



RMS Express – Winlink Use in EMCOMM



What Winlink offers for EMCOMM

Flexibility:

- Internet-only (Telnet) direct connections to Winlink.
- Radio link bridge to Internet e-mail.
- Radio-only store and forward messaging.
- Peer-to-peer connections between radio end-users.
- Familiar and simple e-mail client interface.

Interoperability: Connect different types of systems

- Bridge different radio capabilities (VHF/UHF/HF).
- Seamless integration with Internet e-mail.

Geographical dispersion and redundancy for reliability

What Winlink offers for EMCOMM (more)

- Standard e-mail format with many features.
 - Binary file attachments (pictures, pdf, spreadsheets).
 - Automatic message compression/decompression.
 - White listing used to prevent spam.
- Time independence.
- Ability to collect messages while unattended.
- Good operation at most power levels.
- Not limited by station-to-station propagation.
- Message logging, and ICS report generation.
- Forms and template support.
- Wide adoption by EmComm related agencies.

Winlink Connection Modes

- **Telnet** – Non-radio connection through the Internet. Good for training (no radio equipment required) and use if radio is down or network is busy.
- **VHF/UHF Packet** (local LOS propagation) –
 - **9600 baud** – Fast, reliable, range limited and requires \$400 modem (Kantronics or SCSTracker).
 - **1200 baud** – Slower, but can use inexpensive Byonics TinyTrak-4, TNC-X, or soundcard modems.
- **HF WINMOR** – “Poor man’s Pactor”. Not as good as Pactor, but operates with inexpensive sound card device (\$100), speed between Pactor 2 and 3.
- **HF Pactor 1, 2, 3 and 4** – Fast and reliable but requires an expensive modem (\$1500+).

RMS Express Main Screen

Begin connection

Connection Mode

Multiple call signs

Standard Folders

Personal message folders

Contacts address book

RMS Express 1.3.10.0 - NS7C

NS7C Files Message Attachments Move To: Saved Items Delete Open Session: Telnet Winlink Logs Help

No active session...

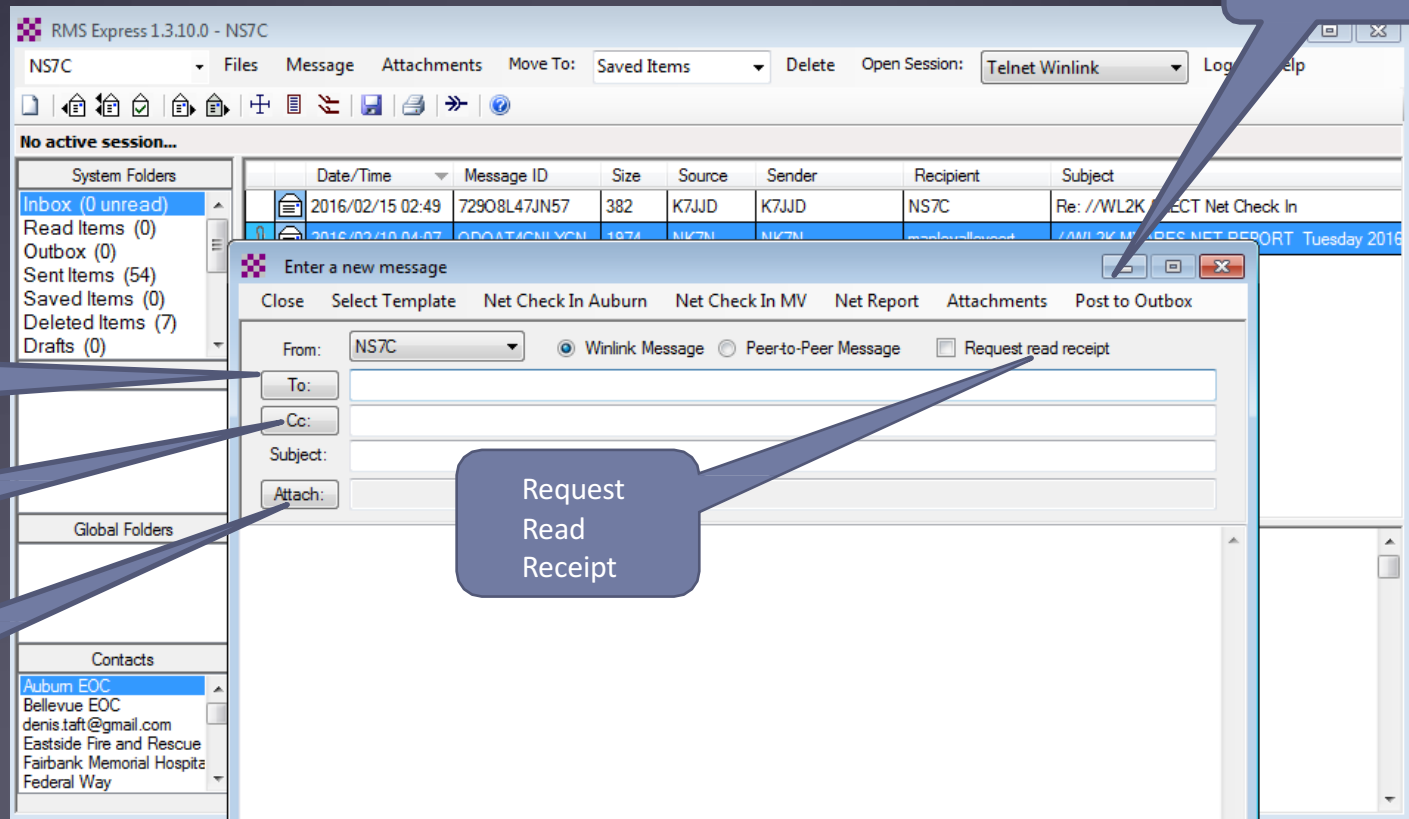
	Date/Time	Message ID	Size	Source	Sender	Recipient	Subject
	2016/02/15 02:49	72908L47JN57	382	K7JJD	K7JJD	NS7C	Re: //WL2K AAECT Net Check In
	2016/02/10 04:07	QDOAT4CNLYCN	1974	NK7N	NK7N	maplevalleycert...	//WL2K MVARES NET REPORT Tuesday 2016

Message ID: QDOAT4CNLYCN
Date: 2016/02/10 04:07
From: NK7N
To: maplevalleycert@gmail.com; mvares@googlegroups.com; NS7C; NK7N
Source: NK7N
Downloaded-from: Telnet:Halifax.Winlink.org
Subject: //WL2K MVARES NET REPORT Tuesday 2016-02-09

Maple Valley ARES Weekly Net Report

of Member check ins: 8

Composing A Message



New Message Button

Click "To" or "CC" for contacts

Multiple recipients and CC

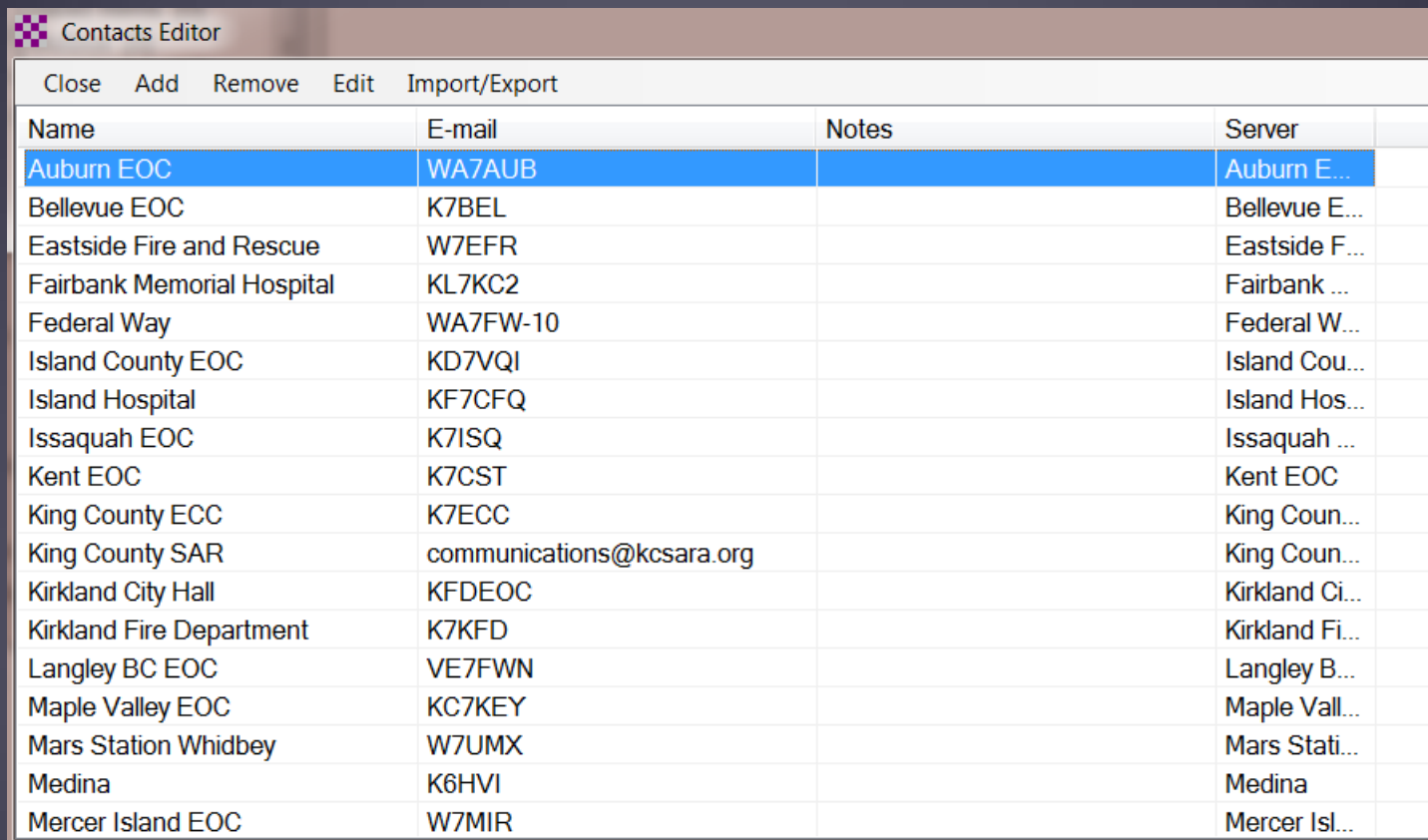
File attachments

Request Read Receipt

Post to Outbox

Address Book Support

Use of Standard Addresses for EMCOMM is Encouraged



The screenshot shows a window titled "Contacts Editor" with a menu bar containing "Close", "Add", "Remove", "Edit", and "Import/Export". Below the menu bar is a table with four columns: "Name", "E-mail", "Notes", and "Server". The table contains 18 rows of contact information. The first row, "Auburn EOC", is highlighted in blue. The "E-mail" column for "King County SAR" contains the email address "communications@kcsara.org".

Name	E-mail	Notes	Server
Auburn EOC	WA7AUB		Auburn E...
Bellevue EOC	K7BEL		Bellevue E...
Eastside Fire and Rescue	W7EFR		Eastside F...
Fairbank Memorial Hospital	KL7KC2		Fairbank ...
Federal Way	WA7FW-10		Federal W...
Island County EOC	KD7VQI		Island Cou...
Island Hospital	KF7CFQ		Island Hos...
Issaquah EOC	K7ISQ		Issaquah ...
Kent EOC	K7CST		Kent EOC
King County ECC	K7ECC		King Coun...
King County SAR	communications@kcsara.org		King Coun...
Kirkland City Hall	KFDEOC		Kirkland Ci...
Kirkland Fire Department	K7KFD		Kirkland Fi...
Langley BC EOC	VE7FWN		Langley B...
Maple Valley EOC	KC7KEY		Maple Vall...
Mars Station Whidbey	W7UMX		Mars Stati...
Medina	K6HVI		Medina
Mercer Island EOC	W7MIR		Mercer Isl...

Using Group Addresses

Click “Files” followed by “Group Address...”

Use a group name in the “To” or “CC” fields

Group Addresses

Group Name **Group Addresses (separate with space or ";") . . .**

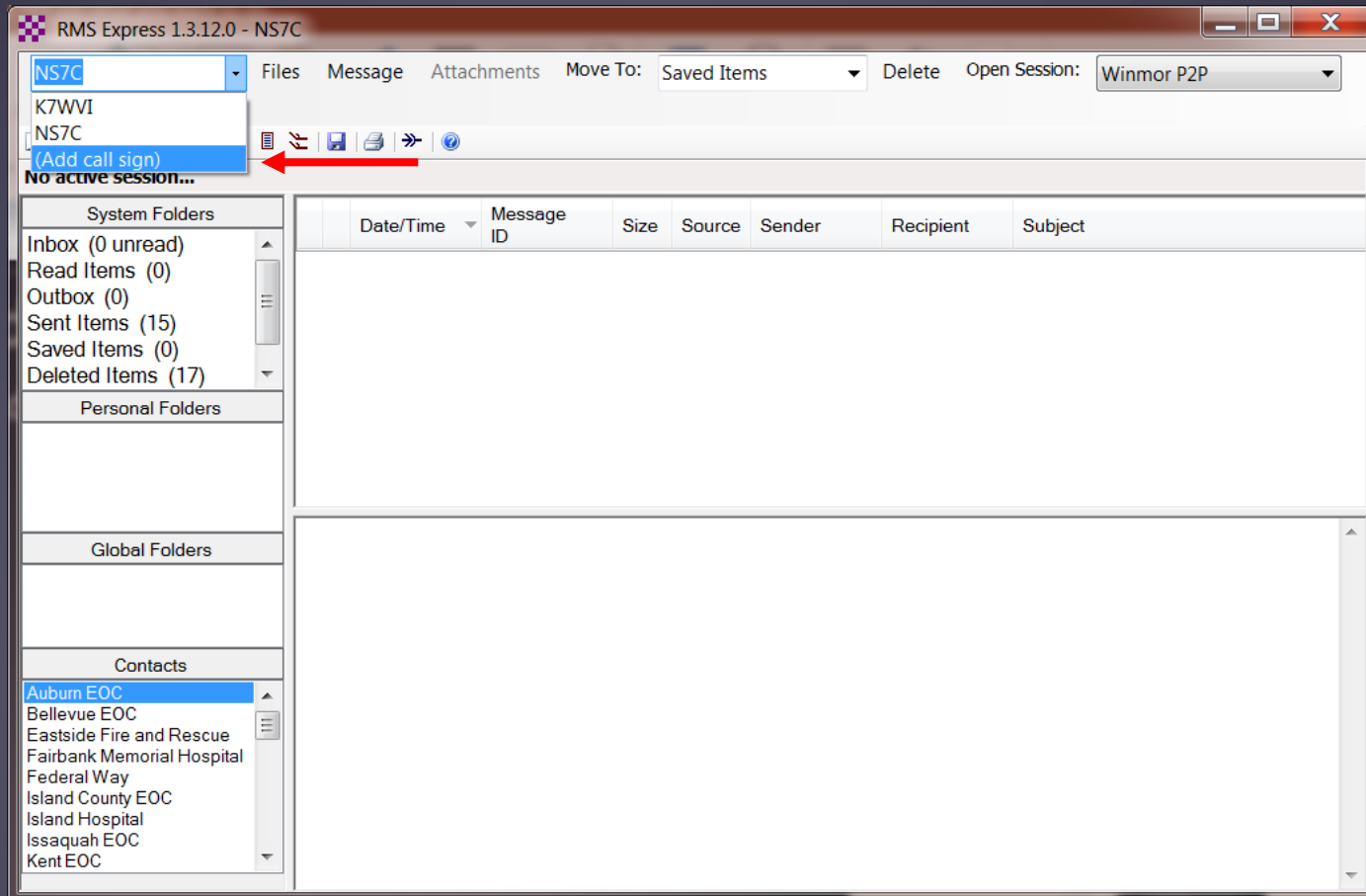
Select From Contacts

LOCAL_EOC = WA7AUB K7BEL KD7VQI K7ISQ K7CST K7ECC KFDEOC VE7FWN KC7KEY W7MIR WA7NPK KE7VQH W

Add/Update Entry Clear Edits Delete Selection Save & Close Cancel

Tactical Address Support

Adding additional call signs



Tactical Address Support

Contact info will be duplicated, update or clear these fields

RMS Express Properties

Call Signs

My Callsign: My Password:

Require password on connections. (Enable Secure Login.) Show password

Callsign suffix (optional): (Used for country code)

Password recovery e-mail:
(Non-Winlink e-mail address where lost password will be sent when requested)

Auxiliary Callsigns and Tactical Addresses

My Grid Square:

RMS Express registration key:

Path to propagation forecast program:

Service Codes

(Use PUBLIC for ham call signs. Separate multiple service codes by spaces.)
If you change service codes, you must update the list of channels.

Contact Information (Optional)

Name:

Street address 1:

Street address 2:

City:

State/Province:

Country:

Postal code:

Web Site URL (optional):

Phone number:

Non-Winlink e-mail:

Additional information (optional):

Recalculate HF path quality if SFI changes more than:

Keep logs for weeks. Keep deleted messages for days.

Display list of pending incoming messages prior to download

Warn about connections to stations holding messages

Disable Peer-To-Peer Message Transfer

Allow diagnostic information to be sent to the Winlink Development Team

Automatically install field-test (beta) versions of RMS Express

Tactical Address Support

Use of Tactical Addresses for EMCOMM is Encouraged

Call Signs

My Callsign: My Password:

Require password on connections. (Enable Secure Login.) Show password

Callsign suffix (optional): (Used for country code)

Password recovery e-mail:

(Non-Winlink e-mail address where lost password will be sent when requested)


Auxiliary Callsigns and Tactical Addresses

AUBURN-EOC

Enter a new message

Close Select Template Attachments Post to Outbox Spell Check

From: Winlink Message Peer-to

To: 

Cc:

Subject:

Attach:

See attached sitrep for Auburn...

Tactical Address Support

Use of Tactical Addresses for EMCOMM is Encouraged

RMS Express 1.3.10.0 - K7WVI

K7WVI Files Message Attachments Move To: Saved Items Delete Open Session:

Telnet Winlink Logs Help

No active session.

	Date/Time	Message ID	Size	Source	Sender	Recipient	Subject
	2016/03/14 ...	OJ480O2U...	187	NS7C	AUBURN-EOC	K7WVI	//WL2K Sit-Rep
	2016/03/08 ...	TYCAMNW3...	215	NS7C	NS7C	K7WVI	Re: //WL2K test

System Folders

- Inbox (0 unread)
- Read Items (0)
- Outbox (0)
- Sent Items (1)
- Saved Items (0)
- Deleted Items (0)

Personal Folders

Global Folders

Contacts

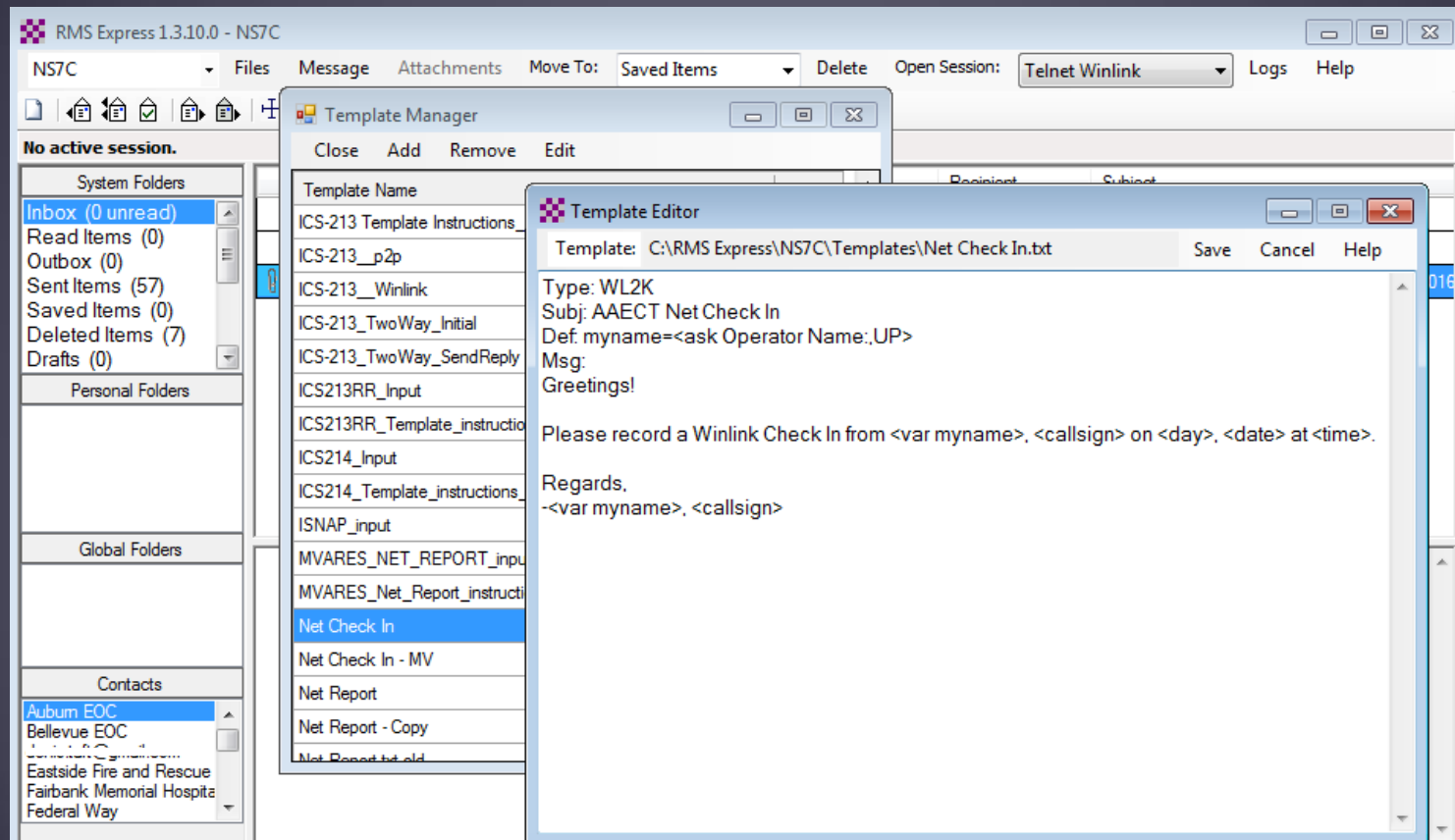
Message ID: OJ480O2UU987
Date: 2016/03/14 01:37
From: AUBURN-EOC
To: K7WVI
Source: NS7C
Downloaded-from: Telnet:Perth.Winlink.org
Subject: //WL2K Sit-Rep

See attached sitrep for Auburn...

Creating Message Templates

Fills in “boilerplate” information for messages

Click “Message” followed by “Templates...”



Using a Message Template

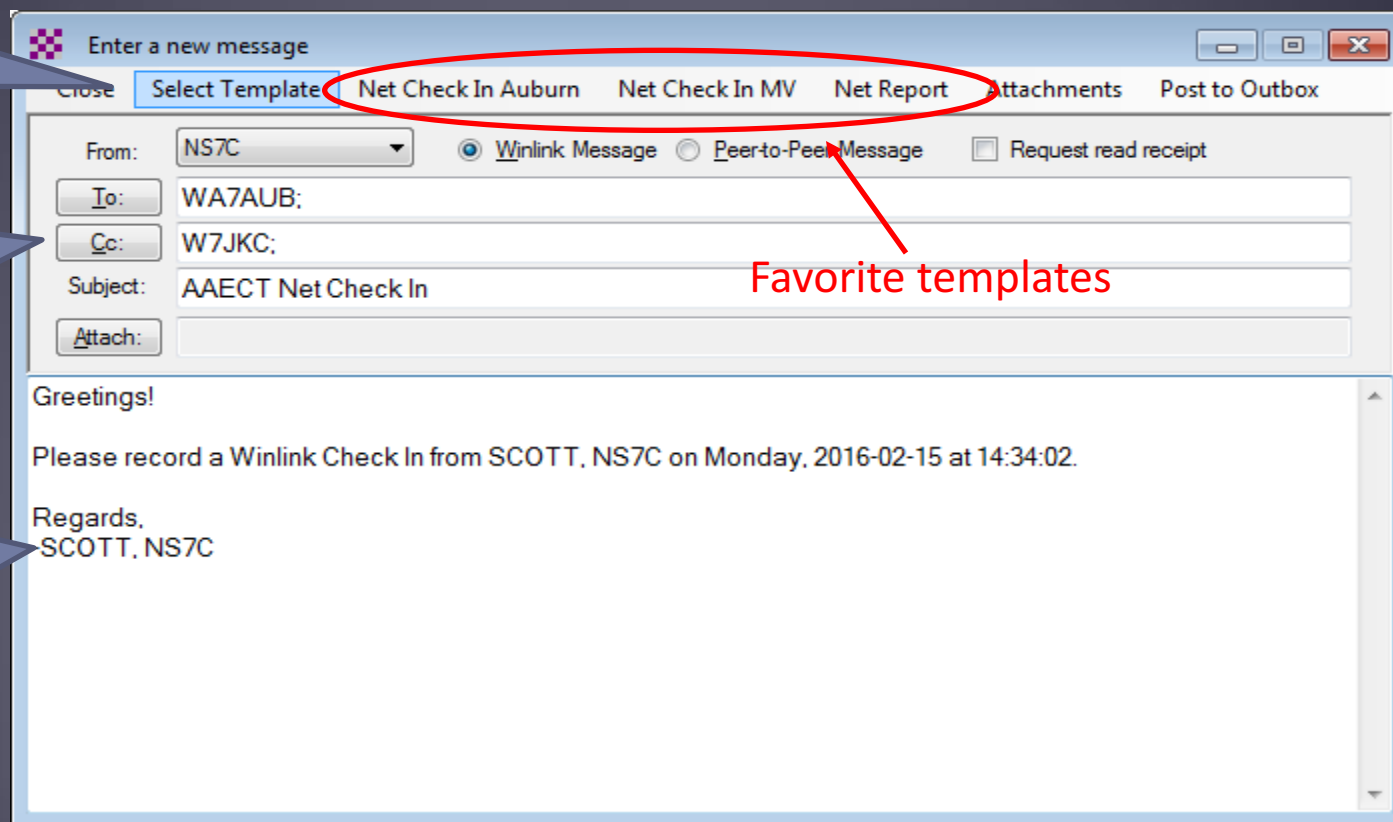
Begin composing a message

Click “Select Template” and select the template

Click to select a template

CC and subject filled in automatically

Body initialized from template

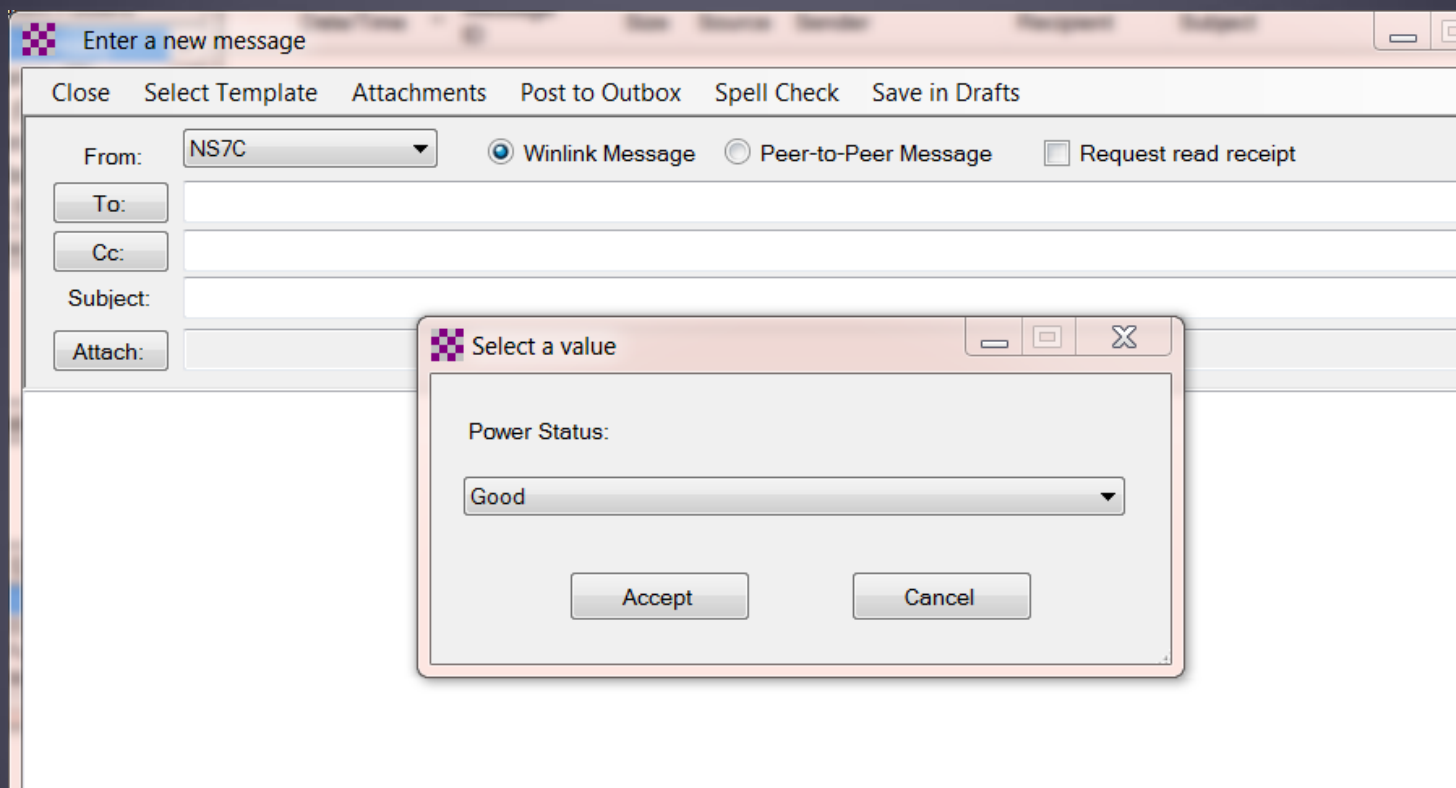


The screenshot shows a window titled "Enter a new message" with a menu bar containing "Close", "Select Template", "Net Check In Auburn", "Net Check In MV", "Net Report", "Attachments", and "Post to Outbox". The "Select Template" menu is open, and a red oval highlights the "Net Check In Auburn", "Net Check In MV", and "Net Report" options. A red arrow points from the text "Favorite templates" to the "Net Report" option. Below the menu bar, the "From:" field is set to "NS7C". The "To:" field contains "WA7AUB;". The "Cc:" field contains "W7JKC;". The "Subject:" field contains "AAECT Net Check In". The "Attach:" field is empty. The "Winlink Message" radio button is selected, and the "Request read receipt" checkbox is unchecked. The message body contains the following text: "Greetings!", "Please record a Winlink Check In from SCOTT, NS7C on Monday, 2016-02-15 at 14:34:02.", and "Regards, SCOTT, NS7C".

Favorite templates

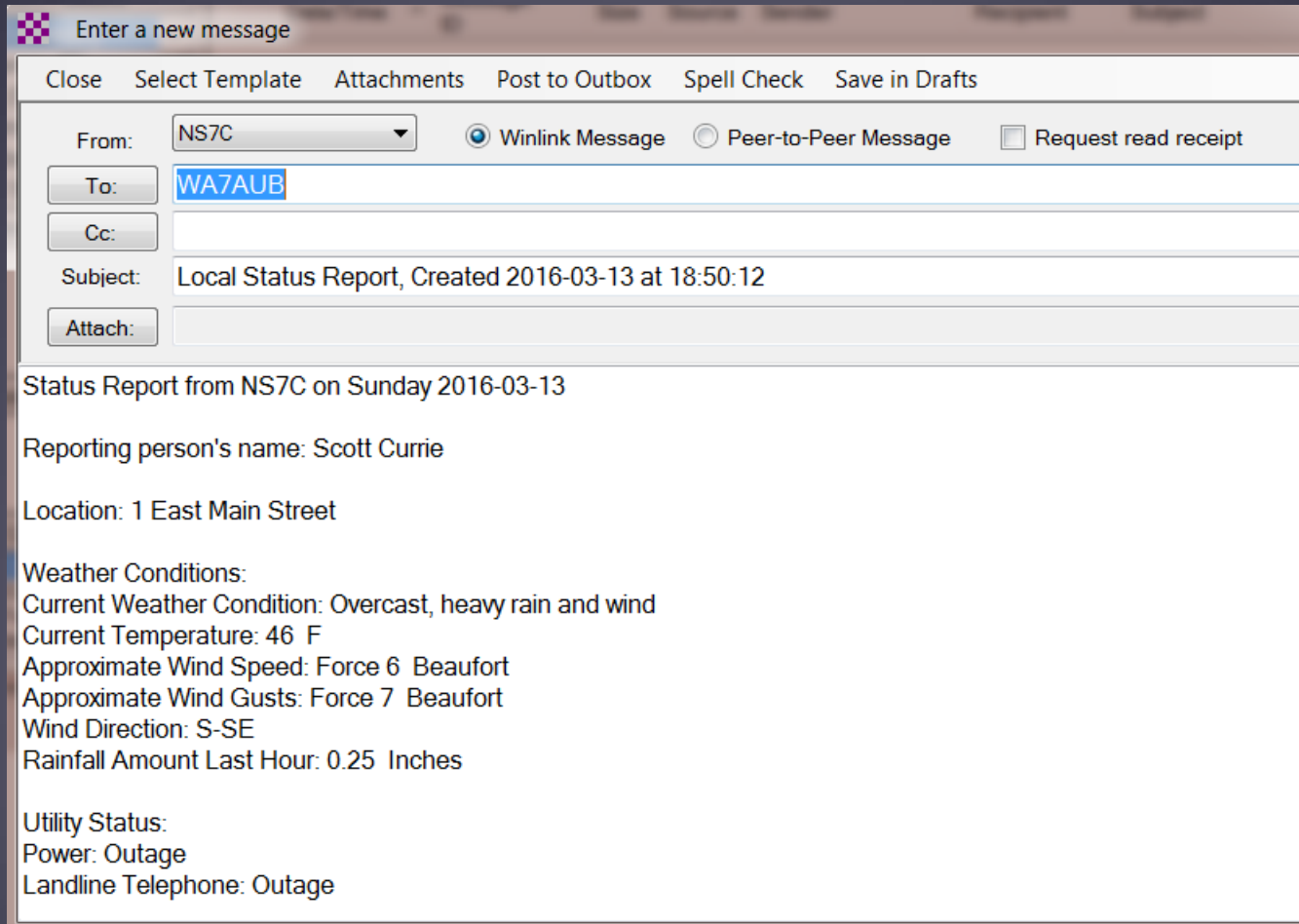
Using a Message Template

Prompting for input



Using a Message Template

Completed message ready to send



The screenshot shows a software window titled "Enter a new message" with a close button and a checkered icon. The window contains a menu bar with "Close", "Select Template", "Attachments", "Post to Outbox", "Spell Check", and "Save in Drafts". Below the menu bar are several fields and options:

- From:** A dropdown menu showing "NS7C".
- Message Type:** Radio buttons for "Winlink Message" (selected), "Peer-to-Peer Message", and "Request read receipt" (unchecked).
- To:** A text field containing "WA7AUB".
- Cc:** An empty text field.
- Subject:** A text field containing "Local Status Report, Created 2016-03-13 at 18:50:12".
- Attach:** An empty text field.

The main content area of the window displays the following text:

Status Report from NS7C on Sunday 2016-03-13

Reporting person's name: Scott Currie

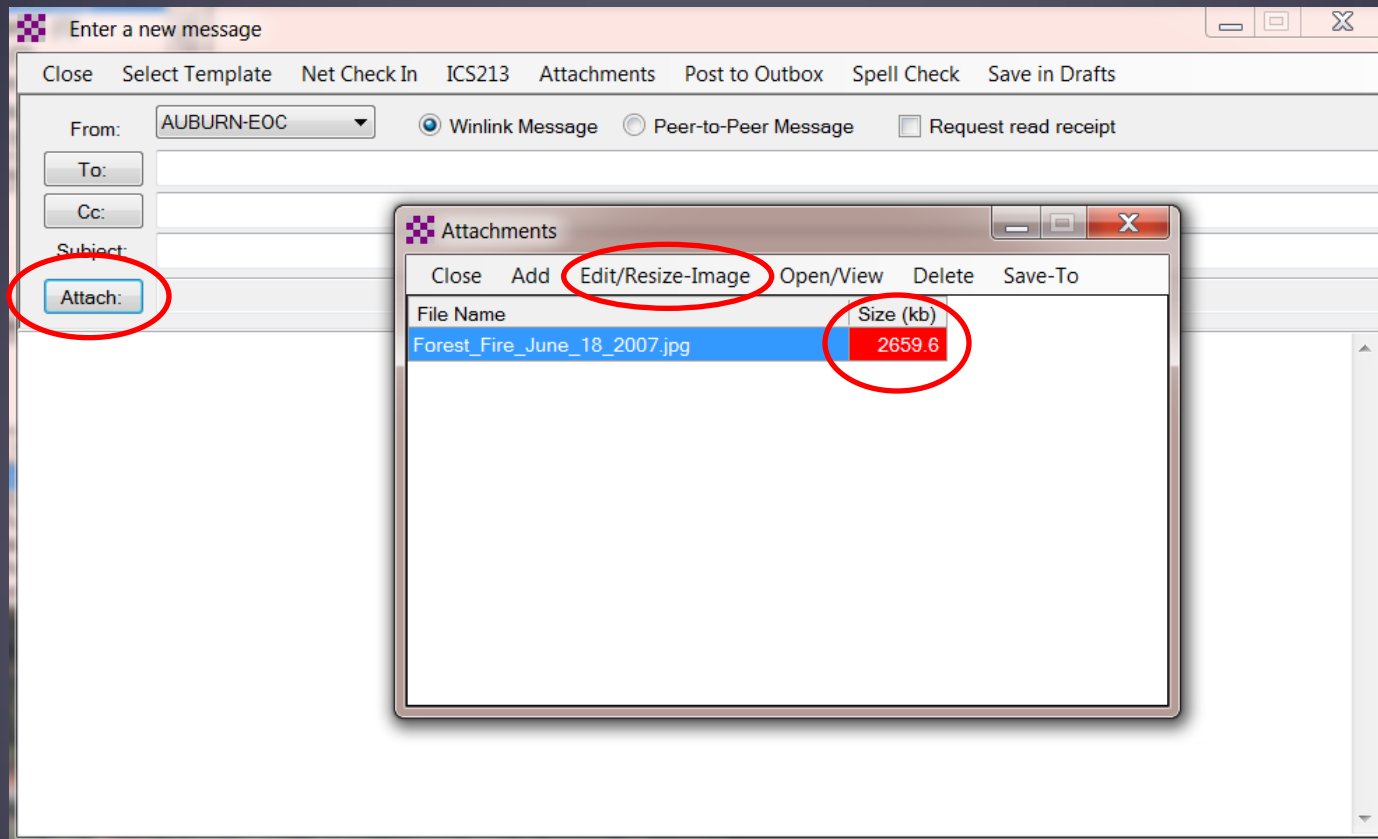
Location: 1 East Main Street

Weather Conditions:
Current Weather Condition: Overcast, heavy rain and wind
Current Temperature: 46 F
Approximate Wind Speed: Force 6 Beaufort
Approximate Wind Gusts: Force 7 Beaufort
Wind Direction: S-SE
Rainfall Amount Last Hour: 0.25 Inches

Utility Status:
Power: Outage
Landline Telephone: Outage

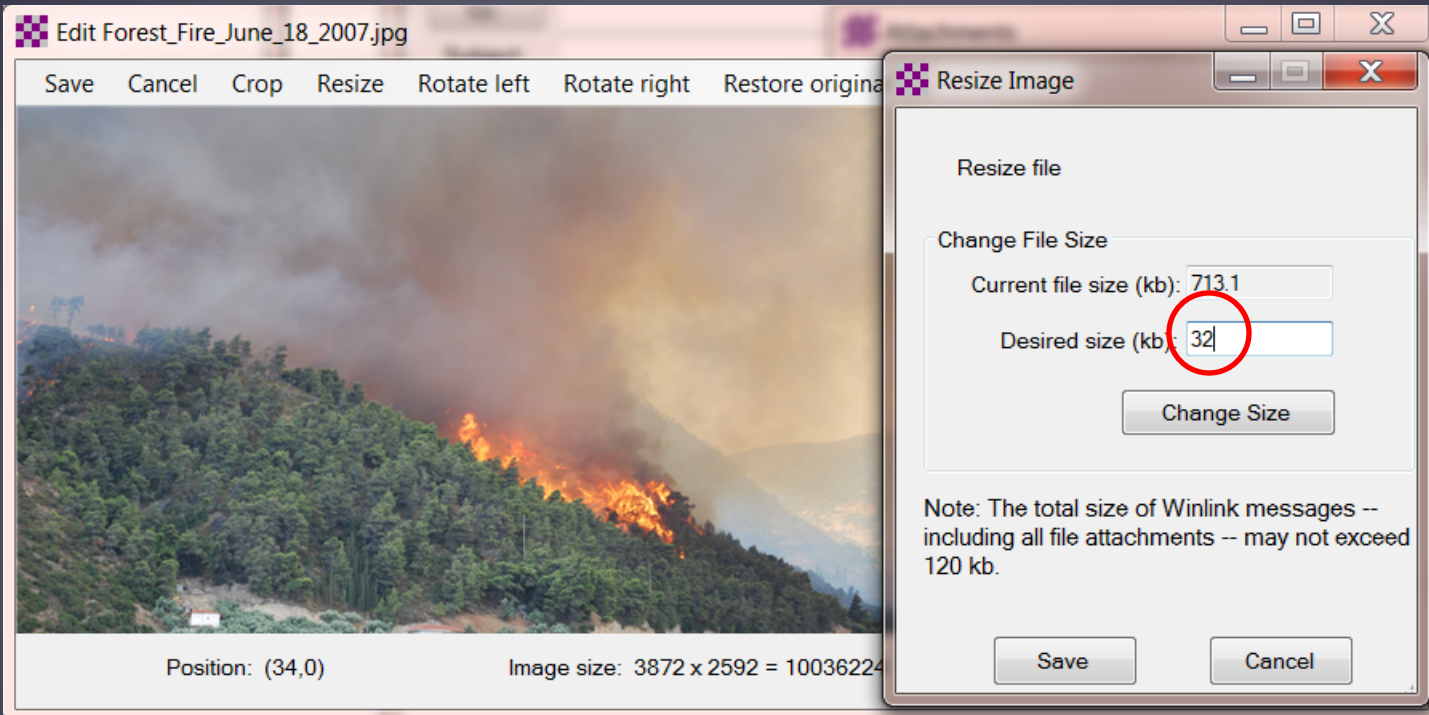
Message Attachments

File size must be managed



Message Attachments

Resize and crop pictures within RMS Express



Pending Message In Outbox

Open Session

The screenshot shows the RMS Express 1.3.10.0 - NS7C interface. The window title is "RMS Express 1.3.10.0 - NS7C". The menu bar includes "Files", "Message", "Attachments", "Move To: Saved Items", "Delete", "Open Session: Telnet Winlink", "Logs", and "Help". The toolbar contains various icons for file operations. The main area is divided into a left sidebar and a main pane. The sidebar shows "System Folders" with "Inbox (0 unread)", "Read Items (0)", "Outbox (1)", "Sent Items (34)", "Saved Items (0)", "Deleted Items (7)", and "Drafts (0)". The "Outbox (1)" folder is circled in red. Below "System Folders" are "Personal Folders" and "Global Folders". The "Contacts" section lists "Auburn EOC", "Bellevue EOC", "denis.taft@gmail.com", "Eastside Fire and Rescue", "Fairbank Memorial Hospita", and "Federal Way". The main pane displays a table of messages with columns: Date/Time, Message ID, Size, Source, Sender, Recipient, and Subject. A single message is listed: 2016/02/15 19:20, 8OXON681WR0I, 260, NS7C, NS7C, WA7AUB, //WL2K AAECT Net Check In. Below the table, the message details are shown: Message ID: 8OXON681WR0I, Date: 2016/02/15 19:20, From: NS7C, To: WA7AUB, Source: NS7C, Subject: //WL2K AAECT Net Check In. The message body contains: Greetings! Please record a Winlink Check In from SCOTT, NS7C on Monday, 2016-02-15 at 11:20:44. Regards,

Date/Time	Message ID	Size	Source	Sender	Recipient	Subject
2016/02/15 19:20	8OXON681WR0I	260	NS7C	NS7C	WA7AUB	//WL2K AAECT Net Check In

Message ID: 8OXON681WR0I
Date: 2016/02/15 19:20
From: NS7C
To: WA7AUB
Source: NS7C
Subject: //WL2K AAECT Net Check In

Greetings!

Please record a Winlink Check In from SCOTT, NS7C on Monday, 2016-02-15 at 11:20:44.

Regards,

Reading Incoming Messages

The screenshot shows the RMS Express 1.3.10.0 - NS7C interface. The window title is "RMS Express 1.3.10.0 - NS7C". The menu bar includes "Files", "Message", "Attachments", "Move To:", "Saved Items", "Delete", "Open Session:", "Telnet Winlink", "Logs", and "Help". The toolbar contains various icons for navigation and actions. The main area is divided into a left sidebar and a main content area. The sidebar shows "System Folders" (Inbox (0 unread), Read Items (0), Outbox (0), Sent Items (56), Saved Items (0), Deleted Items (7), Drafts (0)), "Personal Folders", "Global Folders", and "Contacts" (Auburn EOC, Bellevue EOC, denis.taft@gmail.com, Eastside Fire and Rescue, Fairbank Memorial Hospita, Federal Way). The main content area displays a table of messages and a detailed view of the selected message.

No active session.

	Date/Time	Message ID	Size	Source	Sender	Recipient	Subject
	2016/02/15 02:49	72908L47JN57	382	K7JJD	K7JJD	NS7C	Re: //WL2K AAECT Net Check In
	2016/02/10 04:07	QDOAT4CNLYCN	1974	NK7N	NK7N	maplevalleycert...	//WL2K MVARES NET REPORT Tuesday 2016

Message ID: QDOAT4CNLYCN
Date: 2016/02/10 04:07
From: NK7N
To: maplevalleycert@gmail.com; mvares@googlegroups.com; NS7C; NK7N
Source: NK7N
Downloaded-from: Telnet:Halifax.Winlink.org
Subject: //WL2K MVARES NET REPORT Tuesday 2016-02-09

Maple Valley ARES Weekly Net Report

of Member check ins: 8

Notification of Read Acknowledgement

The screenshot shows the RMS Express 1.3.10.0 - NS7C interface. The window title is "RMS Express 1.3.10.0 - NS7C". The menu bar includes "Files", "Message", "Attachments", "Move To:", "Saved Items", "Delete", "Open Session:", "Telnet Winlink", "Logs", and "Help". The toolbar contains various icons for file operations. The main window displays a message list with the following data:

	Date/Time	Message ID	Size	Source	Sender	Recipient	Subject
	2016/02/15 20:28	95XBGCQVYALL	208	K7WVI	K7WVI	NS7C	//WL2K Test
	2016/02/15 02:49	72908L47JN57	382	K7JJD	K7JJD	NS7C	Re: //WL2K AAECT Net Check In
	2016/02/10 04:07	QDOAT4CNLYCN	1974	NK7N	NK7N	maplevalleycert...	//WL2K MVARES NET REPORT Tuesday 2016

A dialog box titled "Read acknowledgement requested" is overlaid on the message list. It contains a question mark icon and the text: "Sender requested acknowledgement that message has been read. Would you like to post an acknowledgement now?". The dialog has "OK" and "Cancel" buttons.

Below the dialog box, the message content is visible:

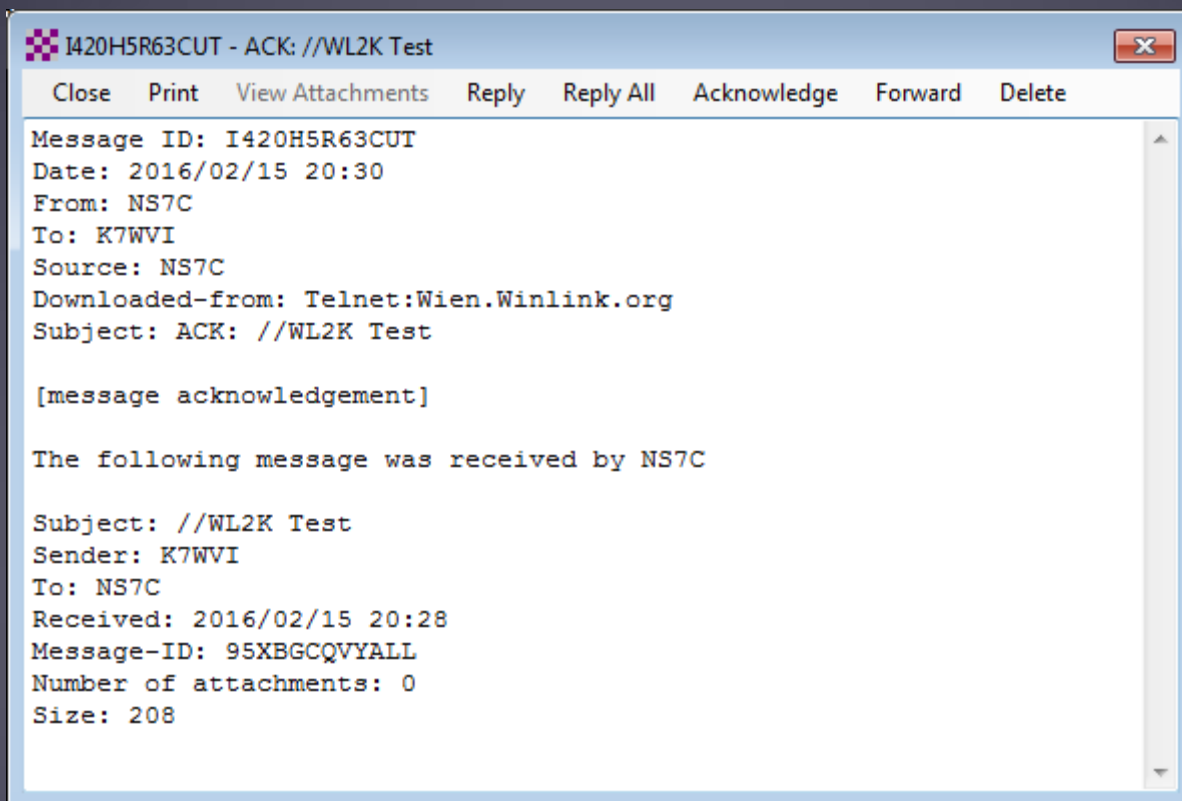
Downloaded-from: telnet:Halifax.Winlink.org
Subject: //WL2K Test

This is a test message, please confirm receipt.

-K7WVI

Message Receipt Acknowledgements

- Positive acknowledgment that message was received
- Information about message filled in automatically



RMS Express Message Review

- Review pending messages before downloading.
- Select which messages to download.

Review Pending Messages

Pending incoming messages

Message ID	Date	Time	Size	From	Subject
<input checked="" type="checkbox"/> 73QIXZMP7L62	2012/04/13	23:47	383	K4CJX@COMCAST.NET	ARE YOU GOING TO THE MEETING?
<input checked="" type="checkbox"/> 3BS4WLDTHGRQ	2012/04/13	22:05	386	PHIL@PHILSHERROD....	TEST MESSAGE 1
<input checked="" type="checkbox"/> TBV1HTIQM9W	2012/04/13	22:05	386	PHIL@PHILSHERROD....	TEST MESSAGE 2
<input checked="" type="checkbox"/> OAH1TROQ92T0	2012/04/14	00:30	589	K4CJX@ME.COM	DISREGARD THE PREVIOUS COML INSTRUCTIO...
<input checked="" type="checkbox"/> HSUB7396F4U2	2012/04/14	00:25	670	K4CJX@COMCAST.NET	ICS STAGING AREA EASY TO FIND
<input checked="" type="checkbox"/> 1AGOIO2ED10S	2012/04/14	00:31	26177	AAA9AC	HOW TO USE THE ANTENNA CALCULATOR
<input checked="" type="checkbox"/> MKSE1C6VZWX2	2012/04/14	00:27	26373	K4CJX@COMCAST.NET	INTEROPERABILITY IS EASY WITH THE TRIMODE...
<input checked="" type="checkbox"/> K1MBQHRWWL5Q	2012/04/14	00:23	41595	K4CJX@COMCAST.NET	IMPORTANT INFORMATION FOR TONIGHT
<input checked="" type="checkbox"/> XN01Z6UUWOOB	2012/04/14	00:28	50702	K4CJX@ME.COM	THIS COULD HELP IF YOU USE IT
<input type="checkbox"/> 3GN09WF039RY	2012/04/13	22:07	147422	PHIL@PHILSHERROD....	MESSAGE WITH FILE ATTACHMENT

Check the messages you want to download.
Messages that are not checked will be deleted from the server.

Display this message review screen for each download cycle

Download Checked Messages Select All Messages Deselect All Messages

Message too large & not wanted

RMS Express HTML Forms

- HTML forms are efficient and professional looking.
- Forms can be simple or very complex.
- Forms can look as good as any web site.
- Forms are easy to use.
- Attractive forms are difficult to create unless you understand HTML, cascading style sheets and JavaScript.
- The Winlink team is building a library of forms.
- Good HTML/JavaScript programmers are needed!

HTML Form and Template Set

- A full form set has three components:
 - A template that displays the form and generates the text message to be sent.
 - An input form that solicits input from the user.
 - A display form that formats and displays the information on the recipient's computer.
- Input from a form is encapsulated in a compact XML file attached to the message.
- The actual form HTML is not transmitted.
- Input and display forms may be large, but the actual data transmitted is very compact.
- Receiving station must have the display form installed.

RMS Express Forms

ICS form for data entry in browser

Tracking # <input type="text" value="123"/> (Optional)		GENERAL MESSAGE	ICS213 RMSE Vers 2.36
1. Incident Name: <input type="text" value="Big Fire"/>			
2. To (Name / Position): <input type="text" value="Ops Chief, KCECC"/>			
3. From (Name / Position): <input type="text" value="Ops Chief, Auburn EOC"/>			
4. Subject: <input type="text" value="Status Update"/>	5./6. Date / Time: <input type="text" value="2016-03-21 08:44:43"/>		
7. Message: <input type="text" value="Auburn brush fire has expanded to 200 acres and is only 20% contained. Crews are working the west side of the fire to protect homes in the area. WX calls for continued east winds at 15-25MPH which will hamper progress on containment. Next update will be at 15:00 or sooner if conditions warrant."/>			
8. Approved by: <input type="text" value="Scott Currie"/>		Position / Title: <input type="text" value="EOC Manager"/>	
<input type="button" value="Submit"/>			

RMS Express Forms

Completed form ready to send

Enter a new message

Close Select Template Attachments Post to Outbox Spell Check Save in Drafts

From: AUBURN-EOC Winlink Message Peer-to-Peer Message Request read receipt

To: K7ECC;

Cc:

Subject: ICS213-123-Status Update

Attach: RMS_Express_Form_ICs-213_TwoWay_Initial_Viewer.xml; ← Captured data entry

Tracking #: [123]

1. INCIDENT NAME: Big Fire
2. TO: Ops Chief, KCECC
3. FROM: Ops Chief, Auburn EOC ← Plain text version
4. SUBJECT: Status Update
5. / 6. DATE & TIME: 2016-03-21 08:44:43
7. MESSAGE:
Auburn brush fire has expanded to 200 acres and is only 20% contained. Crews are working the west side of the fire to protect homes in the area. WX calls for continued east winds at 15-25MPH which will hamper progress on containment. Next update will be at 15:00 or sooner if conditions warrant.
8. APPROVED BY: Scott Currie
POSITION & TITLE: EOC Manager

Available RMS Express Forms (ICS)

- ICS 205 V1.26 Incident Communications Radio Plan
- ICS 205A V1.4 Communications List
- ICS 206 V2.1 Medical Plan
- ICS 213 V2.36 General Message
- ICS 213RR V1.3 Resource Request Message
- ICS 214 V2.2 Activity Log
- ICS 217A V1.6 Communications Resource Availability Worksheet
- All ICS forms are now available in one zip file:
http://winlink.org/content/all_ics_forms_one_zip_file_v11

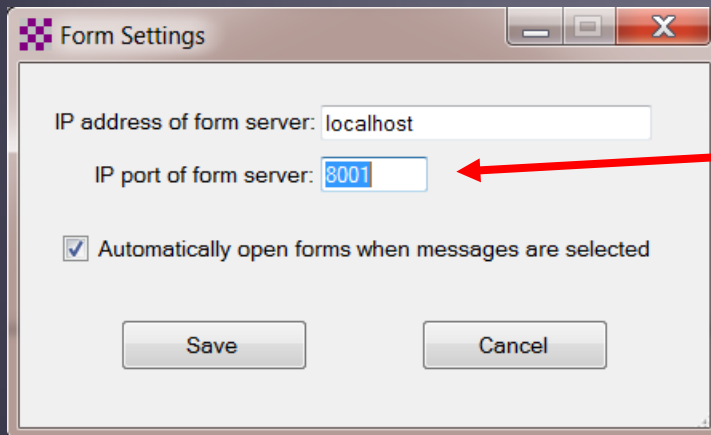
Available RMS Express Forms (general)

- HICS-ICS213 V2.6 General Message
- IARU V1.17 Radiogram
- ISNAP V1.0 Incident Snapshot for Counties / Tribal Nations
- RMSE V1.5 Hospital Bed Report (Marion County FL)
- RMSE V1.1 Clay County FL ICS 213
- RMSE V1.4 POD General Message Form
- RMSE V1.5 Bulletin Form
- RMSE V1.5 Simple Message
- RMSE V1.6ES Simple Message Spanish Version
- RMSE V1.8 Float Plan
- RMSE V2.0 Winlink Operator Check In

Initial Packet Setup

Sound Card Virtual TNC

Make sure your Virtual TNC server TCP ports do not conflict with the RMS Express forms server port.



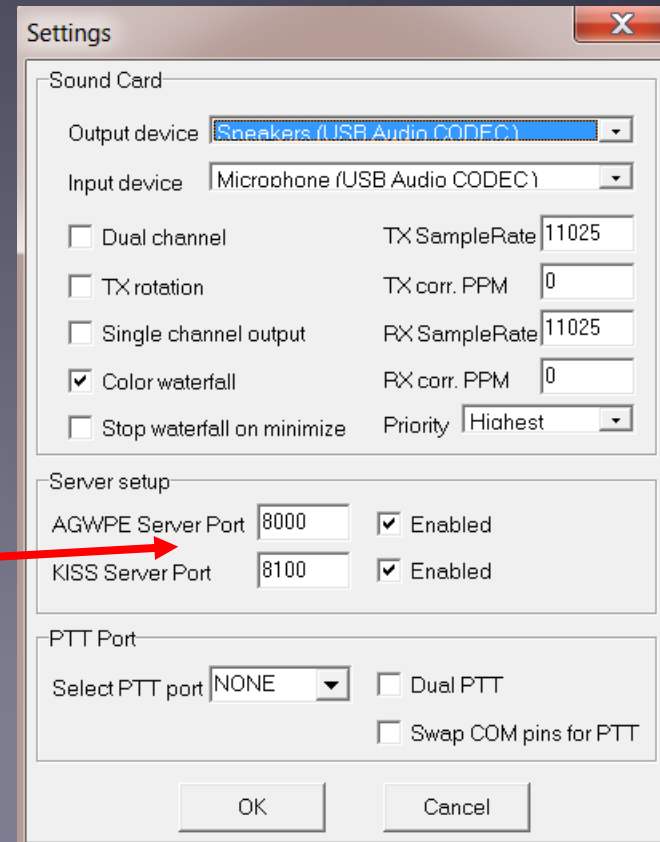
Form Settings

IP address of form server: localhost

IP port of form server: 8001

Automatically open forms when messages are selected

Save Cancel



Settings

Sound Card

Output device: Sneakers (USB Audio CODEC)

Input device: Microphone (USB Audio CODEC)

Dual channel TX SampleRate: 11025

TX rotation TX corr. PPM: 0

Single channel output RX SampleRate: 11025

Color waterfall RX corr. PPM: 0

Stop waterfall on minimize Priority: Highest

Server setup

AGWPE Server Port: 8000 Enabled

KISS Server Port: 8100 Enabled

PTT Port

Select PTT port: NONE Dual PTT

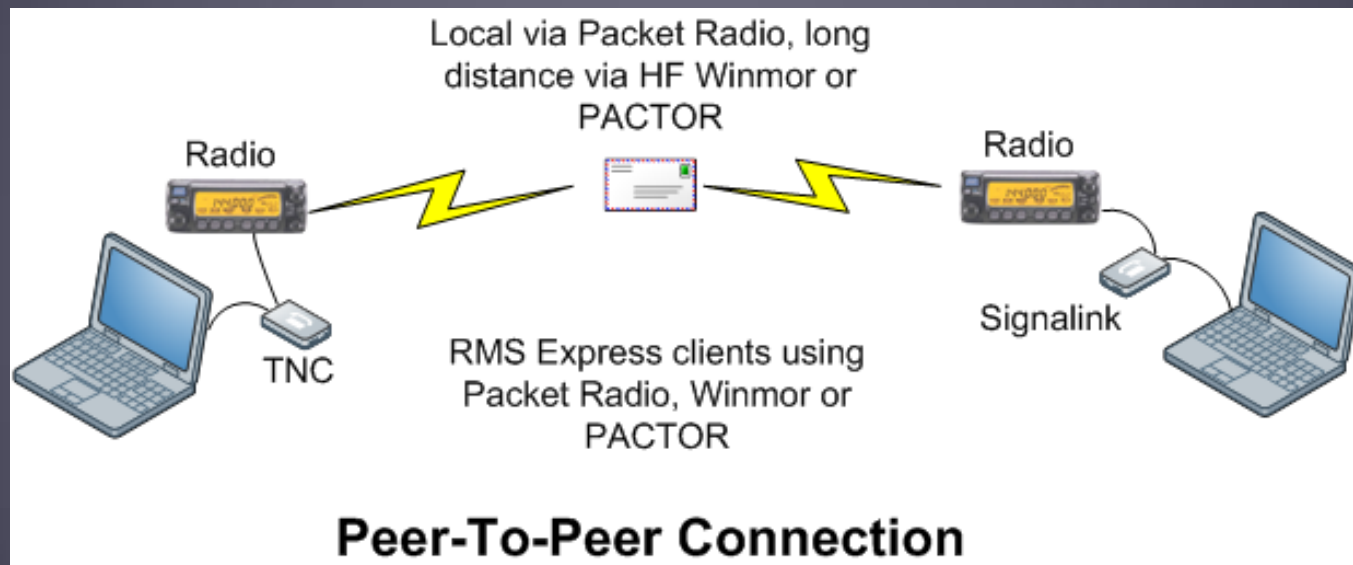
Swap COM pins for PTT

OK Cancel



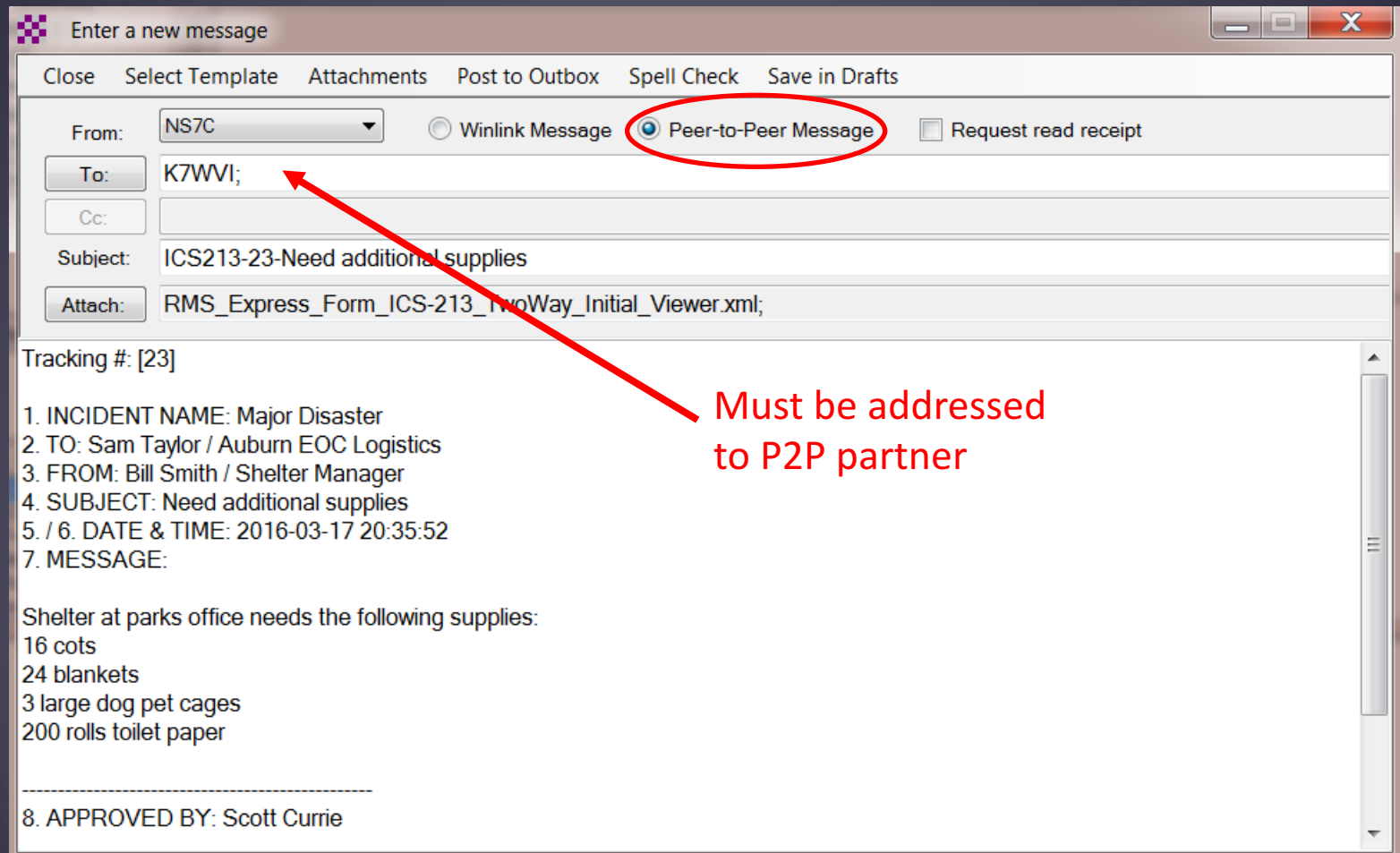
Winlink Peer-To-Peer Radio-Only Operation

- Peer-to-peer: direct radio connection between end-users.
- The Internet is not used, all communication by radio.
- Only the two client stations are involved.
- 100% error-free transmission and file attachments.



P2P Message

Set to P2P, addressed to receiving station



The screenshot shows a 'Enter a new message' window with the following configuration:

- From: NS7C
- Message Type: Peer-to-Peer Message (circled in red)
- To: K7WVI; (indicated by a red arrow)
- Subject: ICS213-23-Need additional supplies
- Attach: RMS_Express_Form_ICs-213_TwoWay_Initial_Viewer.xml;

Tracking #: [23]

1. INCIDENT NAME: Major Disaster
2. TO: Sam Taylor / Auburn EOC Logistics
3. FROM: Bill Smith / Shelter Manager
4. SUBJECT: Need additional supplies
5. / 6. DATE & TIME: 2016-03-17 20:35:52
7. MESSAGE:
Shelter at parks office needs the following supplies:
16 cots
24 blankets
3 large dog pet cages
200 rolls toilet paper
8. APPROVED BY: Scott Currie

Must be addressed to P2P partner

Packet P2P Session Log

Connect, login, send message, log off

The screenshot displays the RMS Express 1.3.10.0 - NS7C interface. The main window title is "RMS Express 1.3.10.0 - NS7C". The menu bar includes "NS7C", "Files", "Message", "Attachments", "Move To: Saved Items", "Delete", "Open Session: Packet P2P", and "Logs". The "Open Session: Packet P2P" dropdown is circled in red. Below the menu bar is a toolbar with various icons. The main area is titled "In Packet P2P session." and contains a table with columns: Date/Time, Message ID, Size, Source, Sender, Recipient, and Subject. The table is currently empty. A sidebar on the left shows "System Folders" with "Inbox (0 unread)", "Read Items (0)", "Outbox (0)", and "Sent Items (10)".

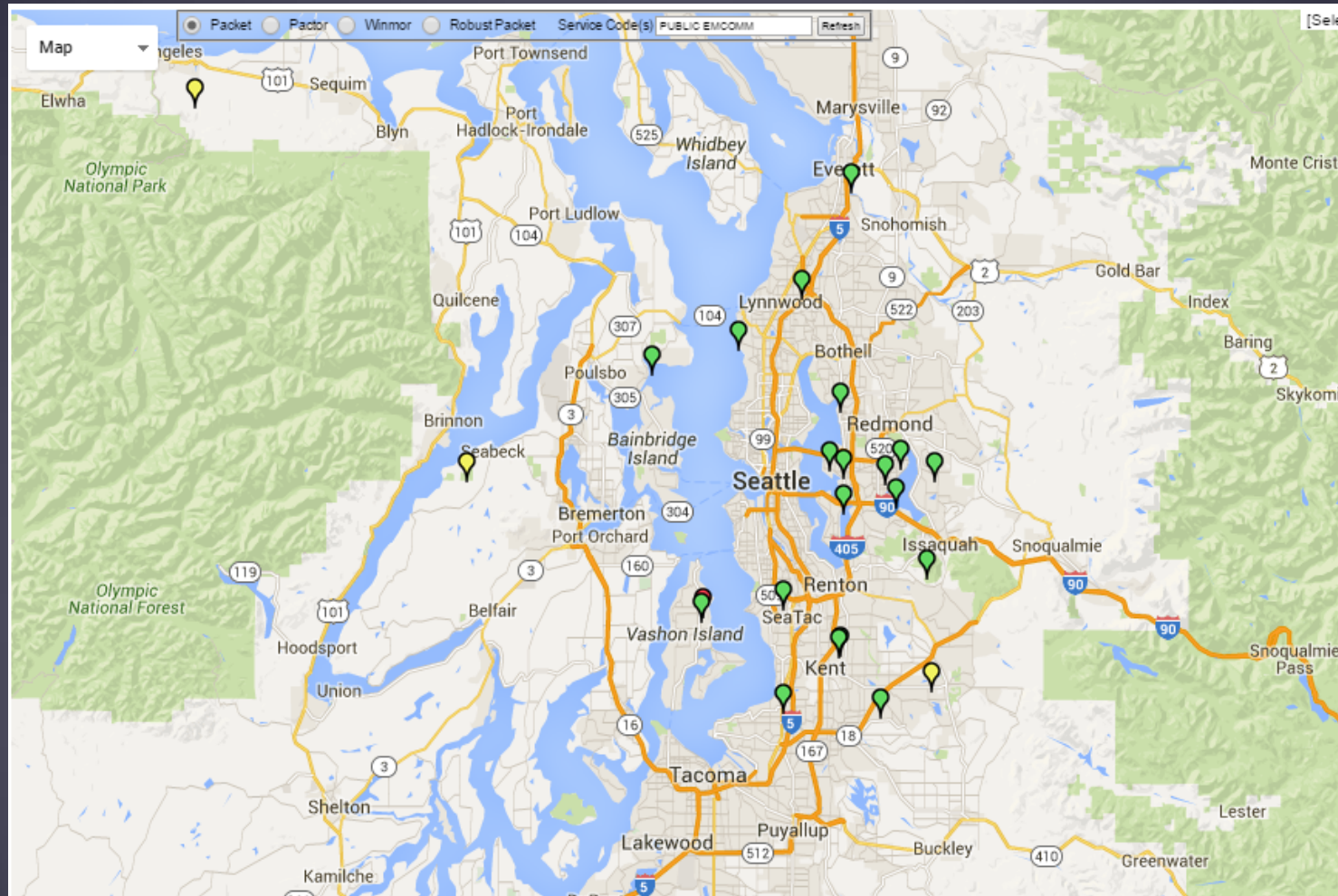
Below the main window is a "Packet Peer-to-Peer Session (NS7C)" dialog box. The title bar is "Packet Peer-to-Peer Session (NS7C)". The menu bar includes "Exit", "Setup", "Switch to Winlink Session", "Channel Selection", "1200 Baud", "Start", and "Stop". The "Connection type:" dropdown is set to "Direct" and the "Via:" dropdown is set to "K7WVI". A red arrow points to the "Via:" dropdown. The "Connection script:" dropdown is empty. There are buttons for "Edit script", "Add script", and "Remove script". The status bar shows "Received: 65 Sent: 251 Time to next Autoconnect = Disabled".

The log text in the dialog box is as follows:

```
.FW: NS7C
[RMS Express-1.3.10.0-B2FHMS]
: K7WVI DE NS7C (CN87WH)
FC EM XD5LHA2IZMTX 138 135 0
F> 5F
FS Y
*** Sending XD5LHA2IZMTX.
FF
*** Completed send of message XD5LHA2IZMTX
*** Sent 1 message. Bytes: 148, Time: 00:02, bytes/minute: 2980
FQ
*** --- End of session at 2016/03/14 00:02:39 ---
*** Messages sent: 1. Total bytes sent: 148, Time: 00:14, bytes/minute: 620
*** Messages Received: 0. Total bytes received: 0, Total session time: 00:14, bytes/minute: 0
*** Disconnecting
```

Using the Local Network

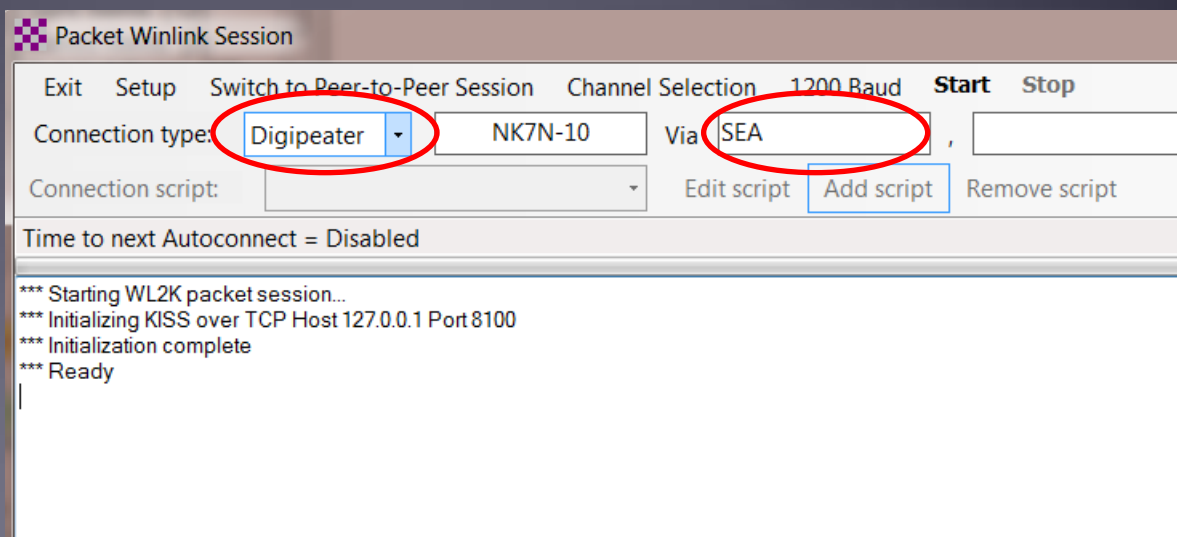
Local Packet Gateway Stations



Using the Local Network

Digipeaters and Nodes

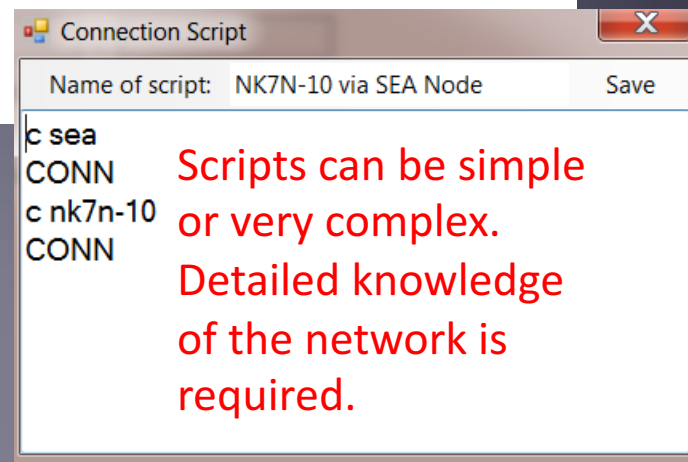
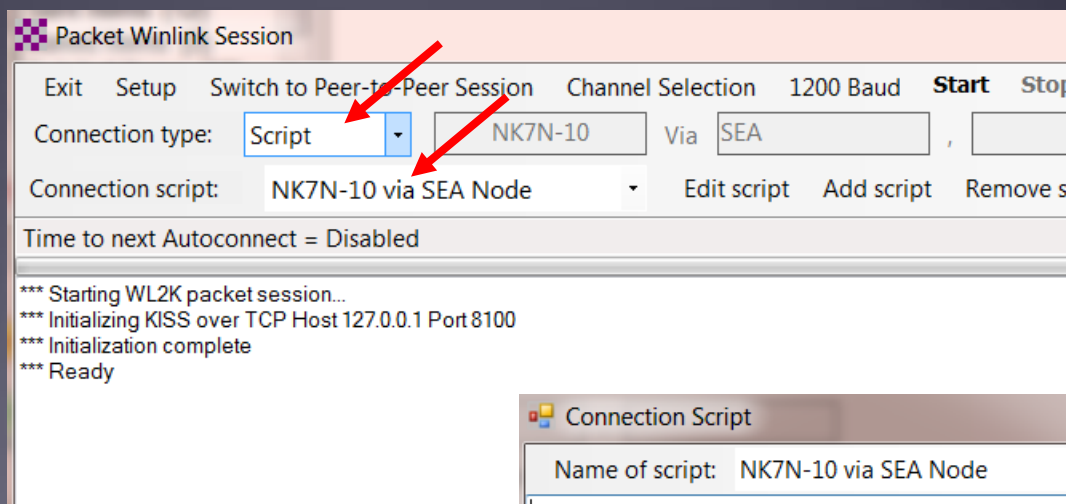
Digipeaters can be used to extend the line-of-sight path to a Gateway or P2P partner. Any station can function as a digi if properly configured. Lower level sites are actually better than mountain top sites. Each hop through a digi decreases performance, multiple hops can slow transfer speeds considerably.



Using the Local Network

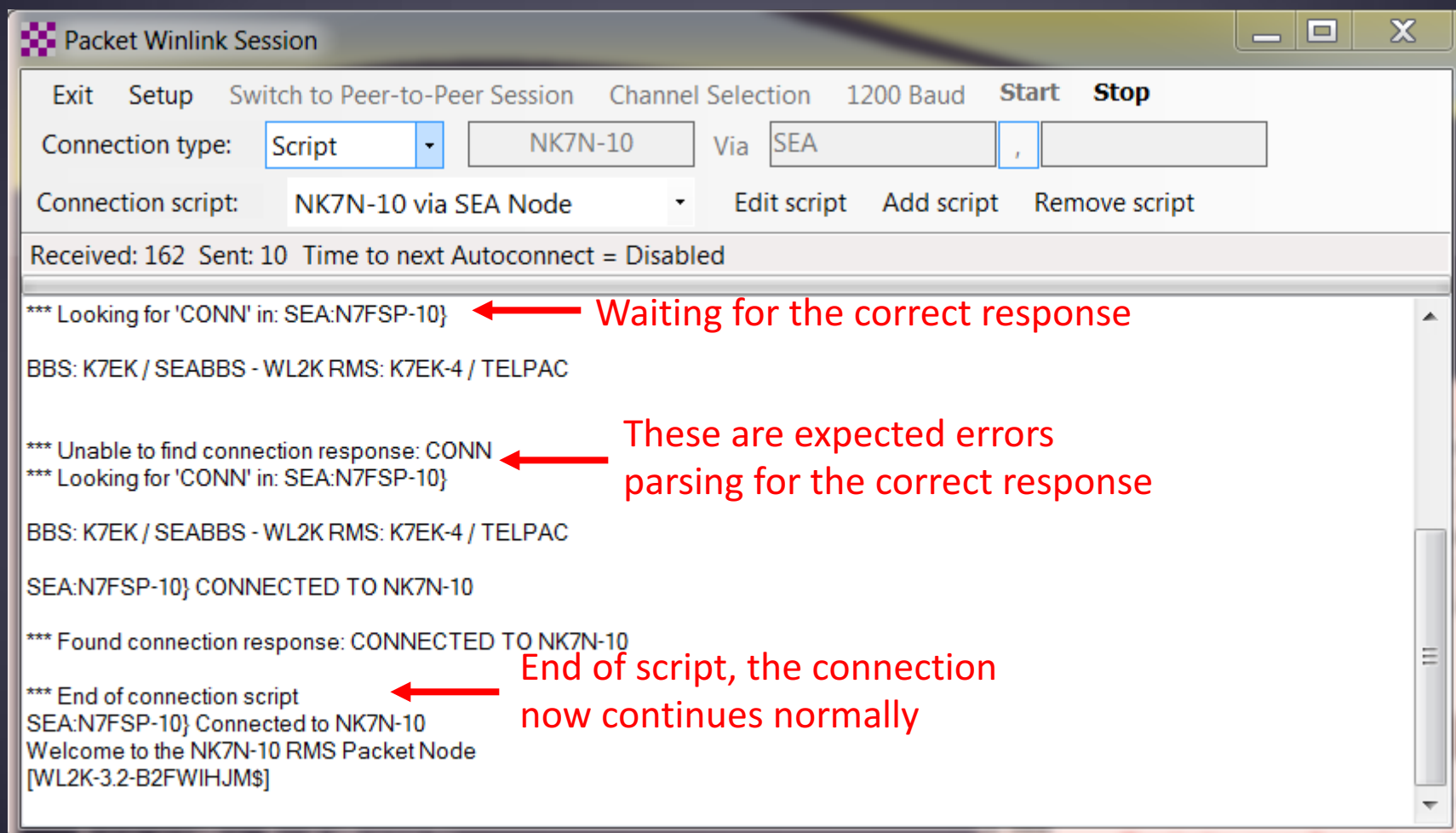
Digipeaters and Nodes

Complex connections through Nodes can be created using connection scripts. Scripts issue commands and wait for the appropriate response. Nodes provide better performance over multi-hop paths, but there is still a significant performance penalty.



Using the Local Network

Digipeaters and Nodes



The screenshot shows the Packet Winlink Session window. The title bar reads "Packet Winlink Session". The menu bar includes "Exit", "Setup", "Switch to Peer-to-Peer Session", "Channel Selection", "1200 Baud", "Start", and "Stop". The main interface has several fields: "Connection type:" set to "Script", "Via" set to "SEA", and "Connection script:" set to "NK7N-10 via SEA Node". Below these fields are buttons for "Edit script", "Add script", and "Remove script". A status bar shows "Received: 162 Sent: 10 Time to next Autoconnect = Disabled".

The main text area displays the following log output:

```
*** Looking for 'CONN' in: SEA:N7FSP-10}
BBS: K7EK / SEABBS - WL2K RMS: K7EK-4 / TELPAC
*** Unable to find connection response: CONN
*** Looking for 'CONN' in: SEA:N7FSP-10}
BBS: K7EK / SEABBS - WL2K RMS: K7EK-4 / TELPAC
SEA:N7FSP-10} CONNECTED TO NK7N-10
*** Found connection response: CONNECTED TO NK7N-10
*** End of connection script
SEA:N7FSP-10} Connected to NK7N-10
Welcome to the NK7N-10 RMS Packet Node
[WL2K-3.2-B2FWIHJM$]
```

Red arrows and text annotations explain the log output:

- A red arrow points to the first log line: **Waiting for the correct response**
- A red arrow points to the "Unable to find connection response" line: **These are expected errors parsing for the correct response**
- A red arrow points to the "End of connection script" line: **End of script, the connection now continues normally**

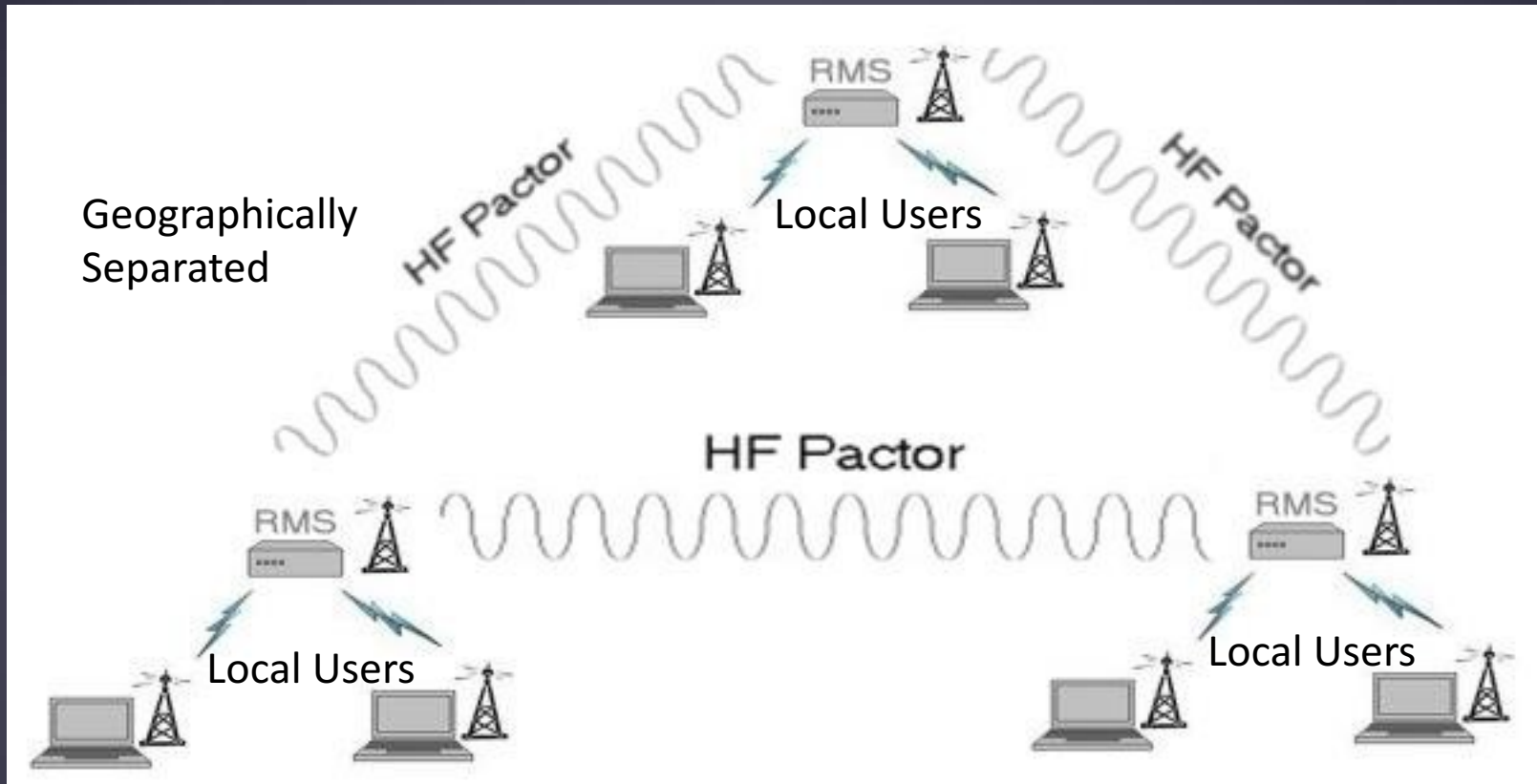
Using the Local Network

Digipeaters and Nodes

- Using nodes and digis has a significant impact on throughput
- Requires a good knowledge of available resources
- May require adjustment of packet parameters
- Be aware of the “hidden terminal” issue
- Full duplex digital repeaters are a better solution
 - There is only 1 available, in Snohomish
- You cannot run voice and data on the same band at the same time from the same location. We need to have voice and data on different bands.

Winlink Radio-Only Network

Local networks connected by HF, regional or long distance



Catalog Information Requests

- Use the “Winlink Catalog Request” feature in RMS Express to request:
 - Weather maps for most areas of the world.
 - Weather forecasts.
 - Maritime HF nets and frequencies.
 - Satellite images.
 - Location of closest 30 stations.
 - ARRL Newsletter, e-letter, etc.
 - Misc. bulletins.

RMS Express Query Catalog

Winlink Query Catalog

Categories	Inquiry ID	Description	Size	Originated
ARCTIC_ICE	ARES_E_LTR	Current ARRL ARES E-Letter	35537	2009-45-06
ARRL	LETTER	Current ARRL Letter	23103	2010-17-04

Selections

ARES_E_LTR

Double click to add or delete query selections...

Post Request

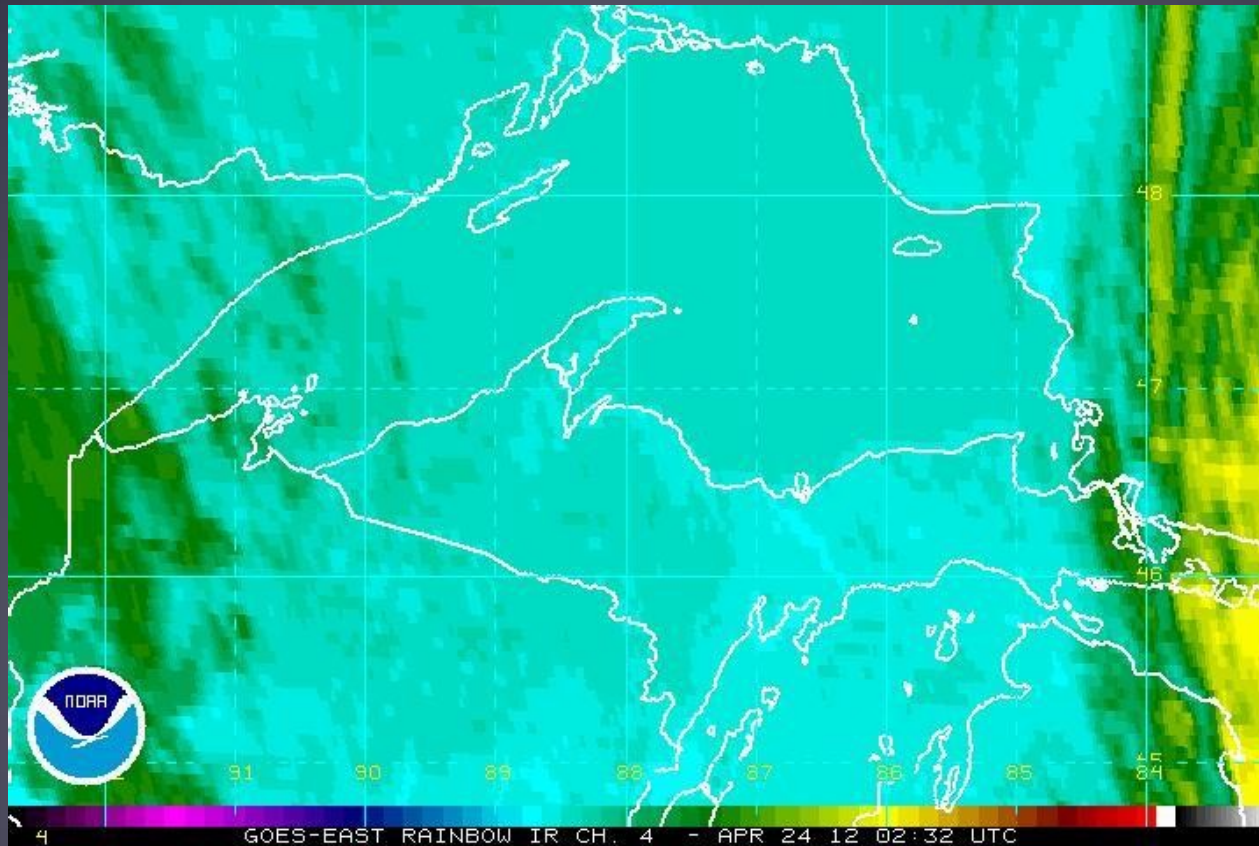
Last Update
2012/04/20 11:00

Request Catalog Update

Cancel

Categories list: ARCTIC_ICE, ARRL, AUT_HAM, GERMAN_BCST, GMD_METFR, GULF_CURRENT, HF_NETS, HONDURAS, INDIAN_OCEAN, LIGHTNING, MEL_EXPLORE, METAR, METAREA, METAREA_I, METAREA_II, METAREA_III, METAREA_IV, METAREA_IX, METAREA_V, METAREA_VI, METAREA_VII, METAREA_VIII, METAREA_X, METAREA_XI, METAREA_XII, METAREA_XIV, METAREA_XVI, NAVIMAIL, PROPAGATION, S/PACIFIC_WX, SAT_KEPS, SAT_PIX, UK_CADET

Weather Map Image Returned for Request



Winlink Position Reports

- You can send position reports to the Winlink system.
 - Coordinates sent via connected GPS.
 - Otherwise, your position may be entered manually.
- Position Reports are sent to:
 - Winlink system map.
 - ShipTrak maps.
 - APRS maps.
 - YotReps maps.
- Extremely valuable for pinpointing locations, especially for maritime operation.

Posting a Position Report

GPS / Position Report

GPS Serial Port

GPS Serial Port: GPS Baud Rate:

`$GPRMC,104855.000,A,3604.2206,N,08649.4427,W,0.05,53.91,200412,..,A*4E`

Reporting - Last good GPS fix at 2012/04/20 10:48:55 UTC

GPS Latitude: GPS Longitude:

GPS Speed: Knots GPS Course: True

Position Report

Your last position report was posted at 0000/00/00 00:00 UTC

Report Date/Time: UTC

Latitude: Longitude:

Speed: Knots Course: True

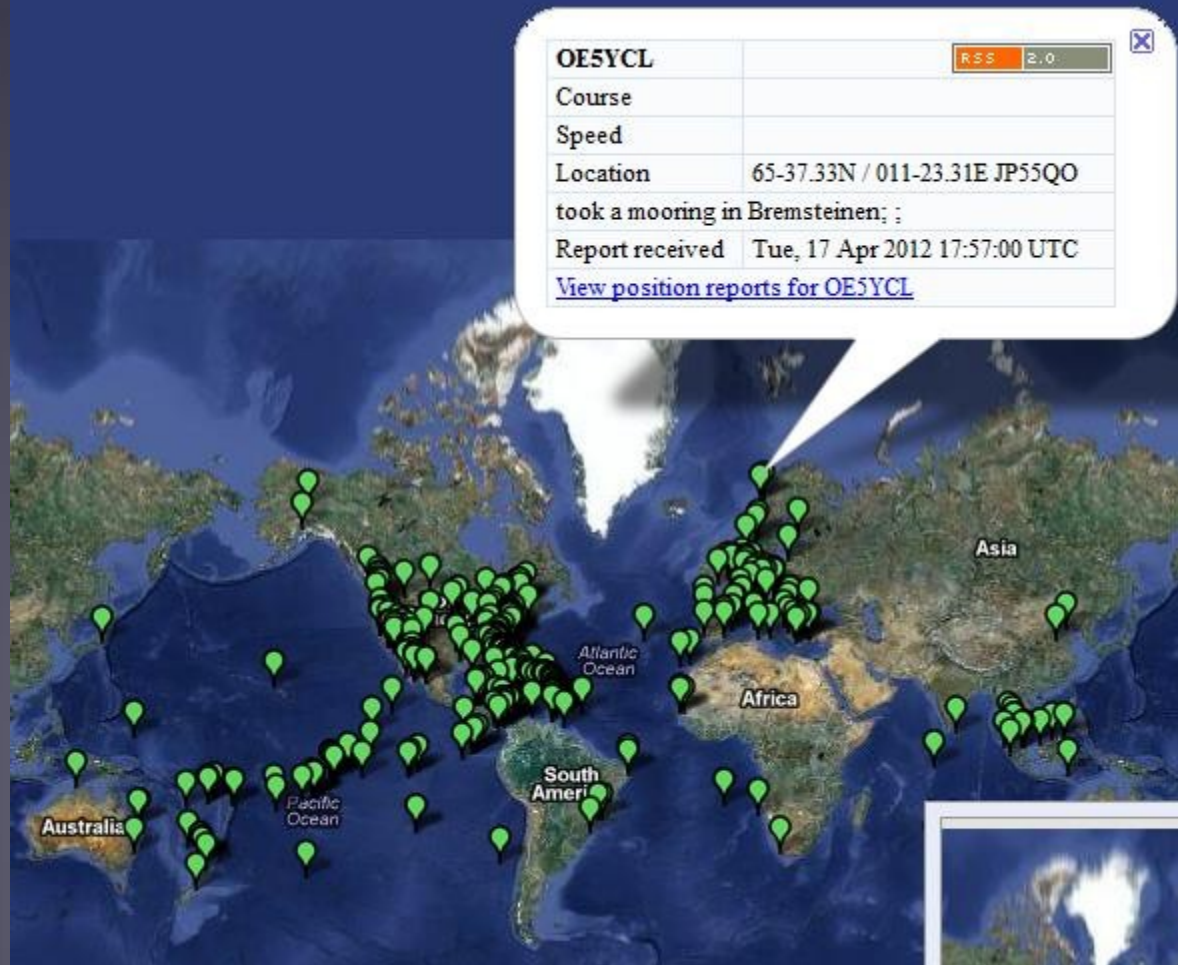
Comment - 148 Characters Maximum:

Data from a connected GPS unit.

WX assistance to the NWS Voluntary Marine Observation Program.

Useful in tracking with e-mailed disaster assessments.

Winlink.org Real-time Position Report Page



RMSMessageLog ICS-309 Generator

RMS Express Message Log Report Generator by W4PHS

RMS Express Message Log

Call sign of station: WC4EOC-2

Log	Time	From	To	Subject
Sent	5-Nov-2011 02:31	WC4EOC-2	KA40TB	//WL2K Test message from exchange 28
Read	5-Nov-2011 02:31	KA40TB	WC4EOC-1;C4EOC-2;K...	CP-3 Message5
Read	5-Nov-2011 02:31	KA40TB	AK4GD-5;I4PSR;C4EO...	CP-2
Read	5-Nov-2011 02:31	KA40TB	WC4EOC-1;C4EOC-2;K...	CP-1
Sent	5-Nov-2011 02:44	WC4EOC-2	KI4PSR	//WL2K Hi from exchange 28
Read	5-Nov-2011 02:46	KA40TB	WC4EOC-2	Re: Test message from exchange 28
Sent	5-Nov-2011 03:06	WC4EOC-2	jon@aristoworks.com	//WL2K Test
Read	5-Nov-2011 03:19	jon@aristoworks.com	WC4EOC-2	Re: Test
Sent	5-Nov-2011 03:54	WC4EOC-2	WC4EOC-3	//WL2K Orion

Refresh message list

Logs to include

Inbox Read Items Outbox Sent Items Saved items Drafts Deleted items

Date-time range for log entries

Limit start date/time: 5-Nov-2011 00:00 Limit end date/time:

Generate message log reports

Program settings and information

Messages during period

Select folders

Starting & ending report period

Generate ICS-309 pdf file

Future Development

Amateur Radio Digital Open Protocol (ARDOP)

- The ARDOP project is a joint development effort among amateur radio developers that seeks to provide a specification and implementation (software or hardware) for a modern versatile open digital protocol.
- Replaces Winmor, AX.25 Packet, ???
- Soundcard based, or open hardware platform

Future Development

Amateur Radio Digital Open Protocol (ARDOP)

Target Objectives

- 1. Open design:** Document and build a modern amateur radio protocol that can be used on a different common OS, computers, tablets and DSP devices and is compatible with both HF and VHF transmission. The protocol should be easily extended. Software implementations will be open sourced. A conformance specification and compatibility test insures compatibility between ARDOP implementations.
- 2. Flexible implementation:** It is anticipated there will be several implementations compatible with different software and hardware platforms. These include:
 - Software implementations (virtual TNC with "sound card") on Windows, Linux, Apple and Android OS
 - Hardware implementations using low cost dedicated DSP CPU chips and integrated "sound cards"
- 3. Audio bandwidth options:** The initial ARDOP protocol is intended to operate in one of four audio bandwidths, 200 Hz, 500 Hz, 1000 Hz, and 2000 Hz. The bandwidth can be forced by server, forced by client or negotiated by the server and client.
- 4. Channel adaptability:** The protocol is intended to be able to operate over a wide range of data rate and robustness levels by automatically adapting to propagation and channel conditions, seeking the best modulation and bandwidth to maximize net error-free throughput.
- 5. Support both FEC and ARQ operation:** ARQ (connected) operation insures error free data delivery between two connected stations. FEC (Forward Error Correction) may be used for broadcast (multicast) applications. The bandwidth, modulation mode and repeat level for FEC (multicast) operation is selectable to allow sender tradeoff of robustness and net throughput. Receiver reception requires no setup. Both FEC and ARQ transmission may be monitored by listening parties.
- 6. Compliance with US FCC symbol rate rule:** The maximum symbol rate on any carrier shall be 300 baud or less for all SSB modes. The protocol shall allow modification extensions to symbol rates above 300 baud if and when the FCC rules are changed.
- 7. Strong resistance to multipath propagation:** The protocol shall use modern techniques (low symbol rates, OFDM carrier cyclic prefix, 4FSK modulation, path compensation, strong FEC etc. to optimize performance under poor multipath conditions (path delay variation up to 5 ms).
- 8. Minimize Interference:** The protocol shall minimize the chance of interference with other existing connections on a frequency using modern busy channel detectors and listen before transmit.
- 9. Flexible operating modes and radios:** The protocol may be used on both HF (SSB mode) and VHF/UHF (SSB or FM mode). Timing parameters are adjusted automatically for ARQ modes to accommodate various transmitter keying options, SDR type radios and the use of carrier or sub tone operated VHF/UHF repeaters.
- 10. Compatible with multi language usage:** Although the protocol requires ASCII compliant call signs (7 characters plus optional SSID of -1 through -Z), all data is transferred in pure binary insuring protocol compatibility with multi-language character sets like UTF-8.

Conclusion

- Winlink use continues to grow, especially for EmComm.
- The Winlink Development Team continues to enhance capabilities to adapt to changing needs.
- RMS Express is the recommended client application
 - Familiar e-mail like user interface
 - Flexible connection options
 - HTML form support
 - Used by most local teams