EXERCISE Message

4.3.5 Configure Winlink to annotate *Priority, Immediate,* and *Flash* messages.

Message traffic with a precedence of ***Priority***, ***Immediate***, or ***Flash*** must be rapidly identified and processed as soon as possible. However, during an activation event, users may encounter a high traffic volume and find it difficult to quickly identify traffic with a high priority precedence. To assist users with the identification of high priority traffic, Winlink can be configured to highlight and sound an audible alarm upon receipt of a ***Priority***, ***Immediate***, or ***Flash*** message.

4.3.5.1.1 Assumptions

None

4.3.5.1.2 Skills

a. Use the "Message Notification and Forwarding" option on the Settings pull-down menu to configure Winlink to make a sound when a message is received that has a precedence of ***Priority*** or higher. Refer to Figure 19.

b. Select a "*New message notification sound*" and configure Winlink to repeat the sound until the message is read.

NOTE: *A notification sound must be selected for Winlink to properly annotate high priority messages. If the notification sound is set to* ***None****, messages will not be highlighted.*

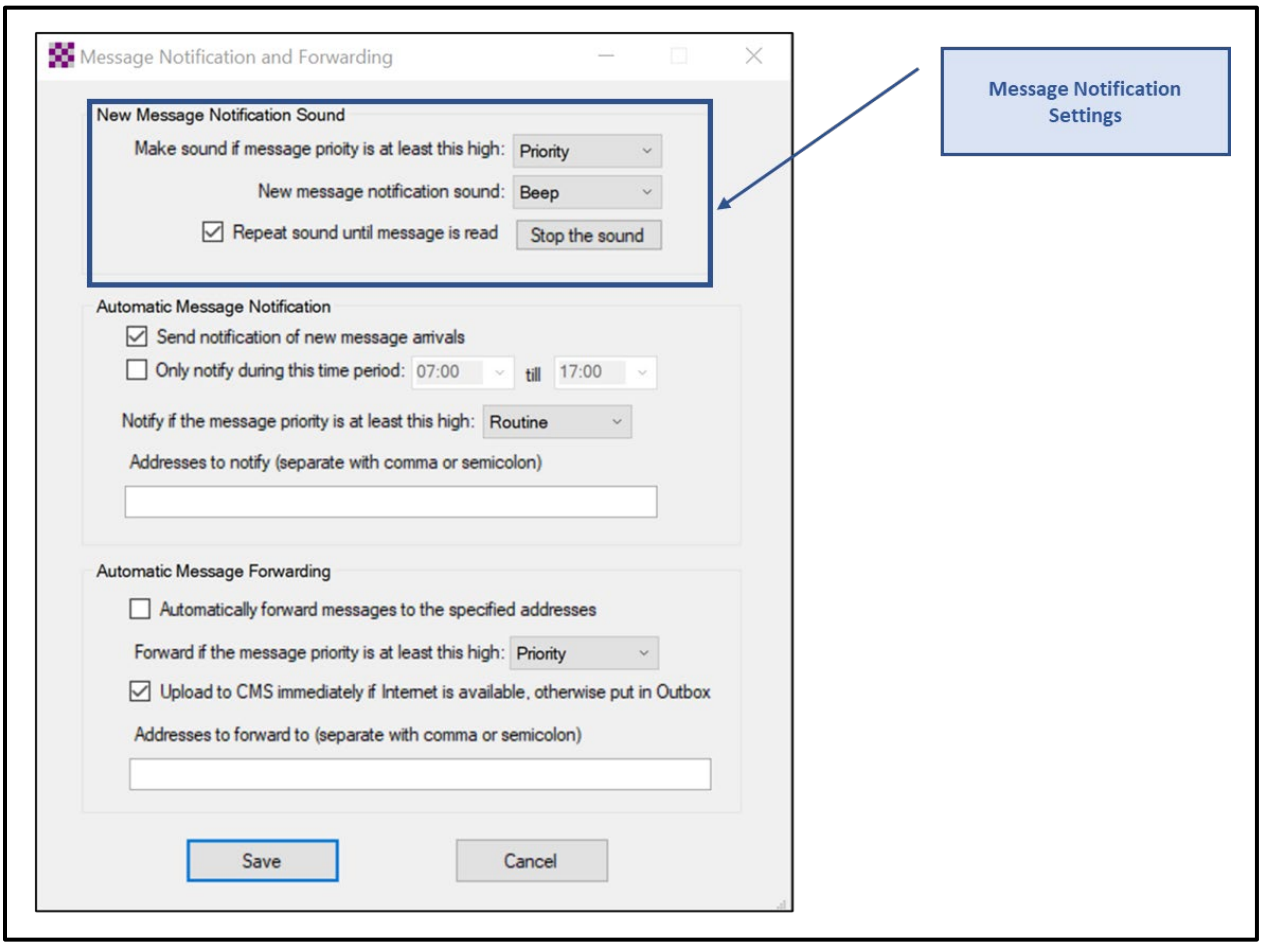

Figure 19. Message Notification Settings

c. Net Control

(1) Send a ***Priority*** message to net participants.

(2) Send an ***Immediate*** message to net participants.

d. Net Participants

(1) Upon receipt of a ***Priority*** and ***Immediate*** message from net control, confirm that each new message is highlighted in the main display and that Winlink generates an audible alarm until each message is read. Refer to Figure 20.

	Date/Time	Message ID	Size	Source	Sender	Recipient	Subject
	2022/07/06 23:56	Q1WS52TX9SNP	320	KO4PFV	KO4PFV	WA1RYQ	O/ EXERCISE - Winlink Message Precedence Test
	2022/07/06 23:55	1TSVZFTMVVDE	325	KO4PFV	KO4PFV	WA1RYQ	P/ EXERCISE - Winlink Message Precedence Test
	2022/07/06 23:48	AI60TU7L7FH4	2674	KO4PFV	KO4PFV	WA1RYQ	Winlink Check in Net - KO4PFV

Figure 20. Highlighted Priority and Immediate Messages

4.3.6 Send and receive messages using a tactical address.

A Winlink tactical address is not a call sign. It is used to identify a specific location or function that may be staffed by different operators during an exercise or activation event. Examples include but are not limited to Emergency Operations Centers (EOCs), evacuation shelters, government agencies, and NGOs. Tactical addresses simplify message routing during an exercise or event. Winlink users do not need to know the call sign of the individual staffing a specific location. They only need to know the tactical address of the location. Even if the operators at a specific location change, the tactical address does not.

Once a tactical address is created, messages can be sent from, and to, the tactical address's mailbox. And, like a standard Winlink account, Winlink maintains a unique whitelist for each tactical address. A tactical address that has not been used for 6 months will automatically be deleted.

NOTE: *Although a tactical address can be used in most Winlink network topographies, a tactical address cannot be used when exchanging information in a P2P network.*

4.3.6.1.1 Assumptions

Tactical addresses used during an exercise or activation event will be assigned by the PinCo ACS Leadership Team and documented in the *Pinellas County ACS Emergency Communications Plan and Standard Operating Procedures* document.

During this task, each user will be provided with the following information by the NCS.

a. A Winlink tactical address previously created by the PinCo ACS Leadership Team.
b. The password associated with the assigned Winlink tactical address.

***NOTE**: It is assumed that the Winlink Tactical Address provided to each user has not been previously added to the user's Winlink computer.*

4.3.6.1.2 Skills

a. Create the tactical address using the *Winlink Express Setup* menu. When entering the tactical address into the Add Entry window, ensure that the address is an *exact* match to the Winlink address provided by the NCS.
b. Enter the password for the tactical address that was provided by the NCS.
c. Enable and then save the newly created tactical address. Refer to Figure 21 for an example of this operation.

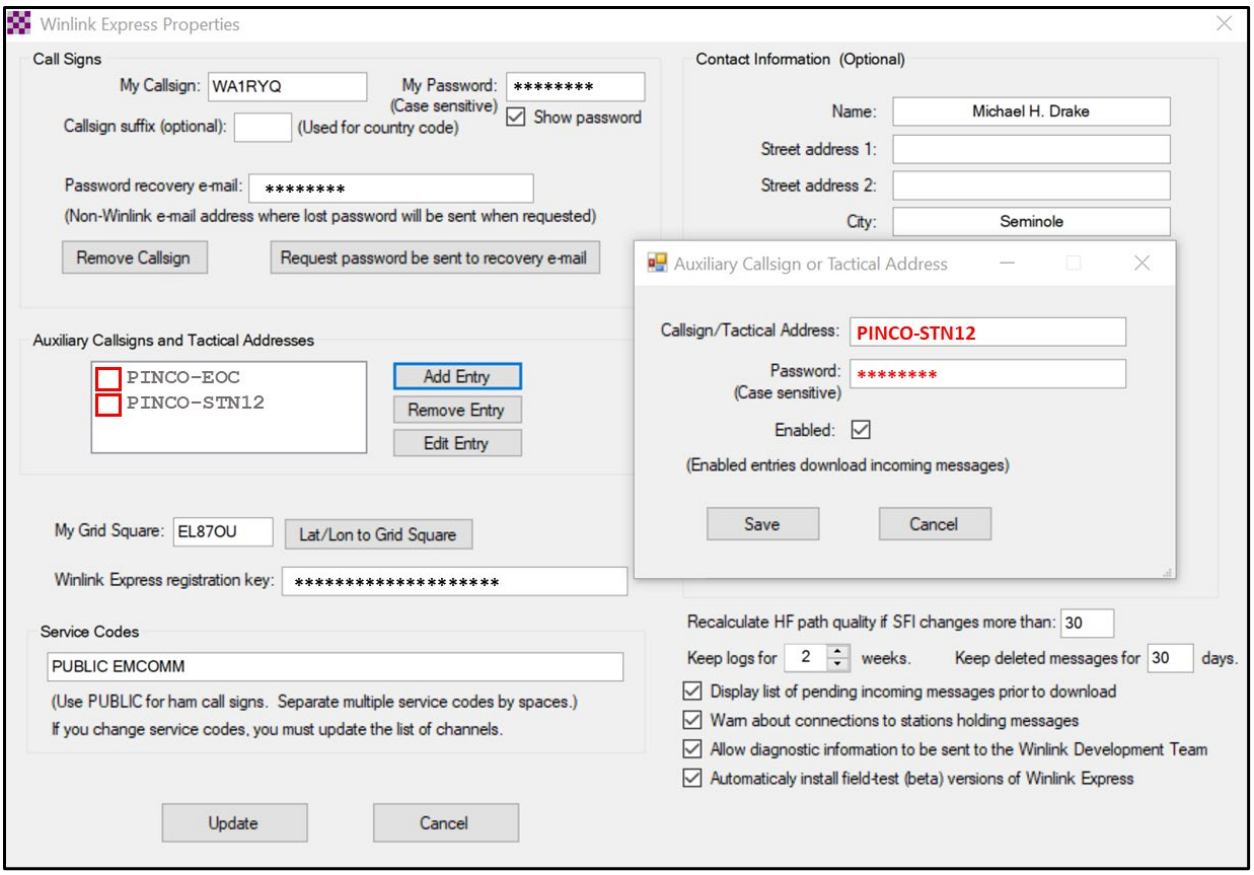

Figure 21. Winlink Tactical Address Menu

d. Disable all other tactical addresses.

e. Examine the *Auxiliary Callsigns and Tactical Address* window and confirm that the new tactical address is listed and that the Enabled box is checked.

f. Create a new message.

(1) Select the new tactical address as the station address sending the message. Refer to Figure 22 for an example of this selection.

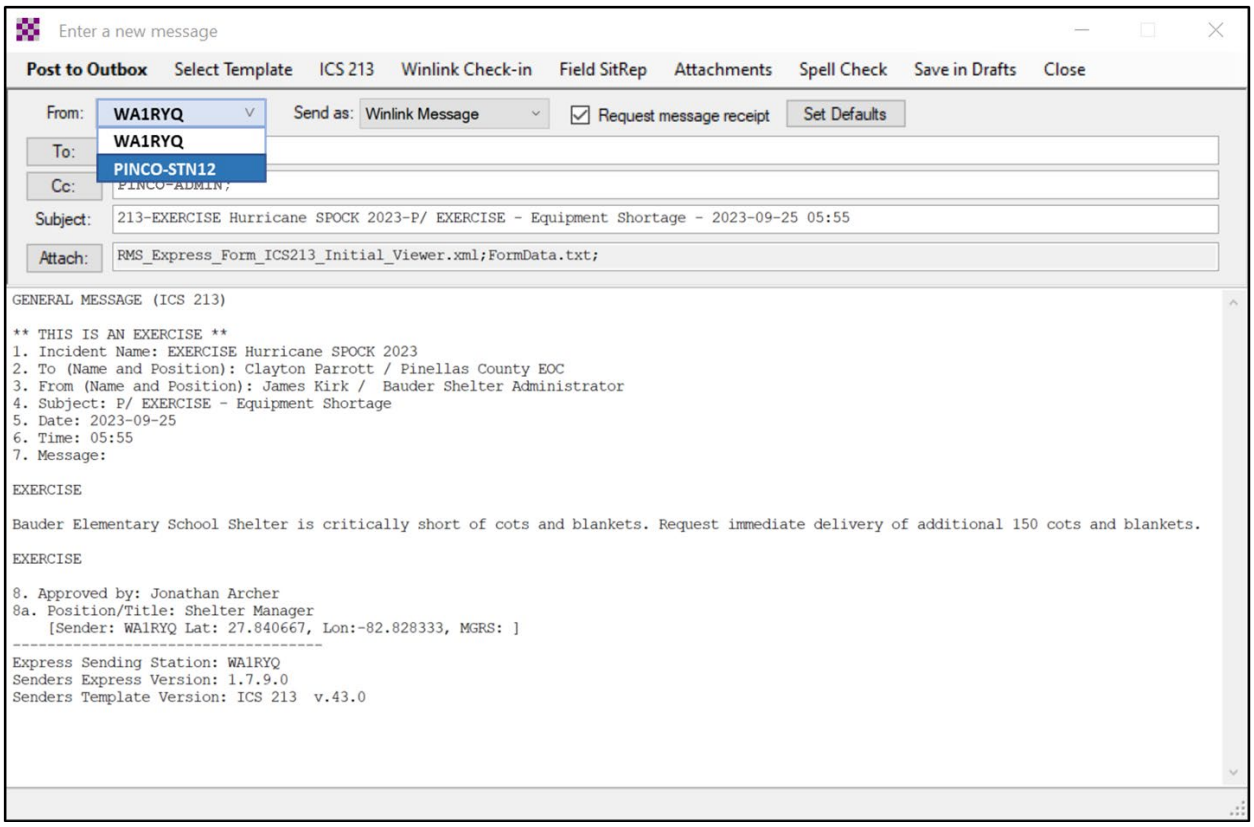

Figure 22. Tactical Address Selection

(2) Send the message to net control and a copy to your local internet email address. The message should request that net control respond to the message.

g. Confirm that your internet email account received an email from the new tactical address. It should be in the form "*Tactical_address*@winlink.org".

h. From your local internet email, create and send an email back to the new tactical address.

i. Confirm that you have received emails from both your local internet email address and from net control. Both emails should identify the recipient as the tactical address, not your call sign.

j. Disable the new tactical address using the *Winlink Express Setup* menu.

k. Examine the *Auxiliary Callsigns and Tactical Address* window and confirm that the Enabled box for the tactical address is *not* checked.

4.3.7 Import served agency data into the Winlink computer.

During an activation event, the operator is required to send served agency messages to remote Winlink recipients. The messages can be provided to the Winlink operator as handwritten text, MS Excel Spreadsheets, MS Word documents, or text files.

Winlink ICS HTML forms can also be exported to non-Winlink users so that they can enter data directly into Winlink HTML forms, save form content to text files, and provide the text files to Winlink operators. Once loaded into the Winlink computer, these text files can be loaded directly into the applicable ICS form. Refer to Appendix B, *Winlink BOK - Form use by non-Winlink Users* for additional information.

4.3.7.1 Assumptions

All served agency information imported into the Winlink computer is performed via "Sneaker-net". The Winlink computer is never connected to a served agency computer, network, or another digital device (e.g., Phone, tablet, etc.). Information is entered into the computer via USB flash drives. These procedures are implemented to mitigate the potential transmission of malicious software between systems.

4.3.7.2 Skills

a. Import a generic text file from a USB flash drive. Copy and paste the data into an ICS 213 template-based message. Send the message to net control.

b. Import an MS Excel Spreadsheet from a USB flash drive. Convert the contents to a CSV File. Attach the CSV File to an ICS 213 template-based message. Send the message to net control.

c. Import an MS Word Document from a USB flash drive. Convert the contents to a text file and paste the data into an ICS 213 template-based message. Send the message to net control.

d. Export the files listed below to a USB flash drive. Provide the USB flash drive to a served agency partner and help the user to transfer the files onto the served agency computer.

(1) RMS Express / Standard Templates / ICS USA Forms / ICS213_initial.html

(2) RMS Express/Standard Templates/ICS USA Forms / ICS213RR_initial.html

e. Import, from a USB flash drive, an ICS 213 text file that was created by a non-Winlink user who created the file using an exported copy of the ICS 213 HTML form. Load the imported text file directly into an ICS 213 and send the message to net control.

4.3.8 Import, resize, send, and receive photographs.

During an activation event, the operator and/or the served agency may be required to send an image to a Winlink destination. The image may show storm damage or other relevant information.

4.3.8.1 Assumptions

a. Cell service and local area internet are not available. Therefore, the operator cannot send a picture from his/her phone to the Winlink computer via cloud services or the internet.

b. All served agency information imported into the Winlink computer is performed via “Sneaker-net”. The Winlink computer is never connected to a served agency computer, network, or another digital device (e.g., Phone, tablet, etc.). Information is entered into the computer via USB flash drives. These procedures are implemented to mitigate the potential transmission of malicious software between systems.

c. The Winlink operator is permitted to connect his/her personal phone, tablet, and camera to the Winlink computer.

d. Images are sent through Winlink as attachments.

4.3.8.2 Skills

a. Send a picture using Winlink.

(1) Import a picture from your phone, tablet, or camera directly into the Winlink computer.

(2) Import a picture from a USB flash drive into the Winlink computer.

(3) Resize and crop each image, attach each image to a Winlink message, and send each image to net control. Confirm that the image was received by net control.

b. Receive a picture using Winlink.

(1) Upon receipt of a message containing a photo attachment, open the attachment and store the photo on the Winlink computer.

(2) Display the received photo.

4.3.9 Send an ICS template-based message form as a PDF using Telnet.

When a Winlink ICS template-based message is received by a non-Winlink recipient, the recipient may have difficulty interpreting the information being provided. Although the information entered into the form is sent as plain text, the form itself is sent as a condensed extensible markup language (XML) file. When Winlink recipients receive a template-based message, Winlink combines the data and XML form file to recreate the ICS form and contents. When non-Winlink recipients receive the message, only the contents of the form are visible.

To ensure that non-Winlink recipients properly interpret ICS form information, these recipients may request that ICS information be sent to them in a PDF format.

***CAUTION**: Winlink users should exercise extreme caution when sending PDF files through Winlink. In many cases, the size of a PDF file will be 50 kB or larger. Files of this size should be limited to Telnet connections only. They should not be sent via standard radio connections.*

4.3.9.1 Assumptions

All messages that contain PDF attachments will be sent through Winlink using Telnet.

4.3.9.2 Skills

a. Configure the Winlink computer to automatically convert ICS template forms to PDF whenever an internet recipient is selected. Refer to Figure 23 for location of setting.

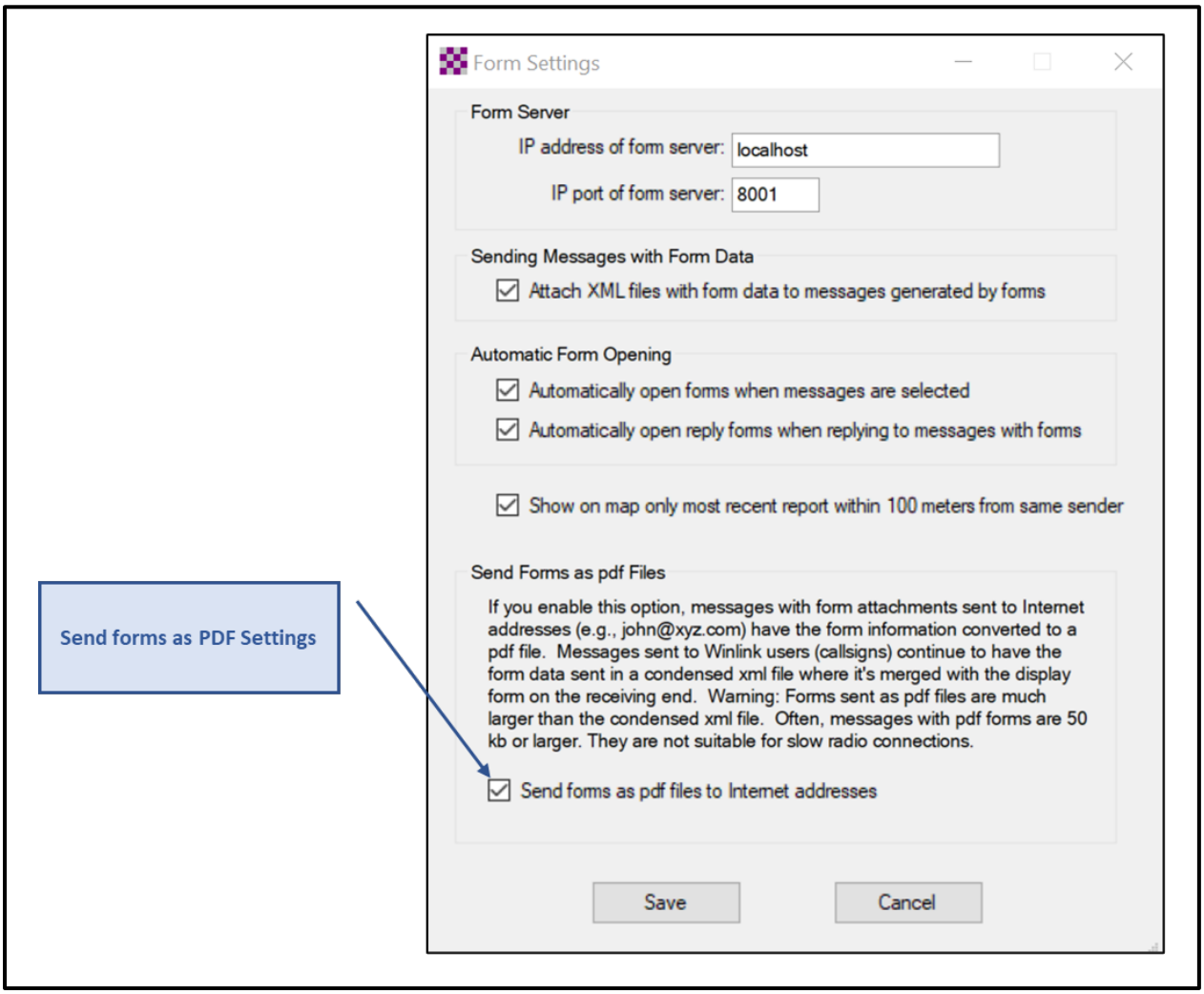

Figure 23. Winlink Form Settings Menu

b. Generate an ICS 213 template-based message.

c. Address the message to one or more Winlink addresses and one or more internet email addresses. Then, post the message to the Winlink outbox.

NOTE: *Internet email addresses must contain the "@" symbol for this function to work properly.*

d Examine the outbox and confirm that two messages have been added to the outbox.

(1) One of the messages should be addressed to only Winlink recipients. This message should contain an XML attachment and have a message size less than 2,000 bytes.

(2) The remaining message should be addressed to only internet email recipients. This message should contain a PDF attachment and have a message size larger than 10,000 bytes.

e. Send the messages via Telnet and confirm that each recipient receives the properly formatted message.

4.3.10 Create and send messages using Mapping-GIS template forms.

The information entered into a Mapping-GIS template form is used to create a message attachment file that, upon receipt by another Winlink station, can be used to display the reported status information on a map associated with the exercise or activation event. The received data can also be exported to a CSV or Keyhole Markup Language (KML) file for offline analysis.

The following sixteen Mapping-GIS forms are currently integrated into Winlink.

a. Catalog Map Capable Downloads
b. Field Situation Report
c. Hawaii Siren Report
d. HICS 251 Facility Status Report
e. Hospital Bed Report
f. Hospital Status
g. Humanitarian Needs Identification Form
h. Hurricane Report
i. Local Weather Report
j. Medical Incident
k. SDG ARES Hospital Status
l. Severe WX Report
m. USGS DYFI English
n. USGS DYFI Espanol
o. Winlink Check-in
p. Winlink Check-out

NOTE: *GPS location data can be added to the header of all Winlink messages. Non-Mapping-GIS messages that contain GPS location data can also be displayed on a map; however, while the status contents of a Mapping-GIS message will be displayed, the contents of a Non-Mapping-GIS message will not.*

4.3.10.1 Assumptions

a. The user has access to GPS location data.

b. Three or more stations are needed within the network to exercise this skill set.

c. During this task, each user will be provided with the following information by the NCS or PinCo ACS training officer.

(1) Field Situation Report Task Number (TASK #).

(2) Simulated Resource status information.

4.3.10.2 Skills

a. Using the "Preferences…" option under settings, configure Winlink to automatically include location data in the message header. Refer to Figure 24 for location of setting.

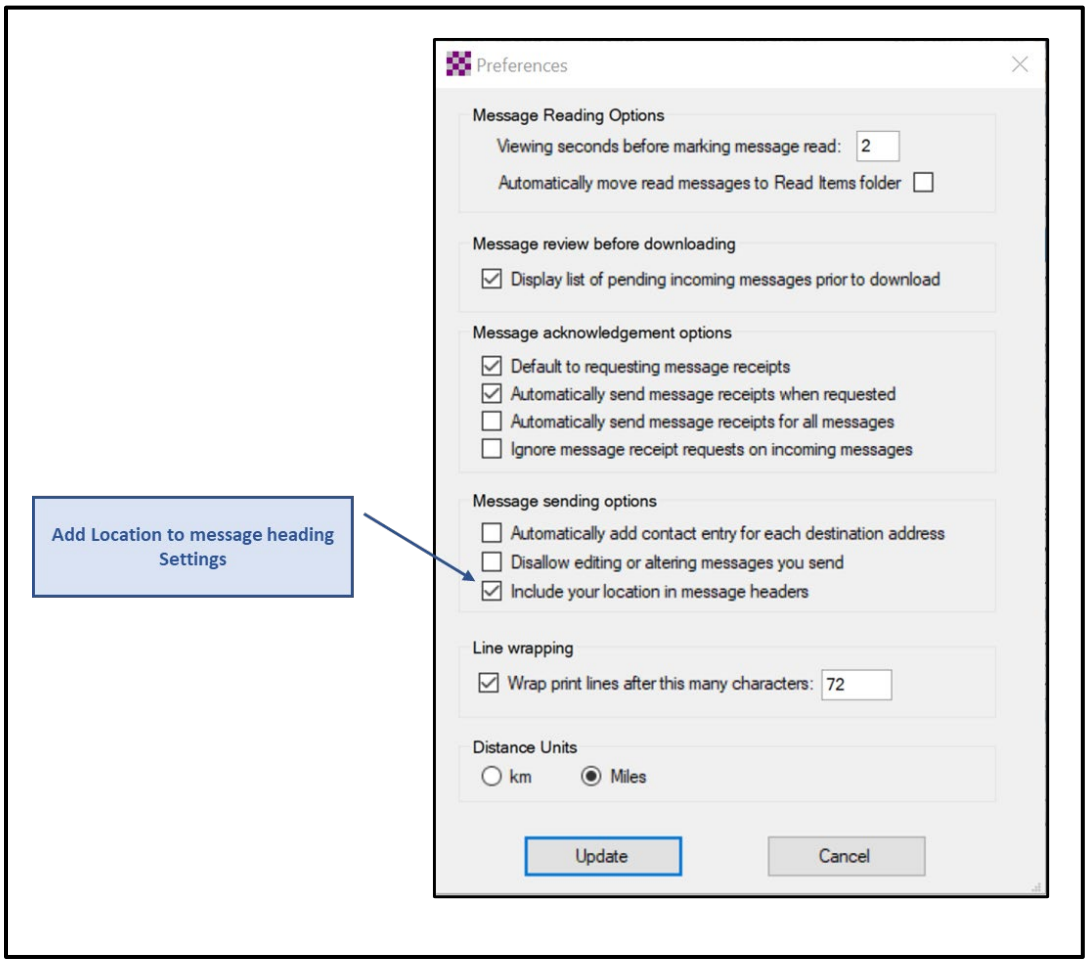

Figure 24. Winlink Preferences Menu

b Create a Field Situation Report Mapping-GIS template-based message.

(1) Update the Message Title to include the name of the net that the operator is supporting.

(2) Enter message precedence, date/time, and Task number.

(3) Indicate if report is associated with an EMERGENCY/LIFE SAFETY need.

NOTE: *All messages associated with a training or exercise event will indicate that the field situation report is* ***NOT*** *associated with an EMERGENCY/LIFE SAFETY need.*

(4) Enter a reporting site location: City, County, State, and Territory (e.g., *Seminole, Pinellas, FL*).

(5) Include GPS Coordinates, MGRS, and Grid information in the message.

(6) Enter the resource status information provided by the NCS or the PinCo ACS training officer.

(7) In the Additional Comments section of the form, indicate that the field situation report is an EXERCISE message.

(8) Enter the sender's name and FCC call sign in the POC field.

c. Send the completed message to each network participant and a copy to the PinCo ACS Admin Officer.

4.3.11 Graphically display event specific Mapping-GIS message data.

The ability to quickly locate and evaluate the status of reporting units is a critical component of incident management. The Mapping-GIS function within Winlink enables users to display a status marker for each reporting unit on a map associated with an exercise or activation event. The detailed status information reported by a unit can be displayed by clicking on its associated marker. The units displayed can be filtered by message type; message age and date limits; and individual message field values.

4.3.11.1 Assumptions

a. The user has access to GPS location data.

b. Three or more stations are needed within the network to exercise this skill set.

c. Each net station has sent a Winlink ICS 213, Check-in, Check-out, and Field Situation Report message to all other net participants during the defined event period.

d. The event duration used for this skill set is 48 hours.

4.3.11.2 Skills

a Generate a map for each of the Mapping-GIS message types listed below. Each map should display marker pins that correspond to the location of each reporting station.

(1) Winlink Check-in Messages.

(2) Winlink Check-out Messages.

(3) Winlink Field Situation Report Messages.

(4) Non-Mapping-GIS Messages (***Messages***).

b. Set the Map Filters to display only the reports associated with the current exercise period. Refer to Figure 25 for an example of this operation.

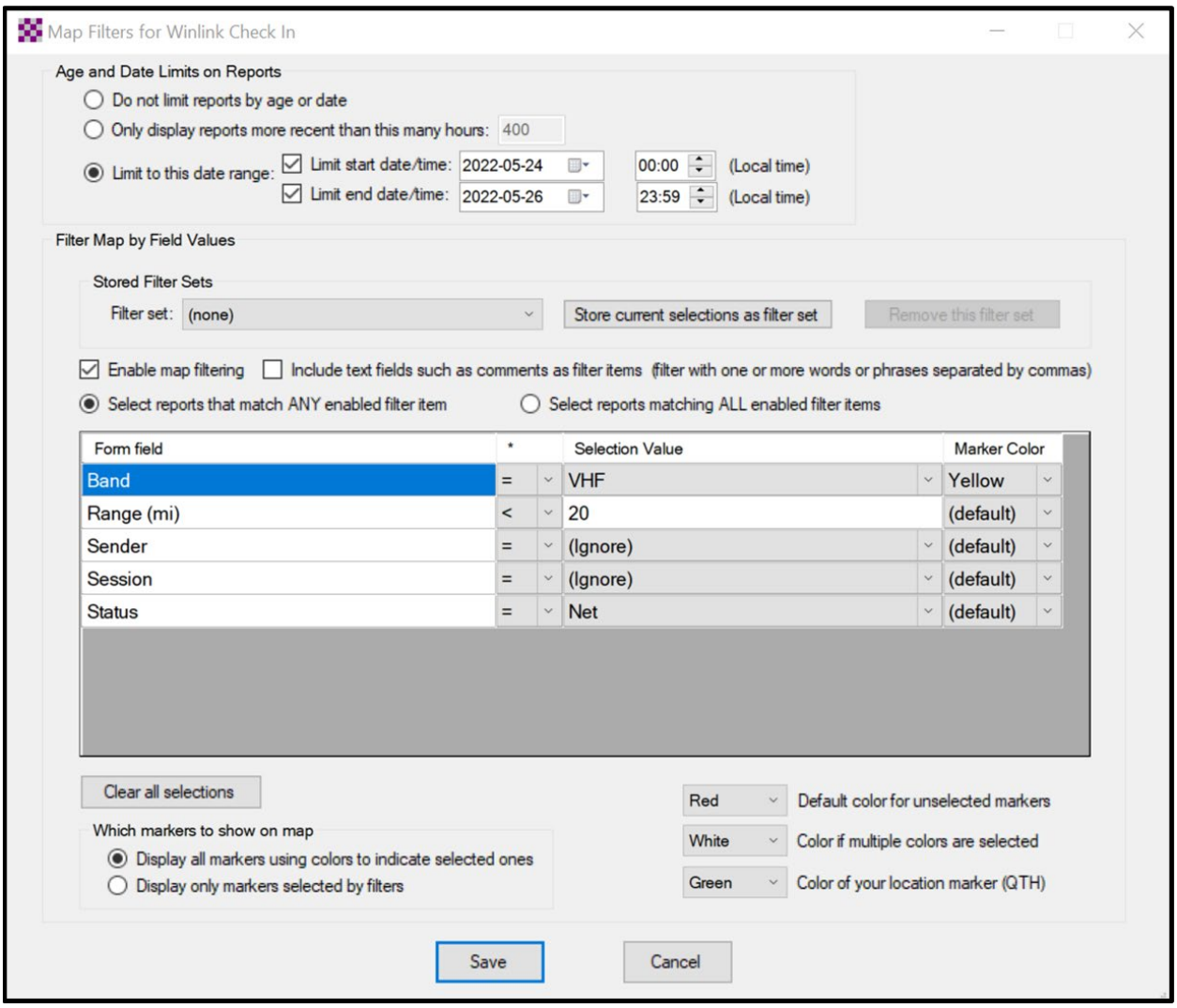

Figure 25. Map Filter Control

c. Display the detailed message data associated with each report. Refer to Figure 26 for an example of this operation.

Note: *The detailed position information and personal e-mail address that was generated and originally contained in the status report shown in* Figure 26 *been purposely blanked out of this figure.*

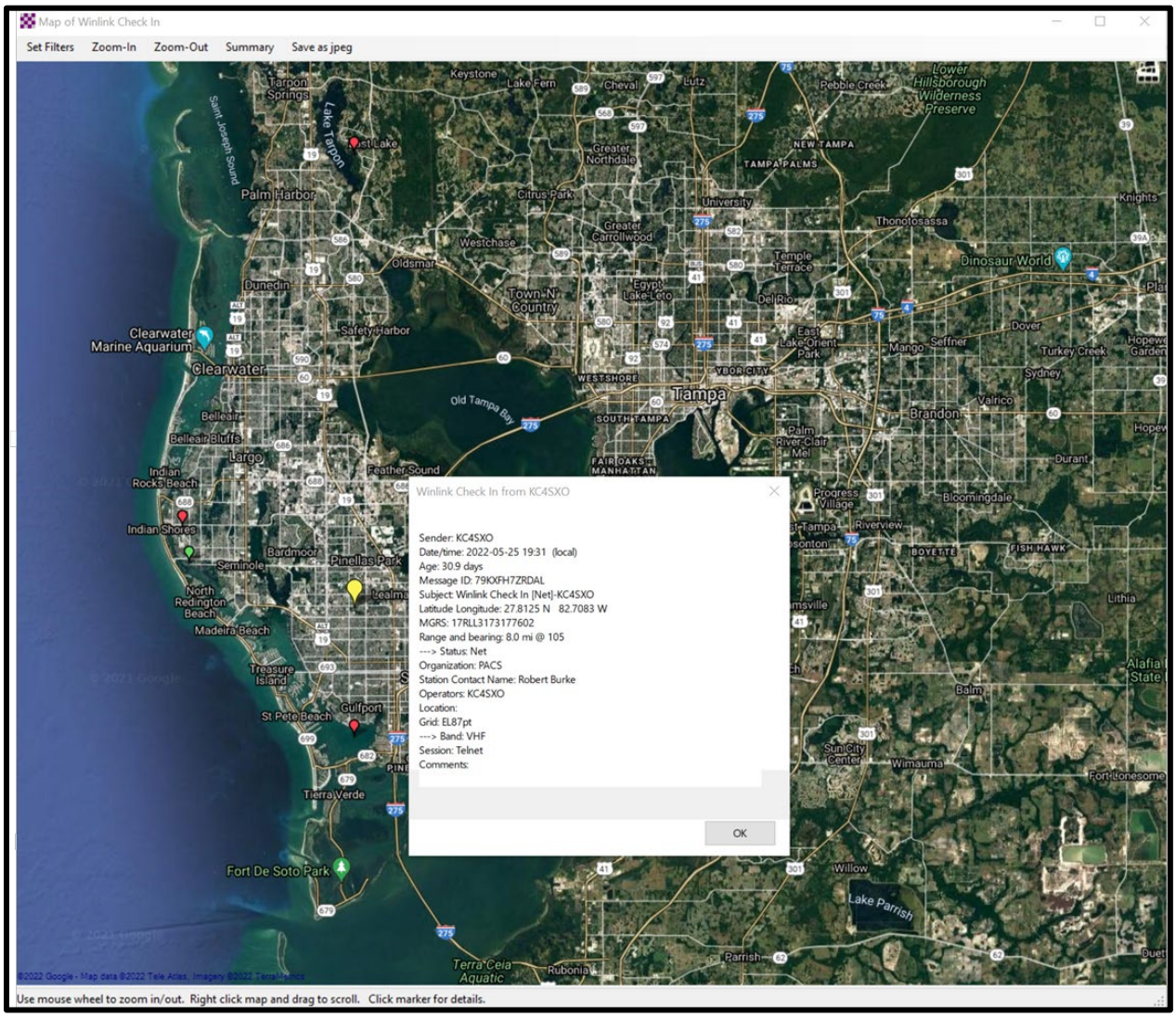

Figure 26. Graphic Display of Winlink Check-in Message Data

4.4 DEPLOYMENT READY HF COMMUNICATION SKILLS – DETAILED DESCRIPTION.

This section contains a detailed description of the skills needed to support the deployment of VHF/UHF and HF Winlink operators to remote locations within or outside of Pinellas County.

PinCo ACS HF digital training nets, HF Voice, VHF voice, on-line training meetings (Zoom, MS Teams, Google Meet, etc.), and deployment exercises will be used to practice and demonstrate proficiency with each of the identified skills.

Prior to beginning work on this skill set, operators should demonstrate proficiency with basic HF Communications (Section 4.2) and Deployment Ready VHF/UHF Communication Skills (Section 4.3). The operator must also have a General, Advanced, or Amateur Extra class FCC license.

4.4.1 Set-up a Winlink station that supports VHF/UHF and HF communications at a remote deployment site.

During an exercise or activation event, users may be sent to locations that no longer have RF connectivity with the VHF and HF RMS gateways they have traditionally used at or around their home address. To re-establish connectivity, users will need to identify different VHF and HF RMS gateways within range of their deployed location.

4.4.1.1 Assumptions

The deployment location is significantly outside the Grid Square normally used by the operator.

4.4.1.2 Skills

a. Update the *My Grid Square* information stored within the Winlink program. The Grid Square information must correspond to the deployment location of the Winlink system. GPS information can be entered into the system manually or by using an attached GPS device.

b. Update the channel selection table for VHF Packet, VARA FM, and VARA HF. The internet can be used to perform this operation if it is available.

c. Send a Winlink Check-in form to net control.

4.4.2 Send a GPS position report.

Winlink units can report their current position to the Winlink system. Once reported, the Winlink Common Message Server (CMS) displays the report on a position map located on Winlink's web site and forwards the data to the Automatic Packet Reporting System-Internet System (APRS-IS). Anyone with internet access can view these position reports. APRS® applications will display Winlink position reports using the symbol. Figure 27 displays a sample of the Winlink GPS / Position Report screen.

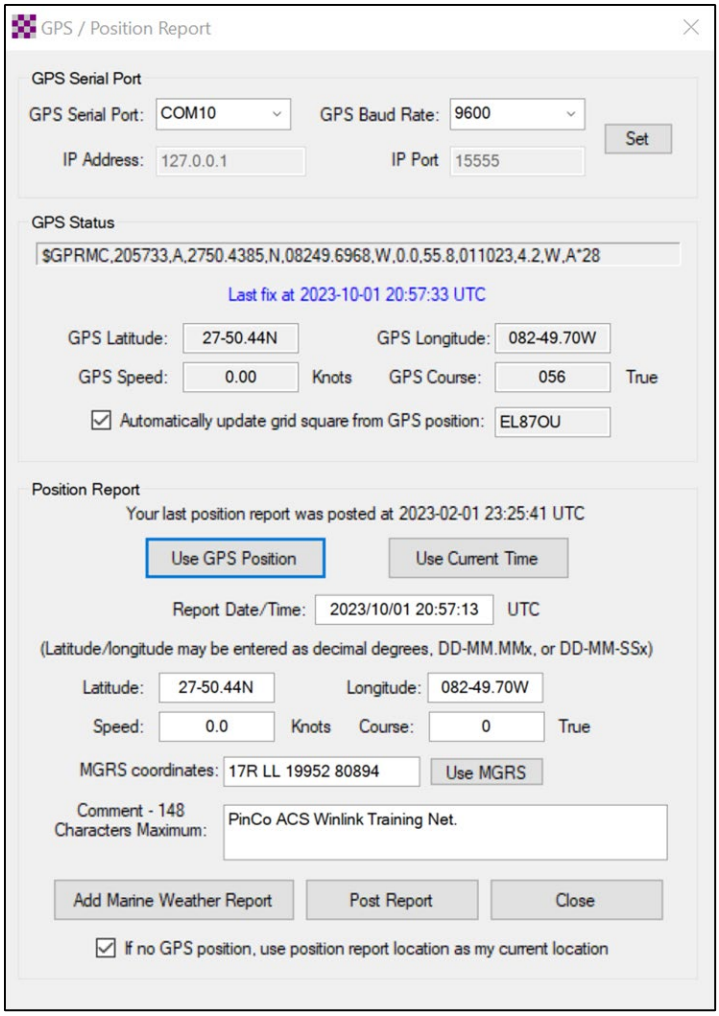

Figure 27. Winlink GPS Position Report Screen

4.4.2.1 Assumptions

The deployed station can exchange data with an RMS gateway that has internet connectivity with a CMS. The user has access to GPS location data.

4.4.2.2 Skills

NOTE: *Winlink Express can be configured to import NMEA 0183 formatted GPS data through a serial COM port. Once configured, the time and position data needed to create a GPS position report will be automatically available for use in the report. If a GPS is not connected to the Winlink computer, time and position data will need to be entered into the report manually.*

a. Create a GPS position Report. The following information should be entered into the report.

   (1) Universal Coordinated Time (UTC)

   (2) Longitude

   (3) Latitude

   (4) In the comment field, enter the name of the exercise being supported, and the current VHF frequency being monitored.

b. Post and send the report.

c. Wait several minutes and then reconnect to an RMS. Download all messages. Confirm that a Position Report Acknowledgement message has been received.

4.4.3 Use Winlink to request local weather and Winlink station location data.

Winlink maintains a catalog of downloadable weather maps, weather forecasts, station position data, information, help bulletins, and propagation prediction data to help determine which Winlink RMS gateway HF stations are best to connect to from any location. Catalog data is maintained on the Winlink CMS. Figure 28 displays a sample of the Winlink catalog used to request information. To obtain information from Winlink, deployed stations must be able to exchange data with an RMS that has internet connectivity to the Winlink CMS.

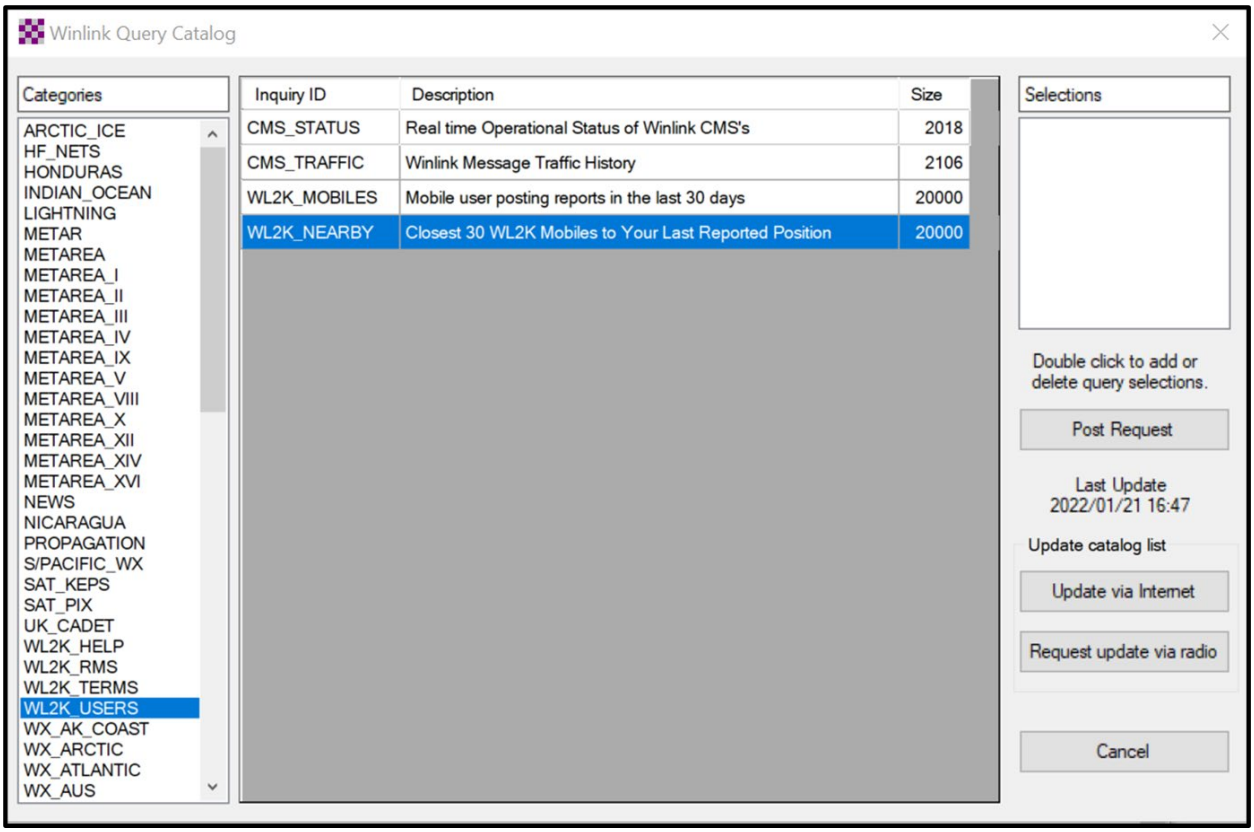

Figure 28. Winlink Query Catalog

4.4.3.1 Assumptions

The deployed station can exchange data with an RMS gateway that has internet connectivity with a CMS. The Winlink user has previously sent a GPS position report to the Winlink CMS. The position report must be less than 10 days old and correspond to the user's currently deployed location. All communications will take place via Winlink RMS.

4.4.3.2 Skills

a. Update the local Winlink Catalog list via RMS.

b. Post and send a request for local weather forecast information.

c. Post and send a request for the location of the closest Winlink stations.

d. Wait several minutes and then reconnect to an RMS and download the requested information. Confirm that both the weather and station location information is received.

e. Display the station location information using the Mapping-GIS function.

4.4.4 Send and receive messages using the radio-only hybrid network.

The Winlink radio-only hybrid network capability was developed to ensure that federal, state, and local agencies could maintain email connectivity in the unlikely event of a total internet outage.

Although many natural disasters (hurricanes, earthquakes, fires, etc.), industrial accidents, or terrorist attacks could cause widespread and even regional power, cell, and internet service outages, individual Winlink users should still be able to connect to an RMS outside the impacted region. RMS gateways within the impacted region can be configured to store and deliver messages to local users and forward out of enclave messages to RMS gateways outside the impacted region using PACTOR® or VARA HF. Therefore, the radio-only capability of Winlink should rarely, if ever, need to be used.

Figure 29 displays a network topography using the hybrid network to exchange data between Winlink users (Clients) during a nationwide internet outage.

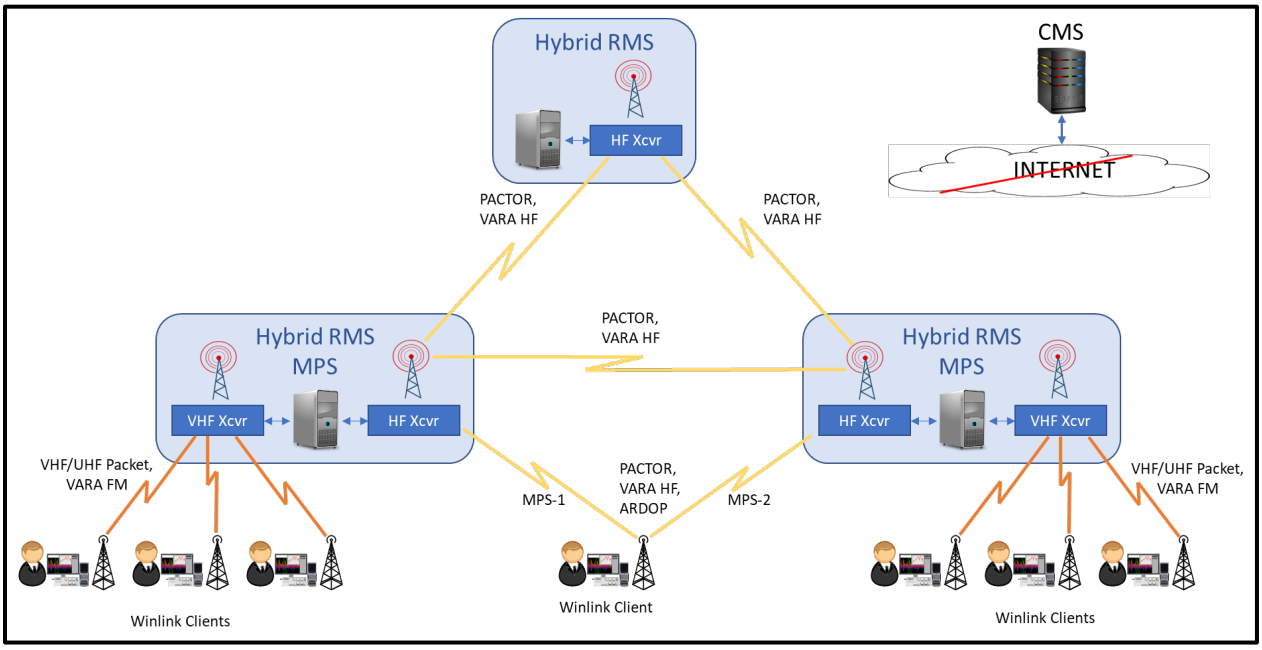

Figure 29. Communications via the Radio-Only Hybrid Network

Before individual Winlink users can send and receive data through the radio-only hybrid network, each user must identify and register one or more RMS Message Pickup Stations (MPS). Each selected RMS will be the only RMS from which the user can download messages. Figure 30 is an example of the Winlink Hybrid Network Parameters menu used to register each MPS.

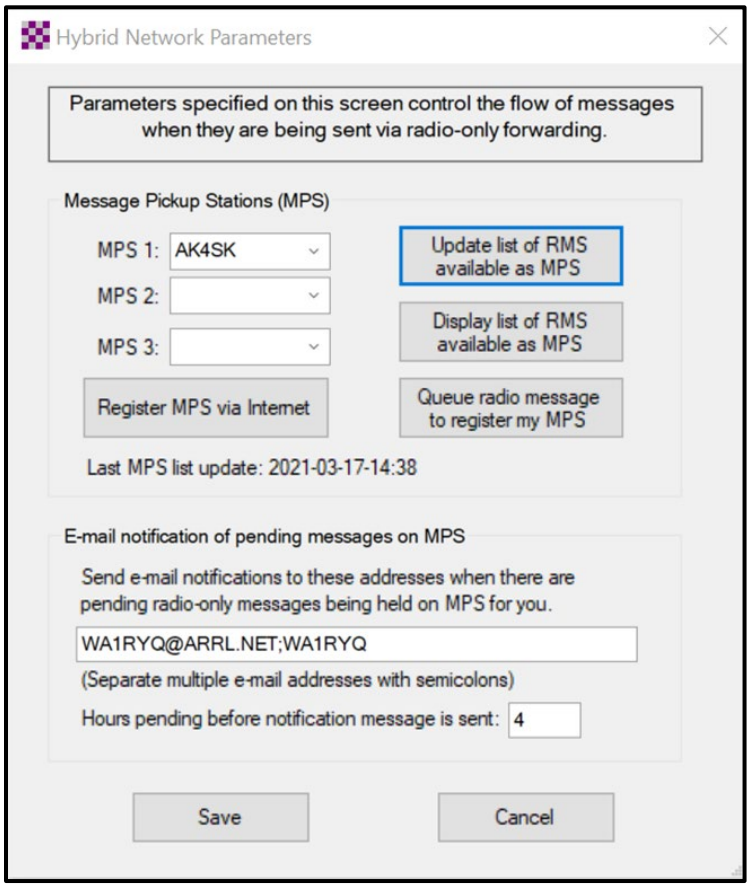

Figure 30. Hybrid Network Parameters Menu

4.4.4.1 Assumptions

None

4.4.4.2 Skills

a. Update the list of RMS gateways available as MPS.

b. From the downloaded list, select two MPSs.

c. Register a single MPS for your station via the internet.

d. Register a second MPS via the radio.

e. (***Optional***) To receive a notification when the user has a radio-only message pending at an MPS, enter one or more email addresses into the hybrid network parameters menu.

NOTE: *To limit network traffic through the radio-only hybrid network, users should register no more than two MPSs.*

The Winlink system requires 24 hours to complete the registration process. Users must wait for the registration to complete before attempting to send or receive messages using a Radio-Only session.

Users can verify that MPS registration was successful by using radio-only sessions to exchange messages with other Winlink users.

f. Open a VARA HF or PACTOR® radio-only session and send a message to a Winlink participant who has an established MPS. The message should request a response via the radio-only hybrid network.

g. Open a VARA HF or PACTOR® radio-only session, connect to a registered MPS, and download a radio-only message.

h. Send a second Winlink message to a Winlink user requesting that the user reply with a radio-only message.

i. Open a VARA HF or PACTOR® Radio-Only session, connect to the user's second registered MPS, and download a radio-only message.

j. (***Optional***) Confirm that an email is received notifying the user that a radio-only message is pending at the users MPS.

4.4.5 Send and receive messages using the VARA HF auto-connection feature.

The Winlink VARA HF auto-connection capability will try connecting to channels in decreasing propagation quality order until it connects or runs out of channels. The Auto-Connect setup menu enables the user to define operating parameters for the capability.

4.4.5.1 Assumptions

None

4.4.5.2 Skills

a. Open a VARA HF Session.

b. Use the ***Settings- Auto-connect setup…*** menu to configure the auto-connect settings. Refer to Figure 31.

c. Send and receive a Winlink message using the VARA HF auto-connect capability. Confirm that the message was received by the recipient.

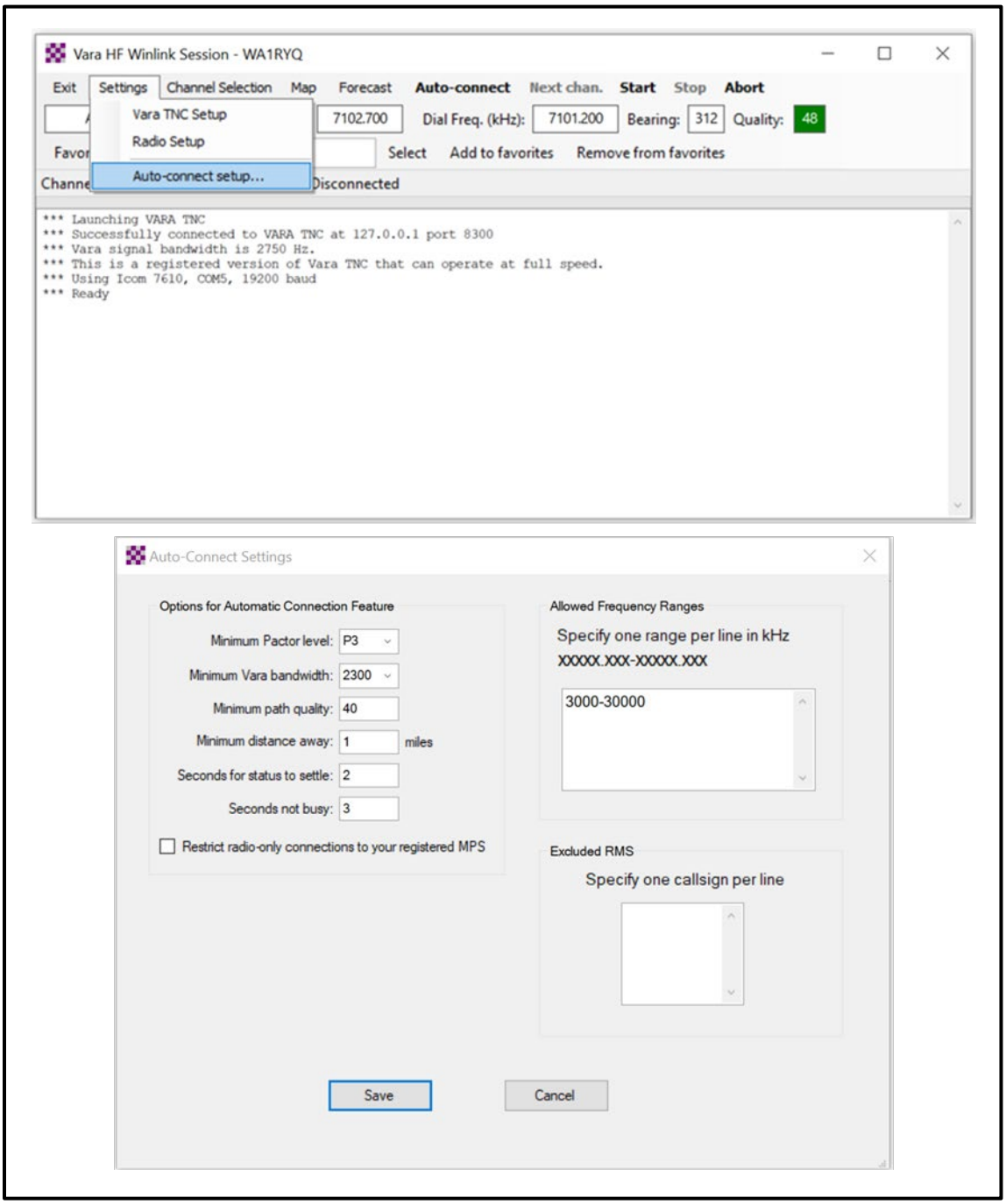

Figure 31. VARA HF Auto-Connect Setup Menu

4.5 ADVANCED WINLINK HF/VHF/UHF COMMUNICATION SKILLS – DETAILED DESCRIPTION

This section contains a detailed description of the advanced set of Winlink skills needed to support the deployment and operation of VHF/UHF digipeaters and the advanced networking protocols of PACTOR® and AREDN™ mesh.

Although these capabilities are not part of the minimum Winlink skills required for deployment, real world events may occur that require PinCo ACS to deploy and implement one or more of these capabilities to close critical communication gaps. Therefore, users are encouraged to become proficient in these skills.

Prior to beginning work on the FM digipeater skills identified below, operators should demonstrate proficiency with basic VHF/UHF Communications skills (Section 4.1) and hold a Technician, General, Advanced, or Amateur Extra class FCC license. To begin work on the Pactor® protocol tasks in this section, the operator should also demonstrate proficiency with basic HF Communication skills (Section 4.2) and have a General, Advanced, or Amateur Extra class FCC license.

4.5.1 Configure a VHF/UHF station to operate as a Winlink Digipeater

A digipeater is designed to retransmit digital information rather than voice. While a standard full-duplex Very High Frequency (VHF)/Ultra High Frequency (UHF) voice repeater receives information on one frequency and simultaneously retransmits the information on a second frequency, a digipeater receives digital information, processes the information, and then retransmits the information on the same frequency.

4.5.1.1 Configure a VHF/UHF station to operate as a VARA FM digipeater.

Any Winlink station that has installed VARA FM can be configured to operate as a VARA FM digipeater. No special license or additional software is required.

4.5.1.1.1 Assumptions

VARA FM has previously been installed on the Winlink computer. The Winlink application does not have to be running for a station to operate as a digipeater.

4.5.1.1.2 Skills

a. Launch VARA FM and configure the application to operate as a digipeater.
b. Manually tune the radio to the appropriate operating frequency and configure the radio for digital operation.
c. Demonstrate that the digipeater has been properly configured by using the digipeater to support the skill sets defined in paragraphs 4.5.2.1 and 4.5.3.1.

4.5.1.2 Configure a VHF/UHF station to operate as a UZ7HO Packet FM digipeater.

Any Winlink station that has installed UZ7HO can be configured to operate as a UZ7HO packet FM digipeater. No special license or additional software is required.

4.5.1.2.1 Assumptions

The UZ7HO application has previously been installed on the Winlink computer. The Winlink application does not have to be running for a station to operate as a digipeater.

4.5.1.2.2 Skills

NOTE: *Verify that the UZ7HO application is closed before attempting to modify the* ***soundmodem.ini*** *file*

a. Open the ***soundmodem.ini*** file located in the UZ7HO folder.
b. Enter the call sign for your digipeater in the line labeled ***MyDigiCall=***. Refer to Figure 32.
c. Save and close the ***soundmodem.ini*** file.
d. Launch the UZ7HO application.
e. Manually tune the radio to the appropriate operating frequency and configure the radio for digital operation.

f. Demonstrate that the digipeater has been properly configured by using the digipeater to support the skill sets defined in paragraphs 4.5.2.2 and 4.5.3.2.

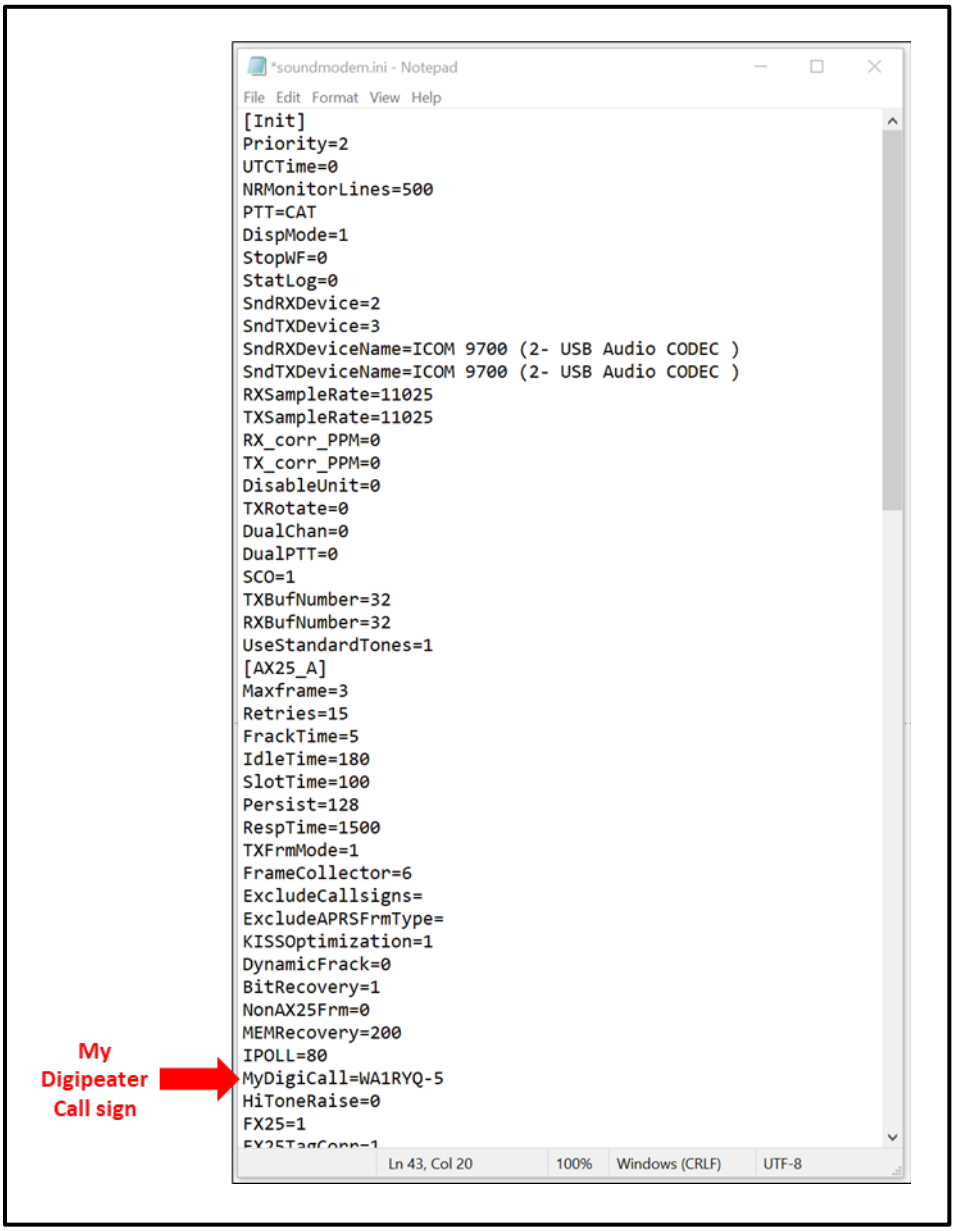

Figure 32. UZ7HO Digipeater Call Sign

4.5.2 Send Winlink messages to and receive messages from a VHF RMS via a Winlink digipeater.

During both normal and emergent operating conditions, users may not always be able to directly access a VHF/UHF RMS station. Connectivity may not be possible due to RF range, or obstruction issues. Power, cell, and internet service may also be interrupted for a variety of reasons. However, it may still be possible to establish connectivity to a VHF/UHF RMS station if a VHF/UHF digipeater is operational and within range. Figure 33 displays the topography of a VHF network that has incorporated a VHF digipeater.

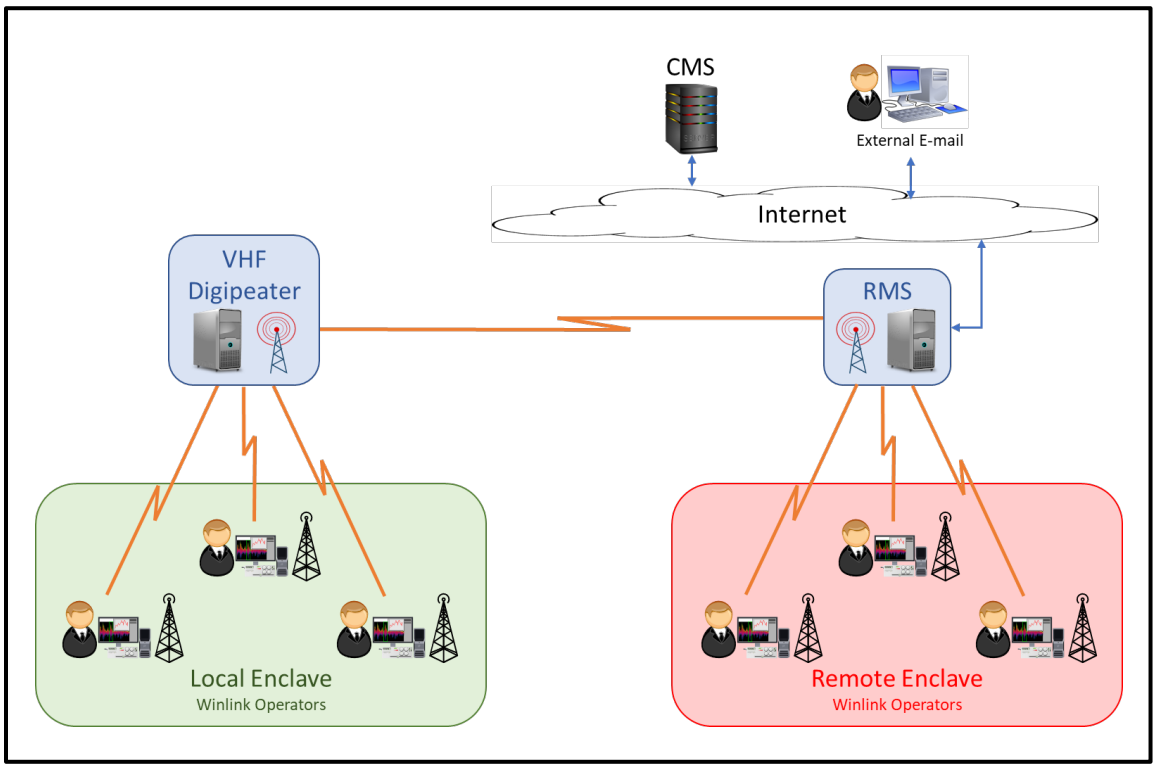

Figure 33. VHF RMS Communications via Digipeater

4.5.2.1 Send Winlink messages to and receive messages from a VHF RMS via a VARA FM digipeater.

4.5.2.1.1 Assumptions

A VARA FM digipeater is available in the affected deployment area and is within RF range of a VARA FM RMS gateway. The digipeater must also be configured to operate on the same frequency as the VARA FM RMS gateway.

Although the VARA digipeater station does not require a VARA license, a VARA license is required by any station attempting to pass information through a VARA digipeater.

4.5.2.1.2 Skills

a. Compose and post a Winlink message to the outbox.

b. Open a VARA FM Winlink session and configure the session to exchange data with a VARA FM RMS via one or more digipeaters.

NOTE: *Winlink will support a chain of up to two digipeaters.*

c. Send and receive a Winlink message via a VARA FM RMS using a VARA FM digipeater. Confirm that the sent message was received.

d. Use the VARA Ping command to determine the audio level (VU) and signal-to-noise ratio (S/N) reported during a data exchange with the RMS gateway. Refer to Figure 34 for an example of the VARA FM RF link quality report. The following information is contained in the report.

(1) The weakest signal strength seen in the RF chain that starts at the RMS Gateway station and terminates at the local Winlink station.

(2) The weakest signal strength seen in the RF chain that starts at the local Winlink station and terminates at the RMS Gateway station.

(3) The first digipeater's audio level as seen by the local Winlink station.

(4) The last digipeater's audio level as seen by the RMS gateway station.

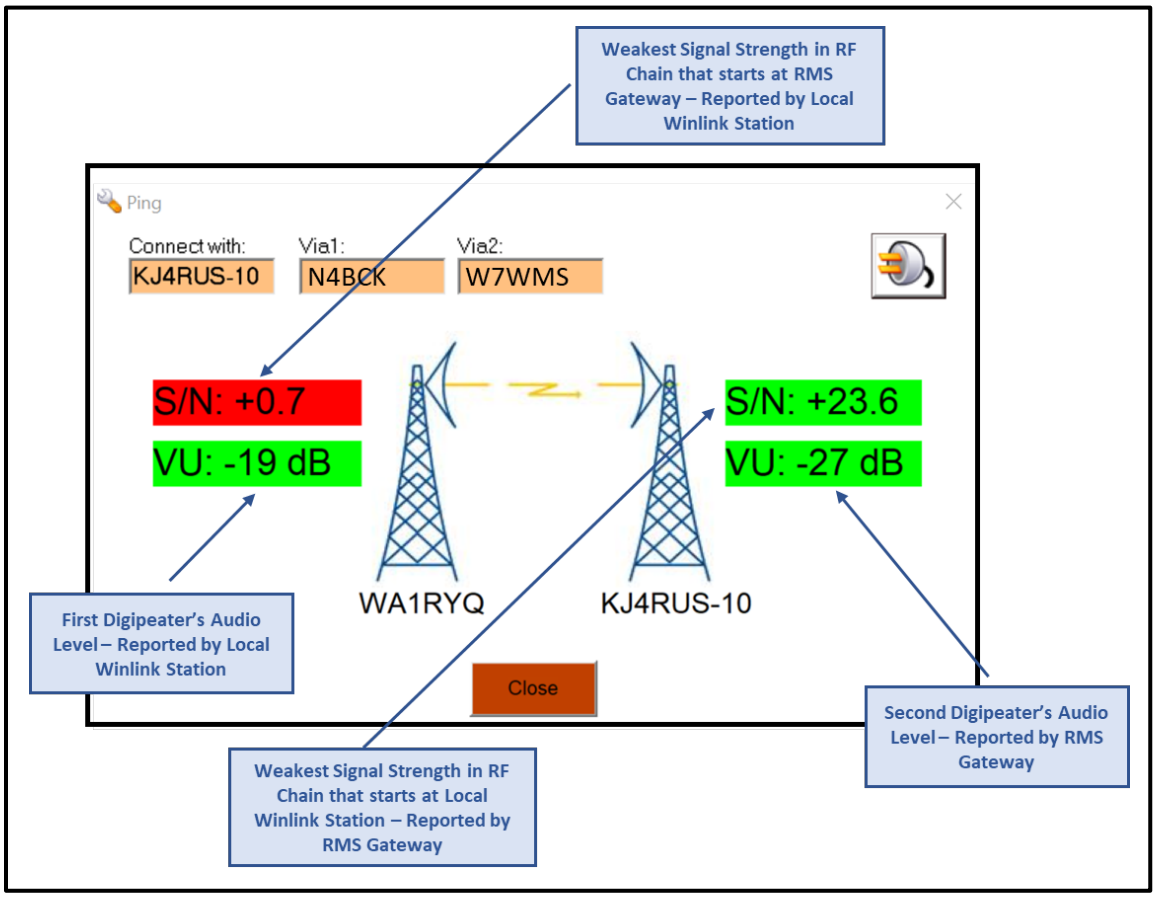

Figure 34. VARA FM RF Link Quality Report – Digipeater

4.5.2.2 Send Winlink messages to and receive messages from a VHF RMS via a UZ7HO Packet FM digipeater.

4.5.2.2.1 Assumptions

A UZ7HO Packet FM digipeater is available in the affected deployment area and is within RF range of a Packet RMS gateway. The digipeater must also be configured to operate on the same frequency as the Packet RMS gateway.

Unlike VARA FM, no special license is required to pass information through a UZ7HO Packet FM digipeater.

4.5.2.2.2 Skills

a. Compose and post a Winlink message to the outbox.

b. Open a Packet Winlink session and configure the session to exchange data with a Packet RMS via one or more digipeaters.

NOTE: *Winlink will support a chain of up to two digipeaters.*

c. Send and receive a Winlink message via a Packet RMS using a UZ7HO Packet FM digipeater. Confirm that the sent message was received.

4.5.3 Send and receive P2P Winlink messages through a Winlink digipeater.

In many of the deployment scenarios PinCo ACS is likely to encounter, the power grid, cell service, and/or internet access are likely to fail. The VHF RMS gateways within the affected area may not be configured to exchange local messages during an internet outage. To maintain digital connectivity within the local area, Winlink users may need to exchange messages using a P2P network protocol. For this set of skills, it is assumed that a subset of stations is unable to establish or maintain simplex links with other members of the local enclave. Therefore, a digipeater is needed to maintain digital communications with all network participants.

Figure 35 displays the topography of a P2P VHF network that has incorporated a set of two VHF FM digipeaters.

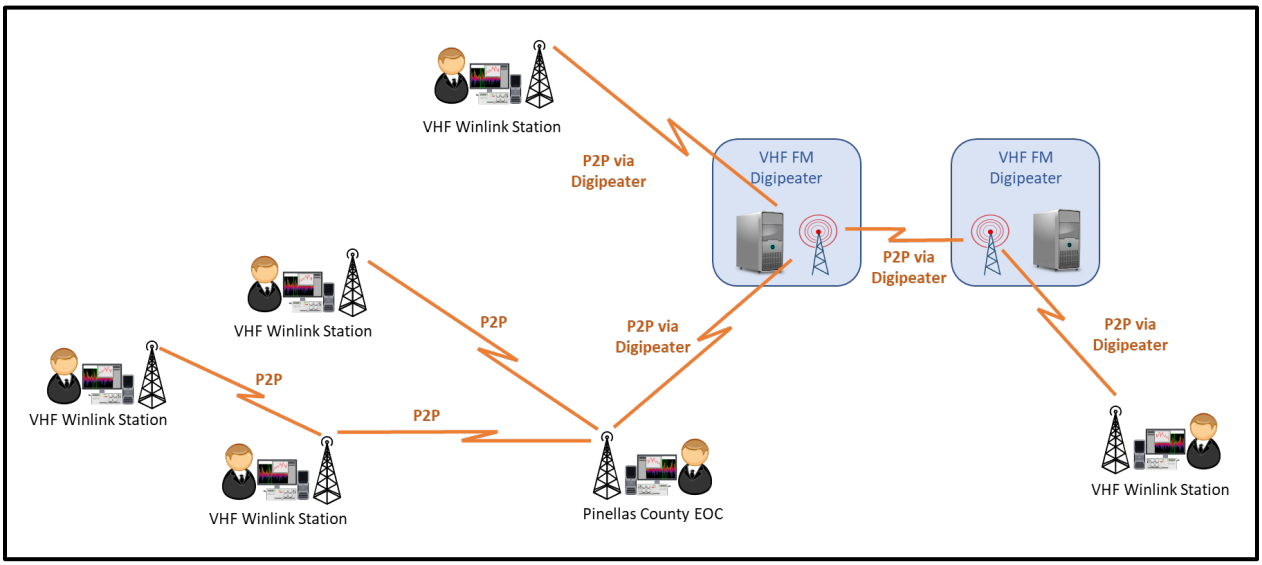

Figure 35. VHF P2P Digipeater Communications

4.5.3.1 Send and receive P2P Winlink messages through a VARA FM digipeater.

4.5.3.1.1 Assumptions

One or more VARA FM digipeaters are available in the affected deployment area. Although the VARA digipeater station does not require a VARA license, a VARA license is required by any station attempting to pass information through a VARA digipeater.

Unlike a standard P2P network, voice and digital communication do not take place on the same digipeater frequency. Digital message flow control will be performed by manual collision avoidance; each user waiting for the frequency to become available before sending traffic. If the net control unit determines that a more managed form of flow control is required, a separate voice net, using a repeater to maintain connectivity with all net participants, must be used to manage digital traffic flow.

Three or more stations are needed within the P2P network to exercise this skill set.

NOTE: *The frequency and location of each VARA FM digipeater used during an activation event will be defined by the PinCo ACS Leadership Team, documented in the ICS 205 and ICS 204s that are incorporated into the PinCo ACS Incident Action Plan (IAP); and distributed to all ACS communication teams prior to deployment.*

4.5.3.1.2 Skills

a. Net Control

(1) Send messages to and receive messages from network participants using a VARA FM digipeater.

(2) Forward messages received from one network participant to a second network participant using a VARA FM digipeater.

(3) Coordinate the exchange of digital messages between two network participants using a VARA FM digipeater.

b. Network participant

(1) Send messages to and receive messages from net control using a VARA FM digipeater.

(2) Send a message to and receive a message from a network participant other than net control using a VARA FM digipeater.

(3) Forward a message received from one network participant to a second network participant using a VARA FM digipeater.

4.5.3.2 Send and receive P2P Winlink messages through a UZ7HO Packet FM digipeater.

4.5.3.2.1 Assumptions

One or more Packet FM digipeaters are available in the affected deployment area.

Unlike a standard P2P network, voice and digital communication do not take place on the same digipeater frequency. Digital message flow control will be performed by manual collision avoidance; each user waiting for the frequency to become available before sending traffic. If the net control unit determines that a more managed form of flow control is required, a separate voice net, using a repeater to maintain connectivity with all net participants, must be used to manage digital traffic flow.

Three or more stations are needed within the P2P network to exercise this skill set.

NOTE: *The frequency and location of each Packet FM digipeater used during an activation event will be defined by the PinCo ACS Leadership Team, documented in the ICS 205 and ICS 204s that are incorporated into the PinCo ACS Incident Action Plan (IAP); and distributed to all ACS communication teams prior to deployment.*

4.5.3.2.2 Skills

a. Net Control

(1) Send messages to and receive messages from network participants using a Packet FM digipeater.

(2) Forward messages received from one network participant to a second network participant using a Packet FM digipeater.

(3) Coordinate the exchange of digital messages between two network participants using a Packet FM digipeater.

b. Network participant

(1) Send messages to and receive messages from net control using a Packet FM digipeater.

(2) Send a message to and receive a message from a network participant other than net control using a Packet FM digipeater.

(3) Forward a message received from one network participant to a second network participant using a Packet FM digipeater.

4.5.4 Configure an HF Winlink station that supports PACTOR® protocols.

This section describes the skills needed to connect a PACTOR® TNC to an HF transceiver; configure the Winlink software and transceiver settings for PACTOR®; and adjust the system receive and transmit audio gain levels for proper operation. Because a wide variety of radio configurations exist, it is not practical to include detailed instructions for any specific configuration. Users are encouraged to consult the SCS documentation set provided with the PACTOR® TNC and to seek guidance from the Web site references documented in Appendix B.

Prior to beginning work on this skill set, operators should demonstrate proficiency with basic HF Communications skills (Section 4.2) and have a General, Advanced, or Amateur Extra class FCC license.

4.5.4.1 Assumptions

The Winlink operator has access to the internet; an HF amateur radio and antenna system; and a computer capable of interfacing with the PACTOR® TNC and Transceiver.

4.5.4.2 Skills

a. Connect the PACTOR® TNC to the HF Transceiver.

(1) Transceiver Control: Connect the PACTOR® TNC's Transceiver control port to the transceiver's remote-control connector.

(2) Transmit and Receive Audio: Connect the PACTOR® TNC's Transceiver audio port to the Transceiver's external audio input-output connector.

b. Connect the Winlink computer to the PACTOR® TNC. Depending on the TNC model and the options installed within the TNC, the connection can be made via USB, Bluetooth®, or ethernet.

c. Configure the HF transceiver to communicate with the PACTOR® TNC.

d. Open a Winlink PACTOR® session and configure the following session settings.

(1) PACTOR® TNC Settings:

(a) TNC Type (e.g., PTC-DR7400, PTC-DR7800, etc.)

(b) TNC Serial Port and Baud Rate used to communicate with the Winlink Computer.

(c) Max PACTOR® Level: Set to **3**.

NOTE: *For operation within US Amateur radio bands, PACTOR® Level 3 is the maximum level authorized for use by the FCC.*

(2) PACTOR® Radio Settings:

(a) Radio Model, control port, and PTT settings.

e. Configure the PACTOR® TNC's Phase-Shift Keying (PSK) and Frequency-Shift Keying (FSK) transmitter drive levels.

4.5.5 Send and receive messages via HF PACTOR®.

The network topography used during PACTOR® message exchange is the default HF configuration displayed in Figure 8.

4.5.5.1 Assumptions

HF RMS Gateway stations are operational and have internet access. All messages are sent and received via HF RMS gateways.

4.5.5.2 Skills

a. Update the channel selection table for PACTOR®.

b. For each of the HF bands listed below, compose, send, and receive a Winlink message via an HF RMS gateway using PACTOR®. Confirm that the message was received by the recipient.

(1) 80 Meters

(2) 40 Meters

(3) 30 Meters

c. Send and receive a Winlink message using the Pactor® auto-connect capability. Confirm that the message was received by the recipient.

4.5.6 Configure a Winlink AREDN™ mesh station.

TBD

4.5.7 Send and receive Winlink messages via AREDN™ mesh.

TBD

5 WINLINK TRAINING AND EVALUATION

Winlink training is used to help users learn and practice the Winlink skill sets needed to support the deployment of Winlink operators during an exercise or activation event. Winlink drills and exercises will be used to evaluate the performance of both individual Winlink users and PinCo ACS to perform these tasks.

The completion of the training defined in this document does not by itself signify that an individual is qualified to support an activation event. Readers should refer to the *Pinellas County ACS Emergency Communications Plan and Standard Operating Procedures* document for a complete set of training requirements.

5.1 TRAINING AND EVALUATION DEFINITIONS

The Winlink Training Score Card uses Task Codes to define the operating environment under which a user can demonstrate his/her ability to perform a specific task. The following definitions are used to clarify the applicability of each Task Code used by the score card.

5.1.1 Small- and Large-Scale Exercise Types

The following list of operation-based exercises are defined as either small-scale or large-scale exercises.

5.1.1.1 Drill

"A coordinated, supervised activity usually used to test a single specific operation or function in a single agency. Drills are commonly used to provide training on new equipment, develop or test new policies or procedures, or practice and maintain current skills. Typical attributes include the following: A narrow focus, measured against established standards; Instant feedback; Performance in isolation; Realistic environment." (B. Wayne Blanchard, 2008)

5.1.1.2 Functional Exercise (FE)

"An activity designed to test and evaluate individual capabilities, multiple functions, activities within a function, or interdependent groups of functions. Events are projected through an exercise scenario with event updates that drive activity at the management level. [A] Functional Exercise simulates the reality of operations in a functional area by presenting complex and realistic problems that require rapid and effective responses by trained personnel in a highly stressful environment." (B. Wayne Blanchard, 2008)

5.1.1.3 Full Scale Exercise (FSE)

"A multi-agency, multi-jurisdictional, multi-organizational activity that tests many facets of preparedness. They focus on implementing and analyzing the plans, policies, procedures, and cooperative agreements developed in discussion-based exercises and honed in previous, smaller, operations-based exercises. In FSEs, the reality of operations in multiple functional areas presents complex and realistic problems that require critical thinking, rapid problem solving, and effective responses by trained personnel. During FSEs, events are projected through a scripted exercise scenario with built-in flexibility to allow updates to drive activity. FSEs are conducted in a real-time, stressful environment that closely mirrors real events." (B. Wayne Blanchard, 2008)

5.1.1.4 Simulated Emergency Test (SET)

"The ARRL® Simulated Emergency Test is a nationwide exercise in emergency communications, administered by ARRL Emergency Coordinators and Net Managers. Both ARES and the National Traffic System are involved. The SET weekend gives communicators the opportunity to focus on the emergency communications capability within their community while interacting with NTS™ nets. …The official SET weekend is the first full weekend of October; however, ARES groups are free to conduct their SET any time during the calendar year. The activity period should not exceed 48 hours." (American Radio Relay League® (ARRL), 2015)

5.1.2 Events

Public service events include but are not limited to races, runs, walks, festivals, etc.

5.1.3 Tabletop Exercise (TTX)

"An activity that involves key personnel discussing simulated scenarios in an informal setting. This type of exercise can be used to assess plans, policies, and procedures or to assess the systems needed to guide the prevention of, response to, and recovery from a defined incident. TTXs typically are aimed at facilitating understanding of concepts, identifying strengths and shortfalls, and achieving changes in attitude. Participants are encouraged to discuss issues in depth and develop decisions through slow-paced problem solving, rather than the rapid, spontaneous decision making that occurs under actual or simulated emergency conditions." (B. Wayne Blanchard, 2008)

5.2 WINLINK TRAINING

The purpose of Winlink training is to help users learn and practice the Winlink skill sets needed to support the deployment of Winlink operators to remote locations within or outside Pinellas County during an exercise or activation event. Self-paced online learning, on-line training meetings, and radio training nets will be used to support training within PinCo ACS.

5.2.1 Self-paced online Winlink training

Individual on-line self-paced Winlink training allows users to learn about Winlink and its associated applications and hardware on their own schedule. The four topic areas listed below identify information sources and tools readily available on-line. Individuals are encouraged to examine and use the tools as appropriate.

a. On-line Documentation and Presentations: The web sites associated with Winlink, VARA, and UZ7HO contain application specific documentation and presentations.

b. On-line Training Videos: Several Amateur Radio and ARES® organizations have created training videos to assist with Winlink and other topics. Refer to the training entries in Appendix B for Website information.

c. Discussion Groups: A variety of on-line discussion groups are available. Each has a significant archive of topics that can be accessed and subject matter experts to answer questions. Refer to the discussion group entries in Appendix B for Website information.

d. Winlink Training Nets: Amateur Radio groups throughout the country have set up Winlink training nets that provide users with opportunities to practice exchanging messages. Several offer HF P2P connection opportunities. Refer to Figure D- 1 in Appendix D for a list of active Winlink training nets.

5.2.2 Winlink On-line Training Meetings

Winlink on-line training meetings (Zoom, MS Teams, Google Meet, etc.) will be used to assist users with specific Winlink issues, to present training information to the membership, and to exchange lessons learned obtained from drills and exercises. Online meetings will be scheduled on an as-needed basis. Winlink bulletins and training net announcements will be used to notify the membership of upcoming on-line meetings.

5.2.3 PinCo ACS Winlink Training Net

The PinCo ACS Winlink training net will be used to familiarize PinCo ACS participants with Winlink skills and to practice digital network operations. Each net will be narrowly focused on a small set of Winlink skills and will be designed to require one hour or less to complete. Network activities will include both directed radio nets and unmanaged radio nets. Directed radio nets will have an active net control station and make use of local VHF/UHF repeaters, RMS gateways, digipeaters, and simplex frequencies. Unmanaged nets will not have an active net control station and will have an operating window of one to five days. Unmanaged nets are designed to provide participants with the additional time needed to research, practice, or request assistance before performing the planned network activity.

5.2.3.1 Implementation

The net control station will send a Winlink bulletin to all registered PinCo ACS Winlink Training Net participants on the Monday prior to a scheduled Winlink net. The Bulletin will contain the following information.

a. Training Net Objectives
b. Network type, date, time, and duration
c. Description of net activities
d. Location of additional material needed to support the net

The training net will be conducted in accordance with the information provided in the weekly Winlink training bulletin.

5.2.3.2 Schedule

Winlink Training Nets will take place twice per month. A training net will not take place in the same week that a Winlink drill, Functional Test, Simulated Emergency Test, or Full-Scale Exercise is scheduled.

5.2.3.3 Location

As a rule, Winlink users will participate in training nets from their home address.

5.3 WINLINK PERFORMANCE EVALUATION

Winlink performance evaluation is used to assess the ability of individual users and the PinCo ACS organization to perform the Winlink skills needed during the deployment of Winlink operators during an activation event. Winlink drills, Functional Exercises, Full Scale Exercises, and SETs will be used to evaluate performance. Only one drill or exercise will take place during any calendar month.

5.3.1 Winlink Drills

Winlink drills will be used to exercise specific Winlink skills, practice digital network operations, and assess user performance. Each drill will be narrowly focused on a small set of Winlink skills

and will be designed to require one hour or less to complete. Drills will be the primary tool used to certify Winlink user performance.

5.3.1.1 Implementation

On the Tuesday prior to the drill, the PinCo ACS Training Net will be used to distribute information and field questions about the drill. When the drill requires detailed information to be distributed, the information will be distributed via email and/or Winlink. A copy of the material will also be placed on the PinCo ACS website.

5.3.1.2 Schedule

Winlink drills will take place once per month except during those months in which a Functional Test, Simulated Emergency Test, or Full-Scale Exercise is scheduled.

5.3.1.3 Location

As a rule, Winlink users will participate in drills from their home address.

5.3.1.4 After-Action Report and Improvement Plan

One week after the drill, the Winlink Training Net will be used to provide feedback to drill participants, discuss issues encountered during the drill, and field recommendations for additional training and drill activities.

5.3.2 Winlink Functional Exercise

A Winlink Functional Exercise can be a stand-alone event or be performed in conjunction with a larger PinCo ACS exercise. Each Functional Exercise will require participants to perform multiple Winlink skills that are associated with VHF/UHF and HF deployments. The exercise may also incorporate a subset of the Advance Winlink Skills identified in paragraph 3.5. Each Functional Exercise will be designed to require no more than 8 hours to complete.

5.3.2.1 Implementation

A detailed plan will be developed for each Winlink exercise and distributed to all participants prior to the event.

5.3.2.2 Schedule

A Winlink Functional Exercise will take place once per year. The Functional Exercise will be scheduled approximately 6 months before any scheduled simulated emergency test or full-scale exercise. During the month that the Functional Exercise is scheduled, no Winlink training drill will be performed.

5.3.2.3 Location

The detailed plan developed for the Functional Exercise will identify the location and staffing requirements for each Winlink station.

5.3.2.4 After-Action Report and Improvement Plan

Following the exercise, an after-action meeting with the participants will be held to discuss issues encountered and recommendations going forward. The PinCo ACS Training Officer, will then generate a written after-action report and improvement plan. A copy of the report will be delivered to the PinCo ACS leadership team and all exercise participants. During the next scheduled PinCo ACS meeting following the exercise, the PinCo ACS Training Officer will brief the PinCo ACS membership on the exercise and its outcome.

5.3.3 Simulated Emergency Test (SET) or Full-Scale Exercise

A stand-alone Winlink full-scale exercise/SET will not be performed. Instead, Winlink will be fully incorporated into the annual full-scale exercise/SET performed by PinCo ACS. Each full-scale exercise/SET will require participants to perform multiple Winlink skills that are associated with VHF/UHF and HF deployments. The full-scale exercise/SET may also incorporate a subset of the Advanced Winlink Skills identified in paragraph 3.5. Each full-scale exercise/SET will be designed to require no more than 8 hours to complete.

5.3.3.1 Implementation

Each full-scale exercise/SET will be designed as a Homeland Security Exercise Evaluation Program (HSEEP) compliant exercise that will incorporate, to the maximum extent possible, local government agencies and NGOs.

A detailed plan will be developed for each full-scale exercise/SET and distributed to all participants prior to the event.

5.3.3.2 Schedule

Only one full-scale exercise or SET will take place per year. The full-scale exercise/SET will be scheduled approximately 6 months after any scheduled Functional Exercise. During the month that the full-scale exercise or SET is scheduled, no Winlink training drill will be performed.

5.3.3.3 Location

The detailed plan developed for the full-scale exercise/SET will identify the location and staffing requirements for each Winlink station.

5.3.3.4 After-Action Report and Improvement Plan

Following the exercise/SET, an after-action meeting with the participants will be held to discuss issues encountered and recommendations going forward. The PinCo ACS Training Officer will then generate a written after-action report and improvement plan. A copy of the report will be delivered to the PinCo ACS leadership team and all exercise participants. During the next scheduled PinCo ACS meeting following the exercise, the PinCo ACS Training Officer will brief the PinCo ACS membership on the exercise and its outcome.

For SET events, the PinCo ACS Admin Officer will create and deliver the appropriate ARRL® SET documentation to ARRL®.

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Appendix A

A Appendix A - Acronyms, Abbreviations, and Definitions

A.1 Acronyms

The following acronyms are used in this document.

ACRONYM	DEFINITION
ACS	Auxiliary Communication Service
AGC	Automatic Gain Control
APRS®	Automatic Packet Reporting System
APRS-IS	Automatic Packet Reporting System-Internet System
ARC	American Red Cross
ARDOP	Amateur Radio Digital Open Protocol
AREDN™	Amateur Radio Emergency Data Network
ARES®	Amateur Radio Emergency Service®
ARRL®	American Radio Relay League
AUXC	Auxiliary Communicator
BOK	Book of Knowledge
CMS	Common Message Server
COTS	Commercial Off the Shelf
CSV	Comma Separated Value
DYFI	Did You Feel It
EOC	Emergency Operations Center
FCC	Federal Communication Commission
FE	Functional Exercise
FEMA	Federal Emergency Management Agency

ACRONYM	DEFINITION
FM	Frequency Modulation
FSE	Full Scale Exercise
FSK	Frequency-Shift Keying
GIS	Geographical Information System
GPS	Global Positioning System
HF	High Frequency
HICS	Hospital Incident Command System
HSEEP	Homeland Security Exercise Evaluation Program
HTML	Hypertext Markup Language
ICS	Incident Command System
IP	Internet Protocol
KML	Keyhole Markup Language
MGRS	Military Grid Reference System
MPS	Message Pick-up Station
MS	Microsoft
NGO	Non-Governmental Organization
NIMS	National Incident Management System
NMEA	National Marine Electronics Association
NTS™	National Traffic System™
NVIS	Near Vertical Incident Skywave
P2P	Peer-to-Peer
PDF	Portable Document Format
PTB	Position Task Book
PSK	Phase-Shift Keying
PTT	Push-to-Talk
RATPAC	Radio Amateur Training Planning and Activities Committee
RF	Radio Frequency

ACRONYM	DEFINITION
RMS	Radio Message Server
RRI	Radio Relay International
SDG	San Diego
SET	Simulated Emergency Test
TCP/IP	Transmission Control Protocol/Internet Protocol
TNC	Terminal Node Controller
TTX	Tabletop Exercise
UHF	Ultra High Frequency
USB	Universal Serial Bus
USGS	United States Geological Survey
UTC	Coordinated Universal Time
VU	Voltage Units
VHF	Very High Frequency
WCF	West Central Florida
XML	Extensible Markup Language

A.2 ABBREVIATIONS

The following abbreviations are used in this document.

ABBREVIATION	DEFINITION
Digipeater	Digital Repeater
EmComm	Emergency Communications
Hz	Hertz
kB	Kilobytes
LAX	Los Angeles
PinCo	Pinellas County

ABBREVIATION	DEFINITION
S/N	Signal to Noise Ratio
SHARES	Shared Resources
WX	Weather

A.3 DEFINITIONS

The following definitions are used in this document.

A.3.1 AMATEUR RADIO EMERGENCY SERVICE® (ARES®).

"The Amateur Radio Emergency Service® (ARES®), a program of ARRL, The national association for Amateur Radio®, is comprised of organized, trained, and identified Amateur Radio operators who augment and support vital communications on behalf of the public through partner agencies and organizations during emergencies and disasters. The Amateur Radio Emergency Service, through its volunteer radio communicators, strives to be an effective partner in emergency and disaster response, providing public service partners at all levels with radio communications expertise, capability, and capacity." (ARRL, 2022)

A.3.2 AMERICAN RADIO RELAY LEAGUE® (ARRL).

"The national organization of Amateur Radio Service operators that has memorandum of understanding with national served agencies that use amateur radio operators as primary or secondary means of communications." (Pinellas County Auxiliary Communications Service, 2012)

A.3.3 AREDN™ MESH NETWORK.

"An Amateur Radio Emergency Data Network (AREDN™) is a high-speed data network built with Amateur Radio Operators and Emergency Communications Infrastructure in mind. … AREDN™ uses commercial off-the-shelf (COTS) hardware originally intended to be used for unlicensed WIFI and re-purposes it to fits the needs of Amateur Radio Operators. … Networks built on top

of AREDN™ are IP based, very similar to but not dependent upon, the Internet and operating under the rules for Amateur Radio operators. Well-used publicly documented protocols (IPv4) are utilized to provide the greatest flexibility to local implementers of these high-speed networks." (Amateur Radio Emergency Data Network, 2021)

A.3.4 AUXILIARY COMMUNICATIONS SERVICE (ACS).

"An Amateur Radio Service, using amateur stations as well as County Radio equipment to support and augment local government communications during periods of local, regional, or national emergencies and is Only activated by the Pinellas County Division of Emergency Management." (Pinellas County Auxiliary Communications Service, 2012)

A.3.5 COMMON MESSAGE SERVER (CMS).

"The Common Message Servers (CMS) are the common coordinating engines at the heart of the Winlink 2000 "star" Network configuration. They coordinate the traffic between network radio server stations (RMS gateway stations), and provide the email, telnet, bulletin and position reporting services. All this is done over the Internet using TCP/IP for speed, and to use the amateur radio spectrum efficiently. Winlink gets synergy of both the internet and radio spectrum without suffering connectivity failures or crowding the amateur bands. Each of the existing Common Message Servers is a mirror image of the other, providing continual redundancy should one of these servers become inoperative. The CMS Telnet server is compatible with AirMail, Paclink, Outpost, Windows Telpac, Telpac Node/LinuX, Linux RMS Gateway, RMS Packet, and RMS Pactor gateway software. There can be up to five active CMS sites. The sites are [geographically] distributed worldwide, are synchronized, and any single site is capable of handling all traffic for the entire network." (Amateur Radio Safety Foundation, Inc., 2021)

A.3.6 DIGIPEATER.

The term Digipeater is an abbreviation for Digital Repeater. It is a device designed to retransmit digital information rather than voice. While a standard full-duplex Very High Frequency (VHF)/Ultra High Frequency (UHF) voice repeater receives information on one frequency and

simultaneously retransmits the information on a second frequency, a digipeater receives digital information, processes the information, and then retransmits the information on the same frequency.

A.3.7 EMERGENCY OPERATIONS CENTER (EOC).

"The physical location at which the coordination of information and resources to support incident management (on-scene operations) activities normally takes place. An EOC may be a temporary facility or may be located in a more central or permanently established facility, perhaps at a higher level of organization within a jurisdiction. EOCs may be organized by major functional disciplines (e.g., fire, law enforcement, medical services), by jurisdiction (e.g., Federal, State, regional, tribal, city, county), or by some combination thereof." (FEMA, 2021)

A.3.8 ENCLAVE.

A section of a network that is subdivided from the rest of the network.

A.3.9 FEDERAL COMMUNICATIONS COMMISSION (FCC).

The United States Government agency charged with regulation of interstate and foreign communications.

A.3.10 FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA).

The United States Government agency charged with planning for and coordinating the response to national and regional disasters.

A.3.11 GRID SQUARE (MAIDENHEAD LOCATOR SYSTEM).

"A geographic co-ordinate system used by amateur radio operators to succinctly describe their locations, …" (Wikipedia, Maidenhead Locator System, 2021)

A.3.12 NATIONAL MARINE ELECTRONICS ASSOCIATION (NMEA) 0183 FORMAT.

"NMEA 0183 is a combined electrical and data specification for communication between marine electronics such as echo sounders, sonars, anemometer, gyrocompass, autopilot, GPS receivers and many other types of instruments. It has been defined by, and is controlled by,

the National Marine Electronics Association. It replaces the earlier NMEA 0180 and NMEA 0182 standards." (Wikipedia, NMEA 0183, 2020)

A.3.13 NATIONAL TRAFFIC SYSTEM (NTS™).

The official ARRL® national network for routing traffic between sections.

A.3.14 PACKET RADIO.

"Packet uses AX.25, a version of the X.25 protocol, which has been adapted by [Amateur Radio Operators] for VHF Packet radio. Packet allows multiple stations to time-share the same radio frequency. Data is broken up into blocks, or packets, which are transmitted and acknowledged independently." (Pinellas County Auxiliary Communications Service, 2012)

A.3.15 PACTOR® PROTOCOLS.

"Pactor is the invention of SCS GmbH & Co. KG. Pactor 1 is an "open" mode available on many manufacturer's TNCs. Pactor 2, 3 and 4 are proprietary to SCS and only available on SCS PTC range of products." (Amateur Radio Safety Foundation, Inc., 2021)

A.3.16 RADIO MESSAGE SERVER (RMS).

Winlink Radio Message Servers are Radio Frequency (RF) gateway stations between Winlink users (clients), the Winlink CMS, and/or other RMS stations. When operating in conventional mode, messages exchanged with Winlink users are passed to and from the CMS via the internet. When operating in Hybrid High Frequency (HF) radio-only mode, messages are routed to other RMS stations using PACTOR® or VARA HF radio forwarding. During radio-only operation, Winlink users must designate one or more RMS stations as a Message Pick-up Station (MPS). These RMS stations will store Winlink user messages for each designated user until the messages are retrieved by that user.

A.3.17 SERVED AGENCY.

Served Agencies are the Government and Non-Government Organizations (NGO) and agencies served by ACS during periods of local, regional, or national emergencies. The government agencies served include but are not limited to local or state emergency management agencies,

Emergency Operations Centers, public safety agencies such as law enforcement or fire service, street, road and highway maintenance departments, etc. NGOs supported by ACS include the American Red Cross, Catholic Relief Services, Adventist Disaster Response, Presbyterian Disaster Assistance, and Salvation Army.

A.3.18 SHARED RESOURCES (SHARES).

"The SHAred RESources (SHARES) High Frequency (HF) Radio Program coordinates a voluntary network of government, industry, and disaster response agency HF radio stations used for emergency communications. SHARES supports government (federal, state, and county), critical infrastructure, and nationwide or multi-state disaster response organizations in two ways: by transmitting emergency messages when normal communications systems are destroyed or unavailable, and by providing HF radio channels for interoperability. SHARES supports Emergency Support Function Two (ESF #2), Communications, and helps participants maintain awareness of applicable regulatory, procedural, and technical issues. SHARES is a program of the National Coordinating Center for Communications (NCC), a division of CISA Central." (CYBERSECURITY & INFRASTRUCTURE SECURITY AGENCY, 2021)

A.3.19 SNEAKER-NET.

"Sneaker-net, is an informal term for the transfer of electronic information by physically moving media such as magnetic tape, floppy disks, optical discs, USB flash drives or external hard drives between computers rather than transmitting it over a computer network." (Wikipedia, Sneakernet, 2021)

A.3.20 TELNET.

"Telnet is an application protocol used on the Internet or local area network to provide a bidirectional interactive text-oriented communication facility using a virtual terminal connection." (Wikipedia, Telnet, 2021)

A.3.21 VARA.

VARA HF and VARA Frequency Modulation (FM) are proprietary software modems developed by Jose Alberto Nieto Ros, EA5HVK. Both applications are available for use under a shareware license.

A.3.22 WHITELIST.

With the proliferation of unwanted email, spam, email servers have been forced to develop filtering systems that identify and prevent spam from being delivered to users. Since Winlink email is broadcast over Amateur Radio frequencies, the content of email messages sent by Winlink must also conform to FCC part 97 requirements. The primary source of email likely to contain unwanted information or content that would violate FCC requirements is the internet. To mitigate internet spam from entering the Winlink system, Winlink has implemented an accept-deny list filtering system for all internet email that is addressed to Winlink recipients. Within Winlink, this accept-deny list filtering system is referred to as a whitelist/blacklist system. Each Winlink user account has a unique whitelist (accept list). The content of the user's whitelist can be managed through the Winlink application or by logging into the user's Winlink internet account.

When Winlink receives an internet email that is addressed to a Winlink recipient, Winlink examines the recipient's whitelist. If the sender's internet email address is on the user's whitelist, the email is routed through Winlink to the recipient. If the sender's address is not on the whitelist, the email is rejected.

By default, the whitelist for each new Winlink account is blank. Internet email addresses are automatically added to a users' whitelist each time the user sends an email to a new internet address. whitelist entries (email addresses) are automatically removed from a user's whitelist if they are not used for a period of four hundred days.

There is only one exception to the whitelist filter system. Internet email users can bypass the whitelist filter system by placing the phrase "*//WL2K*'' in the subject line of the email.

NOTE: Winlink does not filter messages exchanged between individual Winlink users. Therefore, it is incumbent upon all Winlink users to ensure that message content is fully compliant with FCC Part 97 requirements.

A.3.23 WINLINK GLOBAL RADIO EMAIL®.

"...A network of amateur radio and authorized government-licensed stations that provides worldwide radio email using radio pathways where the internet is not present. The system is built, operated and administered entirely by licensed [Amateur Radio] volunteers. It supports email with attachments, position reporting, weather and information bulletins, and is well-known for its role in interoperable emergency and disaster relief communications. It is capable of operating completely without the internet--automatically--using smart-network radio relays. Licensed Winlink operators/stations use both amateur radio and government radio frequencies worldwide. Support for the system is provided by the *Amateur Radio Safety Foundation, Inc.*, a US 501(c)(3) non-profit, public-benefit entity. Winlink Global Radio Email® is a US registered trademark of the Amateur Radio Safety Foundation, Inc." (Amateur Radio Safety Foundation, Inc, 2021)

A.3.24 WINLINK HYBRID NETWORK.

"A voluntary subset of RMS HF and RMS VHF/UHF stations which can exchange messages (on behalf of others) between each other using "radio", in addition to performing their normal WL2K functions. The goal of this function is to enable Winlink users to function during an "internet outage", without using the "peer-to-peer" method." (Amateur Radio Safety Foundation, Inc., 2021)

Appendix B

B APPENDIX B - WEBSITE REFERENCES

WEBSITE REFERENCES

ACS – Pinellas County Communications Plan: Pinellas ARES/ACS Communication Plan

ACS – Pinellas County: Pinellas County ACS Home Page

ACS – Pinellas County: PinCo ACS Groups.io Website

American Radio Relay League: WWW.ARRL.ORG

American Red Cross (ARC) EmComm Training: ARC EmComm Training Home Page

ARES® – WCF Section – Documents: WCF ARES Home Page and Documents

ARRL® West Central Florida Section: WCF ARRL Section Home Page

Discussion Group - American Red Cross: https://emcomm-training.groups.io/g/main/topics

Discussion Group – RATPAC: Radio Amateur Training Planning Groups.io

Discussion Group – SEC- ARES®: SEC-ARES Groups.io Main Page

Discussion Group – VARA Modem: VARA Modem Groups.io

Discussion Group – Winlink Programs Group: Winlink Programs Google Group

EmComm-Training Organization™: EmComm-Training.org

FEMA Acronyms, Abbreviations, and Terms: FEMA Acronyms, Abbreviations, and Terms PDF

FEMA Training Glossary: FEMA Glossary

ICS Interactive Forms: FEMA ICS Forms for Download

Master Communications: Masters Communications Home Page

Radio Relay International: https://radio-relay.org

Training - Past RATPAC Presentations: http://tiny.cc/ratpac-list

Training - Videos, Winlink – San Diego ARES®: Winlink YouTube Training

UZ7HO Software Packet Radio TNC: UZ7HO Sound Modem

WEBSITE REFERENCES

VARA - EA5HVK Weak Signal Software: https://rosmodem.wordpress.com/2011/01/10/ros-2/VARA HF, and VARA FM

Winlink Book of Knowledge (BOK): Winlink Book of Knowledge

Winlink BOK - Form use by non-Winlink Users: Winlink ICS Form use by non-Winlink Users

Winlink Home Page: https://www.winlink.org

Winlink Software Download Page: https://downloads.winlink.org

Appendix C

C APPENDIX C - WINLINK TEMPLATE-BASED MESSAGES

This section of the document contains examples of the Winlink HTML template-based messages used in the training plan.

Winlink Check-in

Setup Click to add your agency/group name to title Load Check-in Data Form Info

1. STATION

a. Date/Time: 2023-10-01 17:16:15

b. To: Send to Separate Calls/Emails with a SEMICOLON; You can modify prior to posting. *Clear ALL "Send To" Entries.*

c. From: WA1RYQ **d. Station Contact Name:** Station Contact Name **e. Initial Operator(s):** Initial Operator(s)

2. SESSION

a. Type: ◉ EXERCISE ○ REAL EVENT **b. Service:** ◉ AMATEUR ○ SHARES **c. Band:** ◉ NA ○ Telnet ○ HF ○ VHF ○ UHF ○ SHF

d. Session: ◉ Telnet ○ Packet ○ Pactor ○ Robust Packet ○ Ardop ○ VARA HF ○ VARA FM ○ Iridium Go ○ Mesh

3. LOCATION

a. **Location:** Example: Hope Hospital, parking lot C near ER entrance

b. **LATITUDE:** 27.840658 **c. LONGITUDE:** -82.828327 **d. MGRS:** 17RLL1995380893 **e.GRID SQUARE:** EL87ou

LAT/LON and MGRS default to the center of the grid square listed in Express Settings, unless a GPS is used or Lat/LON or MGRS must be entered manually.
Without properly formatted GPS coordinates this form cannot be mapped in Winlink Express.

4. COMMENTS: *Max Characters 500*

Such as: On batteries. Need relief in 6 hours. A Brief SitRep. Operators Names. Special notes for next shift. Mode being used that was indicated as OTHER.

Submit Save Check-in Data Reset Form Ver 5.0.5

Figure C- 1. Winlink Check-in Form

Winlink Check-out

Setup Click to add your agency/group name to title Load Check-out Data Form Info

1. STATION

a. Date/Time: 2023-10-01 17:18:49

b. To: Separate Calls/Emails with a SEMICOLON; You can modify prior to posting. *Clear ALL "Send To" Entries.*

c. From: WA1RYQ **d. Station Contact Name:** Station Contact Name **e. Initial Operator(s):** Initial Operator(s)

2. SESSION

a. Type: (•) EXERCISE ( ) REAL EVENT **b. Service:** (•) AMATEUR ( ) SHARES **c. Band:** (•) NA ( ) Telnet ( ) HF ( ) VHF ( ) UHF ( ) SHF

d. Session: (•) Telnet ( ) Packet ( ) Pactor ( ) Robust Packet ( ) Ardop ( ) VARA HF ( ) VARA FM ( ) Iridium Go ( ) Mesh

3. LOCATION

a. **Location:** Example: Hope Hospital, parking lot C near ER entrance

b. LATITUDE: 27.840718 **c. LONGITUDE:** -82.828498 **d. MGRS:** 17RLL1993680900 **e.GRID SQUARE:** EL87ou

LAT/LON and MGRS default to the center of the grid square listed in Express Settings, unless a GPS is used or Lat/LON or MGRS must be entered manually.
Without properly formatted GPS coordinates this form cannot be mapped in Winlink Express.

4.. COMMENTS: *Max Characters 500*

Such as: On batteries. Need relief in 6 hours. A Brief SitRep. Operators Names. Special notes for next shift. Mode being used that was indicated as OTHER.

Submit Save Check-out Data Reset Form Ver 5.0.5

Figure C- 2. Winlink Check-out Form

Amateur Radio RADIOGRAM Text Creator — Read Help and Instructions!

Number	Precedence	Handling Instructions	Station Of Origin	Check	Place of Origin	Time	Date
185	R / EMERGENCY / P / W	NONE / HXA / HXB	WA1RYQ	0	ex. OWLS HEAD ME	Optional	OCT 1
SVC (Handler use)	Emergency not in use at this time.	HX Help: ADD MORE HX INFO	Change if not you.			Current UTC Time / Current Local Time / No Time	

TO:

Name: FIRST AND LAST NAME MINIMUM Call Sign: IF ANY OR KNOWN

Address: OPTIONAL

City / Town: VERIFY YOUR SPELLING State or Province: ST 2 Letter Codes Zip: USA/CAN

Country: OPTIONAL

Phone: 555 555 5555 Extension: #'s ONLY E-mail: NEED EMAIL, PHONE, OR BOTH TO ENSURE DELIVERY.

Op Note about this Radiogram: OPTIONAL - KEEP IT SHORT!

MESSAGE TEXT Check: 0 Numbered Message Help

SUGGESTION IS NO MORE THAN 25 GROUPS (WORDS)

Click here to preview for accuracy BEFORE you SUBMIT

Signature (name) of person for whom message originated: PERSON WHO ORIGINATED THIS MESSAGE

Operator Note: OPTIONAL - KEEP IT SHORT!

>>> NOW CLICK HERE and select a Liaison Station <<< YOU MAY ENTER ANY ADDRESS HERE

Submit Reset Form *Contact KB1TCE about this form: Ver 10.6*

Figure C- 3. Amateur Radio RADIOGRAM

INCIDENT RADIO COMMUNICATIONS PLAN (ICS 205)

1. Incident Name:

Form Information

2. Date /Time Prepared

Click to Add Date/Time

Load ICS205 Data

3. Operational Period:

Date From: Date To:

Time From: Time To:

4. Basic Radio Channel Use: Paste Channel Data from a Spreadsheet

Zone Grp.	Ch #	Function	Channel Name / Trunked Radio System Talkgroup	Assignment	RX Freq	N or W	RX Tone / NAC	TX Freq	N or W	TX Tone / NAC	Mode (A, D, or M)	Remarks

5. Special Instructions: (Be Brief)

6. Approved by (CUL) Name: Date/Time: Click to Add Date/Time IAP Page:

Attach CSV data file to message? Yes No

Submit Save ICS205 Data Reset Form Export Data to CSV file ICS205 Ver 19.5

Figure C- 4. ICS 205 Incident Radio Communications Plan

Setup Click to add an agency or group name

General Message (ICS 213)

☐ THIS IS AN EXERCISE Load ICS213 INITIAL Data Form Instructions

1. Incident Name: Incident name is optional

2. To (Name/Position):

3. From (Name/Position):

4. Subject: 5. Date: 6. Time:

7. Message:

Be Brief and Concise

8. Approved by: 8b. Position / Title:

Optional Location Coordinates

Latitude 27.840698 Longitude -82.828397 MGRS 17RLL1994680897 Grid EL87ou

LAT/LON and MGRS default to the center of the grid square listed in Express Settings, unless a GPS is used or Lat/LON or MGRS are entered manually.
For Winlink mapping and CSV export you must enter a latitude and longitude.

Submit Save ICS213 INITIAL Data Reset Form Ver 43.0

Figure C- 5. ICS 213 General Message

Setup Click to add an agency or group name

RESOURCE REQUEST MESSAGE (ICS 213 RR)

1. Incident Name 2. Date/Time Click to Add Date/Time Load ICS213RR Data Form Info

3. Resource Request Number

REQUESTER

4. Order *Use additional forms when requesting from a different source or vendor to fill request (s)*

Detailed Item Description; Vital characteristics, brand, specs, experience, size, etc.				Needed Date/Time (local 24 hr)		
Qty	Kind	Type	Item Description	Requested	Estimated	Cost

5. Delivery/Reporting Location

6. Substitutes and/or Suggested Sources

7. Requested by Name/Position 8. Priority ◉ Low ○ Routine ○ URGENT

9. Section Chief Name for Approval

LOGISTICS

10. Logistics Order Number

11. Supplier Phone/Fax/Email

12. Name of Supplier 12A Point of Contact

13. Notes

14. Name of Auth Logistics Rep 15. Date/Time Click to Add Date/Time

16. Order Was Requested By *Indicate Unit / Section or Person who is to get this order.*

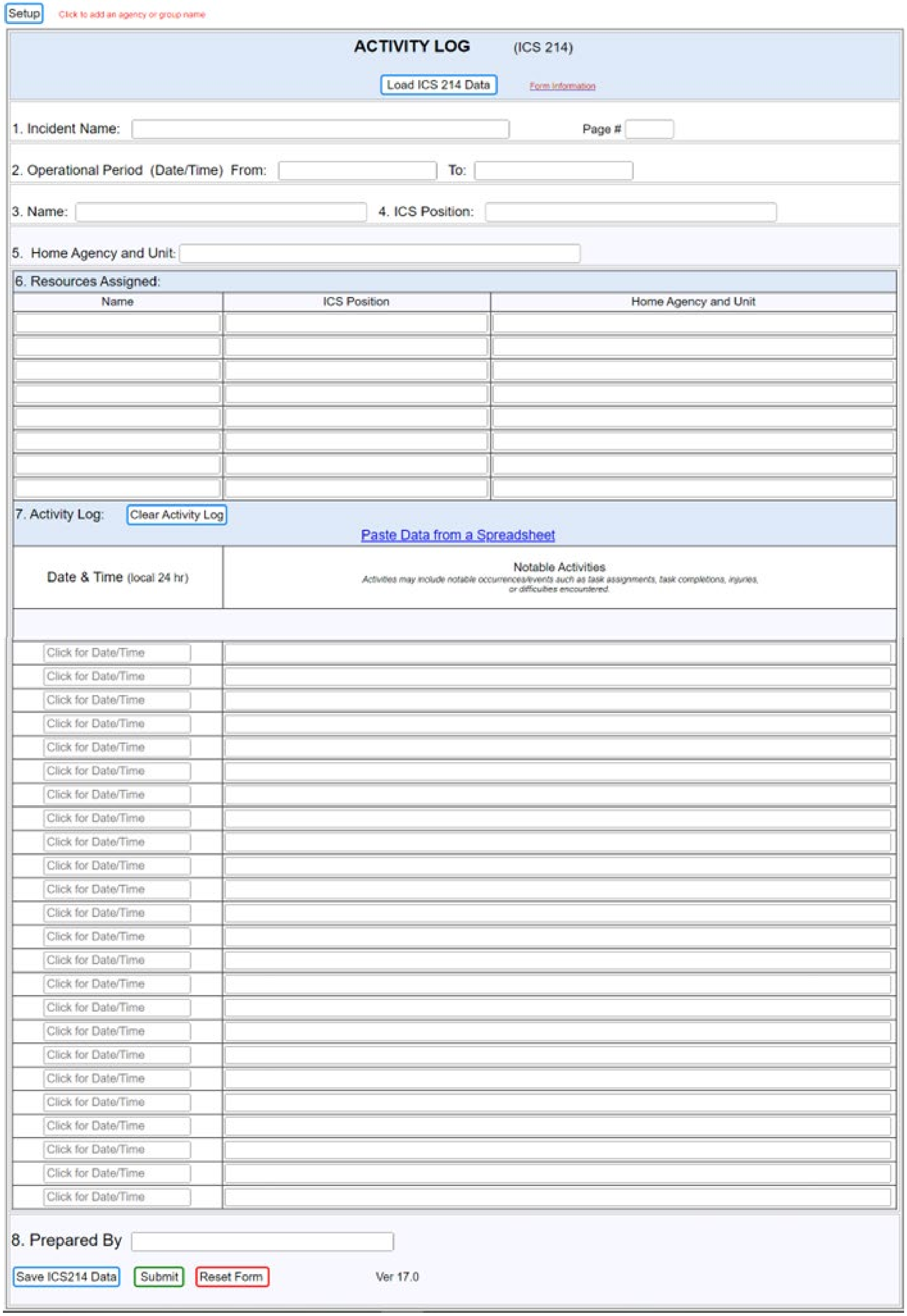
FINANCE

17. Reply/Comments from Finance

18. Finance Section Chief Name 19. Date/Time Click for Date/Time

Save ICS213RR Data Submit Reset Form ICS 213RR v. 14.5

Figure C- 6. ICS 213RR Resource Request Message



ACTIVITY LOG (ICS 214)

1. Incident Name: Page #

2. Operational Period (Date/Time) From: To:

3. Name: 4. ICS Position:

5. Home Agency and Unit:

6. Resources Assigned:

Name	ICS Position	Home Agency and Unit

7. Activity Log:

Date & Time (local 24 hr)	Notable Activities *Activities may include notable occurrences/events such as task assignments, task completions, injuries, or difficulties encountered.*
Click for Date/Time	
Click for Date/Time	
Click for Date/Time	
Click for Date/Time	
Click for Date/Time	
Click for Date/Time	
Click for Date/Time	
Click for Date/Time	
Click for Date/Time	
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Click for Date/Time	
Click for Date/Time	
Click for Date/Time	
Click for Date/Time	
Click for Date/Time	
Click for Date/Time	
Click for Date/Time	

8. Prepared By

Figure C- 7. ICS 214 Activity Log

Setup Click to add an agency or group name

COMMUNICATIONS RESOURCE AVAILABILITY WORKSHEET (ICS217A)

Load ICS217A Data Form Info

Frequency Band --

Description

Work sheet Incident or Event Name

Date/Time (optional) Click to Add Date/Time

Paste Field Data Below from a Spreadsheet

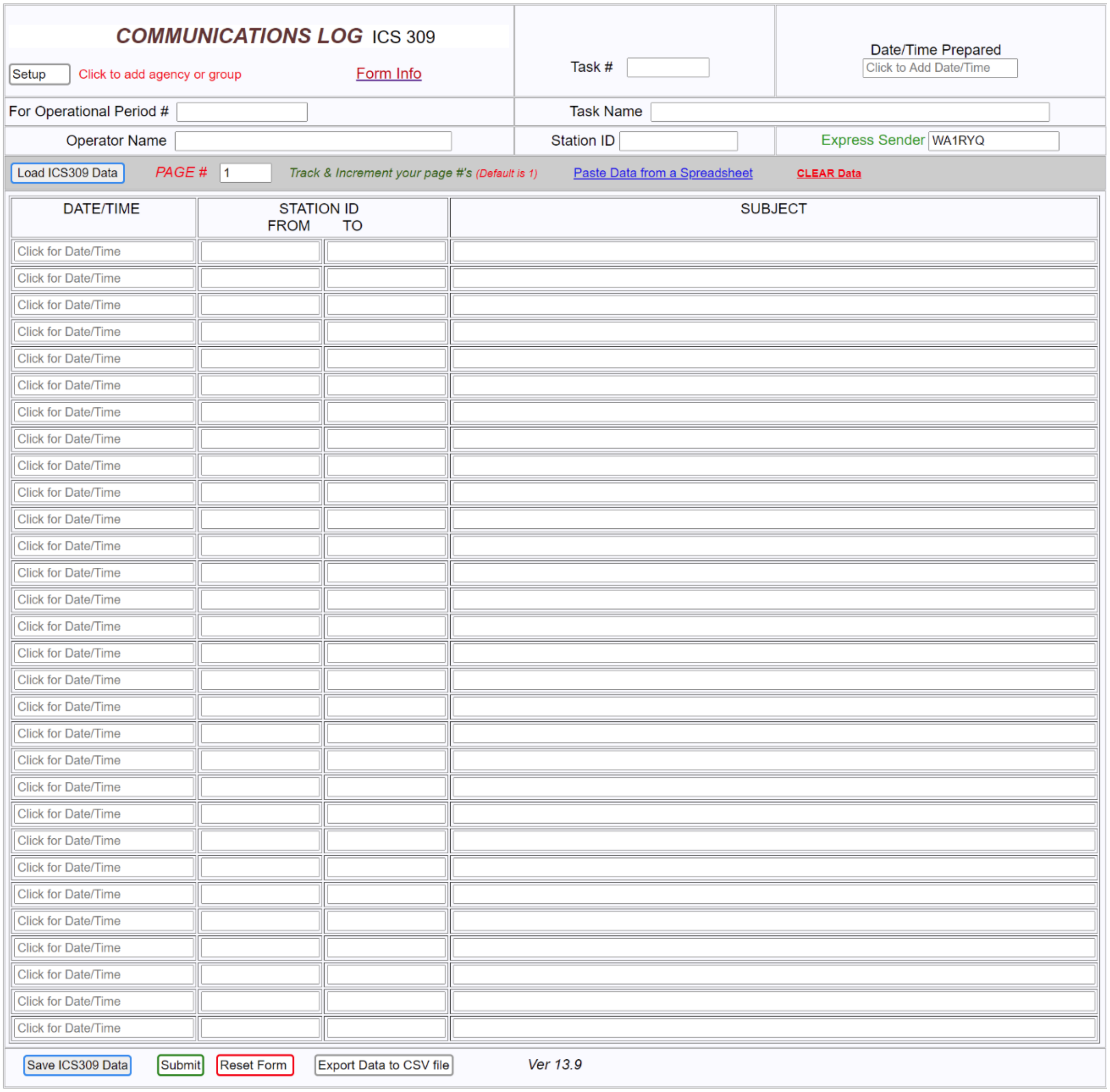
#	Channel Configuration	Channel Name/Trunked Radio System Talkgroup	Eligible Users	RX Freq	N or W	RX Tone/NAC	TX Freq	N or W	TX Tone/NAC	Mode A, D or M	Remarks
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

The convention calls for frequency lists to show 4 digits after the decimal place, followed by either an N or a W, depending on whether the frequency is narrow or wide band. Mode A or D indicates analog or digital, M indicating mixed mode. All channels are shown as if programmed in a control station, mobile or portable radio. Repeater and base stations must be programmed with the Rx and Tx reversed.

Attach CSV data file to message? ○ Yes ◉ No

Submit Save ICS217A Data Reset Form Export Data to CSV file Vers 15.0

Figure C- 8. ICS 217A Communications Resource Availability Worksheet



COMMUNICATIONS LOG ICS 309

Task #

Date/Time Prepared: Click to Add Date/Time

For Operational Period #

Task Name

Operator Name

Station ID

Express Sender: WA1RYQ

PAGE # 1

DATE/TIME	STATION ID FROM	TO	SUBJECT
Click for Date/Time			
Click for Date/Time			
Click for Date/Time			
Click for Date/Time			
Click for Date/Time			
Click for Date/Time			
Click for Date/Time			
Click for Date/Time			
Click for Date/Time			
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Click for Date/Time			
Click for Date/Time			

Figure C- 9. ICS 309 Communications Log

FIELD SITUATION REPORT

Setup Click to add an agency or group name | Load Field Situation data | Form info

For Non-Express recipients, this form is sent as plain text in the message body.
Once this page is submitted No changes or editing of this message are allowed

PRECEDENCE: R/ Routine | DATE/TIME: 2023-10-02 20:48:38Z | TASK #

FROM: WA1RYQ

TO:

INFO (CC):

*Call signs or E-mails entered into the **TO** or **INFO** fields above, can be multiples separated by a semicolon ;*

1. Is there an EMERGENT/LIFE SAFETY Need ○ YES ◉ NO

2. City | County: | State: | Territory:

3. Latitude and longitude: LAT 27.840667 | LON -82.828333 | *MGRS* 17RLL1995280894 | *Grid* EL87ou

If your local situation is LIFE CRITICAL, report via 911. If 911 services are not available, a reporter may use this form and mark the block for LIFE CRITICAL; the reporter should describe the situation and provide the residential address.

LAT and LON are required to map this SpotRep. If entering manually use Decimal Degree format or from an attached GPS device.
By default LAT, LON and MGRS to the center of the grid square listed in Express Settings

4a. POTS landlines functioning? ○ YES ○ NO ◉ Unknown - N/A

If no, state provider.

4b. VOIP landlines functioning? ○ YES ○ NO ◉ Unknown - N/A

If no, state provider.

5a. Cell phone voice calls functioning? ○ YES ○ NO ◉ Unknown - N/A

If no, state provider.

5b. Cell phone texts functioning? ○ YES ○ NO ◉ Unknown - N/A

If no, state provider.

6. AM/FM Broadcast Stations functioning? ○ YES ○ NO ◉ Unknown - N/A

If no, provide broadcast station callsign/frequency that is off-the-air.

7a. OTA TV functioning? ○ YES ○ NO ◉ Unknown - N/A

If no, identify TV station.

7b. Satellite TV functioning? ○ YES ○ NO ◉ Unknown - N/A

If no, state provider.

7c. Cable TV functioning? ○ YES ○ NO ◉ Unknown - N/A

If no, state provider.

8. Public Water Works functioning? ○ YES ○ NO ◉ Unknown - N/A

Comments

9a . Commercial Power functioning? ○ YES ○ NO ◉ Unknown - N/A

If no, state provider.

9b . Commercial Power Stable? ○ YES ○ NO- Brown outs/blinking lights ◉ Unknown - N/A

If no, state provider.

9c. Natural Gas Supply functioning? ○ YES ○ NO ◉ Unknown - N/A

If no, state provider.

10. Internet functioning? ○ YES ○ NO ◉ Unknown - N/A

If no, indicate Fiber/Cable/Wireless/Satellite, state provider.

11a. NOAA weather radio functioning? ○ YES ○ NO ◉ Unknown - N/A

Identify NOAA Weather Radio Transmitter by frequency, call sign or location.

11b. NOAA weather radio audio degraded? ○ YES ○ NO ◉ Unknown - N/A

Identify NOAA Weather Radio Transmitter by frequency, call sign or location.

12. Additional Comments *Brief summary of current situation - expected outage times, major observations, etc.*

13. POC Point of Contact

Submit | Save Field Situation data | Reset Form | Ver 0.2.9

Figure C- 10. Field Situation Report

Appendix D

D Appendix D - Winlink Training Nets

A list of active Winlink training nets is shown in Figure D- 1.

INFORMATION FORM Ver 8.5
W2ILT MOBILE COMMUNICATIONS UNIT

Event or Use Name: List of Several Winlink Nets across North America

Description or Form Information: You should write and ask for Net specific instructions

Form Creation Date/Time: 2021-2-28 10:52

Winlink Express Sender: W2ILT

#	Name or Location of Net	Primary send to contact	General info about Winlink Net, but see comments at bottom
1	Northern California	NCALWLINKNET	SUNDAYS: callsign,first name, city, state, Mode, gateway, frequen
2	Yamhill County, Oregon YCARES	W7OWO	SUNDAYS: callsign, mode, County, State
3	Georgia ARES Net	KX4MAT	SUNDAY AFTERNOON: callsign, first name, city, county, state, mode
4	Flordia Winlink Net	W4AKH	MONDAYS:Callsign, first name, city, state, mode
5	Clay Co ARES, Florida	KI4UWC	MONDAYS: http://www.clayares.org/wp/
6	Williamson Co. Tennessee	WC4EOC	MONDAYS: 06:00 to 18:00 callsign, first name, city, state, mode
7	Greene Co. Ohio GCARES	W8LRJ	TUESDAY: Call, first name, City, County, ARES District, State,
8	Martland & DC Winlink Net	MDCASEC	2ND TUESDAY: call, first name, city, county, state, mode
9	Wisconsin ARES/RACES	KB9MMC	TUESDAYS: call, first name, city, county, state
10	El Paso Texas Winlink Net	NE8U	TUESDAYS: Call, first name, city, county, state, mode
11	Mississippi ARES	W5DIX, K9EYZ	TUESDAYS: Call, first name, city, county, state, mode
12	Ohio Winlink Net	K8EAF	WEDNESDAY: Call, first name, city, county, state, mode
13	Alberta Canada	VA6MCP	WEDNESDAY: Call, first name, city, county, state, mode
14	St. Louis Missouri	KD0PMW	WEDNESDAY AFTER NOON ONLY! : Call, name, city, county, State
15	Powhatan VA- PARC Winlink Net	KW6GB	WEDNESDAY: Call, first name, city, county, state, mode
16	North Texas Winlink Net	KF5VO	WEDNESDAY: Call, first name, city, county, state, mode
17	West Valley ARC, Utah	K2WVC	WEDNESDAY: Call, first name, city, county, state, mode
18	Hillsborough Co ARES, NH	NF1L	WEDNESDAY: Call, first name, city, county, state, mode
19	Austin Texas- Travis Co. ARES	KF5IHR	THURSDAY: Call, first name, city, county, state, mode
20	AMERICAN RED CROSS REGIONAL	See Website for instructions	https://arc-emcomm-training.groups.io/g/main
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			

Senders Comments or Additional Information

You should write and request specific instructions and form requirements for each net. Some require specific forms, some specify over RF only. This list is intended as a starting point, and not exact instructions for the above Winlink nets. INTENDED FOR INFORMATION ONLY as a starting point.

Figure D- 1. Winlink Training Nets

Appendix E

E APPENDIX E - WINLINK TRAINING SCORE CARD

Pinellas County ACS Winlink Training Score Card

31 October 2023 Revision (B)

WINLINK TRAINING SCORE CARD ASSIGNED TO:

Individual Name:
Call Sign:
Phone:
Email:

E.1 WINLINK TRAINING SCORE CARD OVERVIEW

The Winlink Training Score Card has been created to document the performance criteria a trainee must meet to be certified as a PinCo ACS Winlink Operator.

A separate Training Score card has been created for each of the skill sets defined in Section 3.

E.2 WINLINK SCORE CARD DESCRIPTION

Each training score card has five columns.

a. Task Description. This field describes a specific Winlink skill to be evaluated.

b. Req Code. This field defines the requirement code for the skill.

(1) R: Required

(2) S: Strongly Recommended

(3) Empty: Optional

c. Task Code. This field defines the operating environment under which the user can complete the task. If multiple codes are listed, evaluation of the skill can be completed in any one of the listed environments.

(1) Code C: Task performed in a training or classroom setting. Examples include seminars, workshops, and over-the-air training nets and drills.

(2) Code E: Task performed during a full-scale exercise.

(3) Code F: Task performed during a functional exercise.

(4) Code I: Task performed during an incident or event. Examples include tropical storms; hurricanes; search and rescue operations; emergency or non-emergency (planned or unplanned) events.

(5) Code T: Task performed during a tabletop exercise.

d. Completion Date. This field identifies the date that the task was completed.

e. Evaluator Initials. This field is used by the Evaluator to certify that the individual has successfully demonstrated a skill.

TABLE E- I. Winlink Score Card - Basic Winlink VHF/UHF Communication Skills

TASK DESCRIPTION	REQ CODE	TASK CODE	COMPLETION DATE	EVALUATOR INITIALS
Install the software required to support VHF/UHF Winlink communications	R	C, E, F, I		
Configure a VHF/UHF Winlink station that supports Packet and VARA FM	R	C, E, F, I		
Send and receive messages via Telnet	R	C, E, F, I		
Send and receive messages via VHF/UHF RMS stations	R	C, E, F, I		
Add contacts and a Delivery Group to the Winlink address book	R	C, E, F, I		
Send and receive messages via VHF P2P RF Links	R	C, E, F, I		
Create, send, and receive messages using Winlink Standard Template Forms				
WINLINK CHECK-IN	R	C, E, F, I		
WINLINK CHECK-OUT	R	C, E, F, I		
RADIOGRAM	R	C, E, F, I		
Create Message Favorites		C, E, F, I		
Establish Message Acknowledgement Defaults		C, E, F, I		

TABLE E- II. Winlink Score Card - Basic Winlink HF Communication Skills

TASK DESCRIPTION	REQ CODE	TASK CODE	COMPLETION DATE	EVALUATOR INITIALS
Install the software required to support HF Winlink communications	R	C, E, F, I		
Configure an HF Winlink station that supports VARA HF and ARDOP	R	C, E, F, I		
Send and receive messages via HF RMS stations.	R	C, E, F, I		
Send and receive VARA HF P2P messages using each VARA HF bandwidth setting.				
500 Hz	S	C, E, F, I		
2300 Hz	R	C, E, F, I		
2750 Hz	S	C, E, F, I		
Create VARA HF P2P session favorites		C, E, F, I		

TABLE E- III. Winlink Score Card - Deployment Ready VHF/UHF Communication Skills

TASK DESCRIPTION	REQ CODE	TASK CODE	COMPLETION DATE	EVALUATOR INITIALS
Set-up an VHF Winlink station at a remote deployment site	R	E, F, I		
Create an event specific personal folder within Winlink	R	C, E, F, I		
Create, send, and receive messages using ICS Template Forms				
INCIDENT RADIO COMMUNICATIONS PLAN (ICS 205)	R	C, E, F, I		
GENERAL MESSAGE (ICS 213)	R	C, E, F, I		
GENERAL MESSAGE REPLAY (ICS 213 Reply)	R	C, E, F, I		
RESOURCE REQUEST MESSAGE (ICS 213RR)	R	C, E, F, I		
ACTIVITY LOG (ICS 214)	R	C, E, F, I		
COMMUNICATIONS RESOURCE AVAILABILITY WORKSHEET (ICS 217A)	R	C, E, F, I		
COMMUNICATIONS LOG (ICS 309)	R	C, E, F, I		
Create and send messages using ***Priority*** and ***Immediate*** precedence.	R	C, E, F, I		
Configure Winlink to annotate ***Priority***, ***Immediate***, and ***Flash*** messages.	R	C, E, F, I		

TABLE E- III. Winlink Score Card - Deployment Ready VHF/UHF Communication Skills				
TASK DESCRIPTION	**REQ CODE**	**TASK CODE**	**COMPLETION DATE**	**EVALUATOR INITIALS**
Send and receive messages using a Tactical Address	R	C, E, F, I		
Import Served Agency data into the Winlink computer	R	C, E, F, I		
Import, resize, send, and receive Photographs	R	C, E, F, I		
Send an ICS Template-Based message form as a PDF using Telnet	R	C, E, F, I		
Create and send messages using Mapping- Geographical Information System (GIS) template forms.				
FIELD SITUATION REPORT	R	C, E, F, I		
Graphically display event specific Mapping-GIS message data.	R	C, E, F, I		

TABLE E- IV. Winlink Score Card - Deployment Ready HF Communication Skills				
TASK DESCRIPTION	**REQ CODE**	**TASK CODE**	**COMPLETION DATE**	**EVALUATOR INITIALS**
Set-up a Winlink station that supports VHF/UHF and HF communications at a remote deployment site.	R	E, F, I		
Send a GPS Position Report	R	C, E, F, I		

TABLE E- IV. Winlink Score Card - Deployment Ready HF Communication Skills				
TASK DESCRIPTION	**REQ CODE**	**TASK CODE**	**COMPLETION DATE**	**EVALUATOR INITIALS**
Use Winlink to obtain local weather and Winlink station location data	R	C, E, F, I		
Send and receive messages using the radio-only hybrid network	R	C, E, F, I		

TABLE E- V. Winlink Score Card – Advanced Winlink HF/VHF/UHF Communications Skills				
TASK DESCRIPTION	**REQ CODE**	**TASK CODE**	**COMPLETION DATE**	**EVALUATOR INITIALS**
Configure a VHF/UHF station to operate as a Winlink digipeater.				
VARA FM Digipeater	S	C, E, F, I		
UZ7HO Packet FM Digipeater	S	C, E, F, I		
Send Winlink messages to a VHF RMS via a Winlink digipeater. Receive messages from a VHF RMS via a Winlink digipeater.				
VARA FM Digipeater	S	C, E, F, I		
UZ7HO Packet FM Digipeater	S	C, E, F, I		

TABLE E- V. Winlink Score Card – Advanced Winlink HF/VHF/UHF Communications Skills				
TASK DESCRIPTION	**REQ CODE**	**TASK CODE**	**COMPLETION DATE**	**EVALUATOR INITIALS**
Send and receive P2P Winlink messages through a Winlink digipeater.				
VARA FM Digipeater	S	C, E, F, I		
UZ7HO Packet FM Digipeater	S	C, E, F, I		
Configure an HF Winlink station capable of supporting PACTOR® protocols.	S	C, E, F, I		
Send and receive Winlink messages via HF PACTOR®	S	C, E, F, I		
Configure a Winlink AREDN™ mesh station		C, E, F, I		
Send and receive Winlink messages via AREDN™ mesh		C, E, F, I		

TABLE E- VI. Winlink Score Card – Drills, Events, and Incidents			
Date	**Name**	**Position**	**Brief Description of the Event or Incident**

TABLE E- VII. Winlink Score Card – Evaluator List	
Evaluator	
Name:	**Call Sign:**
Phone:	**Initials:**
Email:	**Date:**
Evaluator	
Name:	**Call Sign:**
Phone:	**Initials:**
Email:	**Date:**
Evaluator	
Name:	**Call Sign:**
Phone:	**Initials:**
Email	**Date:**
Evaluator	
Name:	**Call Sign:**
Phone:	**Initials:**
Email:	**Date:**