Winlink
Peer-to-Peer (P2P)
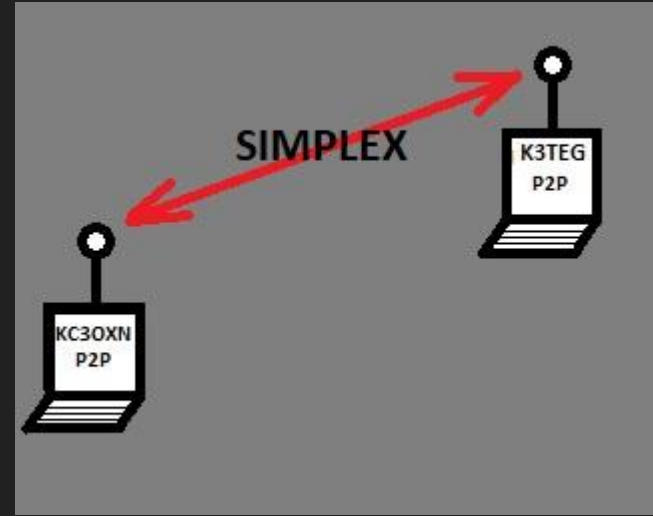
Internetless Radio Email
By James Heath KC3OXN

What is P2P?

- P2P is a SIMPLEX Winlink email session between two users, using the same frequency and mode.
  - Vara HF*
  - Vara FM*
  - Packet
  - ARDOP
  - Pactor (requires special equipment)

  *Recommended

What P2P is Not?

- P2P is <u>not</u> keyboard to keyboard chat.
  - A connection must be made between the two stations to pass traffic, but the connection is then disconnected automatically after all files are transferred. (To free up the frequency)

What does it take to run P2P?

- A typical Winlink station*.
  - PC running Winlink Express.
  - The proper TNC/modem software.
    - Vara FM and/or HF, Packet (Soundmodem), etc.
  - A radio station connected to the PC that's capable of running regular Winlink traffic over RF.

*If you're already running Winlink over RF you're good to go.
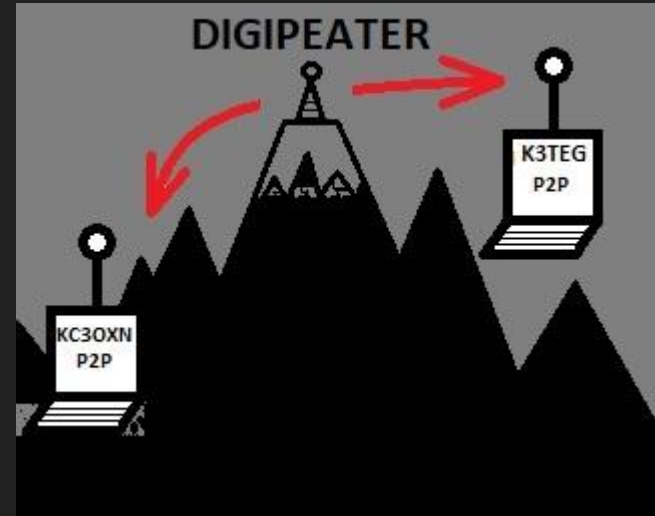
Important things to consider with Winlink P2P

- Both stations must be running a P2P session:
  - in the same <u>mode</u>
  - on the same <u>frequency</u>
  - at the same <u>time</u>
- The message must be a "Peer-to-Peer Message" type.

Important things to consider with Winlink P2P

- Because P2P is a "simplex" connection, there are only two connected stations, without intermediate infrastructure or the Internet.
  - With the exception of P2P Packet and Vara FM, which allows for the use of up to two digipeaters.

Important things to consider with Winlink P2P

- The mode and band used will have to be selected based on:
  - License privileges (VHF/UHF or HF)
  - Station capabilities and equipment
  - Band conditions

Important things to consider with Winlink P2P

P.A.C.E. Planning
- **Primary**
- **Alternate**
- **Contingency**
- **Emergency**

- A communications plan <u>must</u> be established ahead of time.
  - Mode used
    - Vara HF, Vara FM, Packet, etc.
  - Band/Frequency used
    - Digital portion of the amateur band plan.

Winlink P2P as a "mailbox".

- Because P2P stations can be left running as a "mailbox", traffic handling is asynchronous. Meaning an operator doesn't need to be present at the station to receive or send traffic.
- While running a P2P session, the station is listening for calling stations.

U.S. MAIL
P2P

American Red Cross

WINLINK
Global Radio Email ®

Posting to a team.

● Using a group address on a
P2P message will create a
separate message for each call
sign automatically when posted
to the "Outbox". These
messages will sit there waiting
for those stations in the group
to connect and retrieve their
message.

Steps to running a Winlink P2P session.

1. Creating and posting a P2P message.
2. Selecting and opening a P2P session.*
3. Starting the P2P session.
4. Connecting and sending a P2P message.

*Necessary to receive a P2P message

KC3OXN | Settings | Message | Attachments | Move To: | Saved Items | Delete | Open Session: | Vara HF P2P | Logs | Help

No active session...

Message has 2 attached files.

		Date/Time	Message ID	Size	Source	Sender	Recipient	Subject
		2022/12/01 23:20	43KF46TPWDR1	2604	KB3AC	KB3AC	SMTP:jdheath6...	Winlink Check Out Net - KB3AC - Home QTH Sunbr
		2022/11/30 23:10	4FTEOEMS5V33	1698	KA3BVJ	KA3BVJ	KC3OXN	Winlink Check Out Exercise - KA3BVJ - Under Grou
		2022/11/30 23:09	F9SZNMNBSRDA	1689	KA3BVJ	KA3BVJ	KC3OXN	Winlink Check Out Exercise - KA3BVJ - Undr Grour

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

Personal Folders

Global Folders

Contacts

```
Message ID: F9SZNMNBSRDA
Date: 2022/11/30 23:09
From: KA3BVJ
To: KC3OXN
Source: KA3BVJ
Downloaded-from: Telnet:cms.winlink.org
Location: 40.97917N, 76.95833W
Subject: Winlink Check Out Exercise  - KA3BVJ - Undr Ground Bunker

_
 Check-Out
Status: [Exercise]
Station secured at: 2022-11-30 18:07:51
Calls Signs of On-Site Operator(s): KA3BVJ
Station Contact Name: Dennis
Location: Undr Ground Bunker
GPS Coordinates: LAT 40.979167 LON -76.958333    MGRS Coordinates: 18TUL3524438291 Grid Square:
```

Main Winlink Screen

KC3OXN Settings Message Attachments Move To: [Saved Items ▼] Delete **Open Session:** [Vara HF P2P ▼] Logs Help

No active session...

Message has 2 attached files.

		Date/Time	Message ID	Size	Source	Sender	Recipient	Subject
📎	✉	2022/12/01 23:20	43KF46TPWDR1	2604	KB3AC	KB3AC	SMTP:jdheath6...	Winlink Check Out Net - KB3AC - Home QTH Sunbr
📎	✉	2022/11/30 23:10	4FTEOEMS5V33	1698	KA3BVJ	KA3BVJ	KC3OXN	Winlink Check Out Exercise - KA3BVJ - Under Grou
📎	✉	2022/11/30 23:09	F9SZNMNBSRDA	1689	KA3BVJ	KA3BVJ	KC3OXN	Winlink Check Out Exercise - KA3BVJ - Undr Grou

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

Personal Folders

Global Folders

Contacts

Create a new message

```
Message ID: F9SZNMNBSRDA
Date: 2022/11/30 23:09
From: KA3BVJ
To: KC3OXN
Source: KA3BVJ
Downloaded-from: Telnet:cms.winlink.org
Location: 40.97917N, 76.95833W
Subject: Winlink Check Out Exercise  - KA3BVJ - Undr Ground Bunker


 Check-Out
Status: [Exercise]
Station secured at: 2022-11-30 18:07:51
Calls Signs of On-Site Operator(s): KA3BVJ
Station Contact Name: Dennis
Location: Undr Ground Bunker
GPS Coordinates: LAT 40.979167 LON -76.958333     MGRS Coordinates: 18TUL3524438291 Grid Square:
```

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

From: KC3OXN   Send as: Peer-to-Peer Message   ☐ Request message receipt   Set Defaults

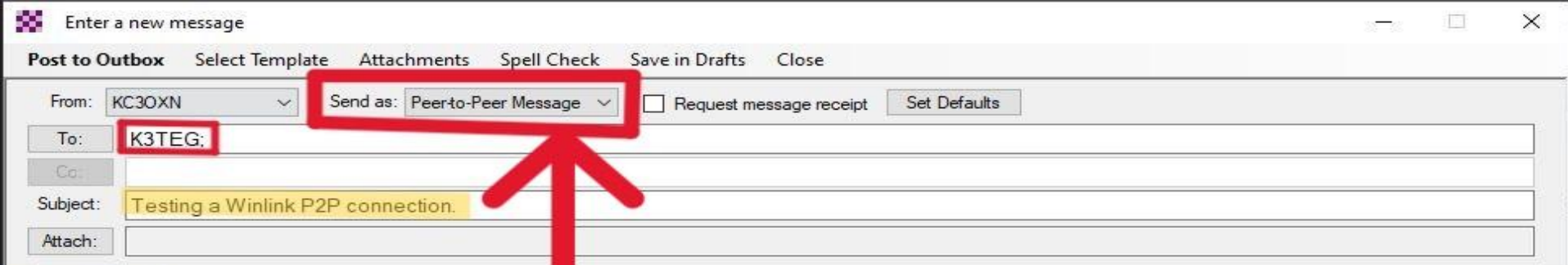To: K3TEG;

Cc:

Subject: Testing a Winlink P2P connection.

Attach:

Test Test Test

New Message Window

The most common mistake in P2P operating is not selecting the message type as a <u>Peer-to-Peer Message.</u>

- Winlink defaults to a regular "Winlink Message" each time a new message is started.
- The message is otherwise the same as a regular message.
  - Receiving station's address
  - Subject
  - Message
  - Attachment files

Enter a new message

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

From: KC3OXN   Send as: Peer-to-Peer Message   ☐ Request message receipt   Set Defaults

To: K3TEG;

Cc:

Subject: Testing a Winlink P2P connection.

Attach:

Test Test Test

Post to the Outbox and your message will be ready to send.

It's easy to tell if the message is a "(P2P)" from the Outbox.

Screen text:

Winlink Express 1.7.11.0 - KC3OXN

KC3OXN | Settings | Message | Attachments | Move To: | Saved Items | Delete | Open Session: | Vara HF P2P | Logs | Help

No active session...

System Folders
Inbox (0 unread)
Read Items (0)
Outbox (1)
Sent Items (0)
Saved Items (0)
Deleted Items (1)
Drafts (0)

Personal Folders

Global Folders

Contacts

	Date/Time	Message ID	Size	Source	Sender	Recipient	Subject
	2023/12/15 15:05	XO47C1LMEABQ	245	KC3OXN	KC3OXN	K3TEG (P2P)	Testing a Winlink P2P connection

Message ID: XO47C1LMEABQ
Date: 2023/12/15 15:05
From: KC3OXN
To: K3TEG
Source: KC3OXN
P2P: True
Location: 40.770833N, 76.541667W (Grid square)
Subject: Testing a Winlink P2P connection

Test Test Test

Selecting a P2P session

Opening the session

Vara HF Peer-to-Peer Session - KC3OXN

Exit Settings Channel Selection Map Forecast Auto-connect Next chan. **Start** Stop **Abort**

K3TEG   Center Freq: 7096.5   Dial Freq: 7095.000   Bandwidth: 2300   Bearing: Quality:

Favorites: [▼] Select Add to favorites Remove from favorites

Channel Free In: 0/0 Out: 0/0 BPM: 0/0 **Disconnected/Listening**

```
*** Launching VARA TNC
*** Successfully connected to VARA TNC at 127.0.0.1 port 8300
*** Maximum signal bandwidth is set to 2300 Hz.
*** No radio has been selected.
*** Ready
```

It's now sitting idle and listening on the frequency, for ANY calling stations.

Session Window

Exit   Settings   Channel Selection   Map   Forecast   Auto-connect   Next chan.   **Start**   Stop   **Abort**

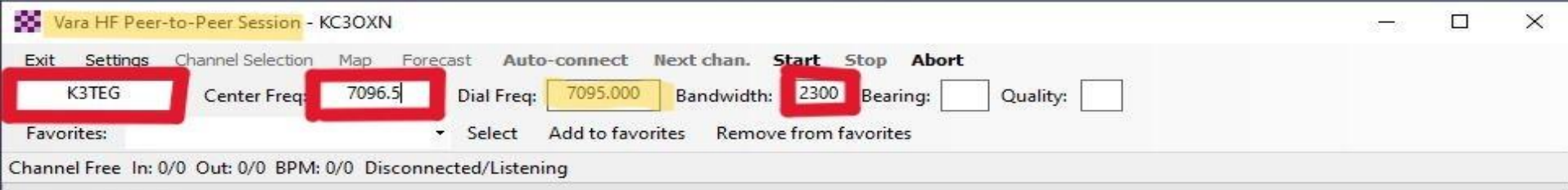K3TEG   Center Freq: 7096.5   Dial Freq: 7095.000   Bandwidth: 2300   Bearing: Quality:

Favorites: Select   Add to favorites   Remove from favorites

Channel Free   In: 0/0   Out: 0/0   BPM: 0/0   Disconnected/Listening

```
*** Launching VARA TNC
*** Successfully connected to VARA TNC at 127.0.0.1 port 8300
*** Maximum signal bandwidth is set to 2300 Hz.
*** No radio has been selected.
*** Ready
```

P2P session requirements (for calling):

- Receiving station's address (call sign)
- Center frequency of the transmission
  - This is not the frequency the radio is set to
  - The "Dial Freq." will automatically update and THIS is the radio's set frequency
- Bandwidth
  - This is set from the "Settings" tab
  - There are 3 selections 2750, 2300, and 500Hz
  - 2300Hz and 500Hz are most common, 500Hz is best when conditions are poor. There is a selection in the Vara HF TNC software settings that allows for both, by selecting " Accept 500Hz signals" in the "Vara setup..."

Exit   Settings   Channel Selection   Map   Forecast   Auto-connect   Next chan.   **Start**   Stop   Abort

K3TEG   Center Freq: 7096.5   Dial Freq: 7095.000   Bandwidth: 2300   Bearing: Quality:

Favorites: Select   Add to favorites   Remove from favorites

Channel Free In: 0/0 Out: 0/0 BPM: 0/0 Disconnected/Listening

```
*** Launching VARA TNC
*** Successfully connected to VARA TNC at 127.0.0.1 port 8300
*** Maximum signal bandwidth is set to 2300 Hz.
*** No radio has been selected.
*** Ready
```

Now you're ready to start your P2P session!

All that is needed now is for you to click Start!
- Your station will transmit into the ether, calling to the other station.
- When the other station running a P2P session hears the call, it responds with an acknowledgement - "I can hear you, can you hear me?"
- When the connection is confirmed by the two stations, the transfer of messages takes place.

Vara HF Peer-to-Peer Session - KC3OXN

Exit | Settings | Channel Selection | Map | Forecast | Auto-connect | Next chan. | Start | Stop | Abort

AB3CE | Center Freq: | 7096.500 | Dial Freq: | 7095.000 | Bandwidth: | 2300 | Bearing:

Favorites: AB3CE @ 7096.500 [2300] | Select | Add to favorites | Remove from favorites

Connected In: 0/0 Out: 0/0 BPM: 0/0 Connected to AB3CE

;FW: AB3CE   **My Station calling out to AB3CE. "Ring-Ring!"**
[RMS Express-1.7.11.4-B2FHM$]
KC3OXN DE AB3CE >   **AB3CE answering the call "Hello?". My station says, "It's me KC3OXN"**
  ;FW: KC3OXN
  [RMS Express-1.7.11.0-B2FHM$]   **My station alerting the AB3CE station that there is a message from me. "I have to tell you something."**
  ; AB3CE DE KC3OXN (FN10QS)
  FC EM LH3YI4WG3KF6 1397 897 0
  F> 57   **His Station accepts the message request. "OK, go ahead."**
FS Y
*** Sending LH3YI4WG3KF6.   **My station begins sending the message.**

Vara HF Peer-to-Peer Session - KC3OXN

Exit   Settings   Channel Selection   Map   Forecast   Auto-connect   Next chan.   Start   Stop   Abort

AB3CE   Center Freq: 7096.500   Dial Freq: 7095.000   Bandwidth: 2300   Bearing: Quality:

Favorites: AB3CE @ 7096.500 [2300]   Select   Add to favorites   Remove from favorites

Channel Busy   In: 0/0   Out: 897/897   BPM: 5863   Disconnected/Listening

```
*** Peer-to-Peer Vara Connection to AB3CE @ 2023/12/17 18:53:08  USB Dial: 7095.000  Signal bandwidth 2300 Hz
;FW: AB3CE
[RMS Express-1.7.11.4-B2FHM$]
KC3OXN DE AB3CE >
  ;FW: KC3OXN
  [RMS Express-1.7.11.0-B2FHM$]
  ; AB3CE DE KC3OXN (FN10QS)
  FC EM LH3YI4WG3KF6 1397 897 0
  F> 57
FS Y
*** Sending LH3YI4WG3KF6.
FF
** Completed send of message LH3YI4WG3KF6
** Sent 1 message.  Bytes: 951,  Time: 00:21,  bytes/minute: 2664
  FQ
** --- End of session with AB3CE at 2023/12/17 18:54:06 ---
** Messages sent: 1.  Total bytes sent: 951,  Time: 00:57,  bytes/minute: 997
** Messages Received: 0.  Total bytes received: 0,  Total session time: 00:57,  bytes/minute: 0
** Disconnecting
** Disconnected from Peer: AB3CE @ 2023/12/17 18:54:13
** Session: 1.1 min;  Avg Throughput: 979 Bytes/min;   1 Min Peak Throughput: 979 Bytes/min
```

After the message is sent the stations disconnect automatically, but they continue running a P2P session and listening for more calls.

Note: A session does not need to send a message to begin running automatically. As long as the P2P session is opened, it's ready for P2P calls.

Thanks for listening!

Any questions (?)