

# Winlink

This section outlines how to send and receive messages with [Winlink Express](#). More information about how to configure the hardware can be found on the [Signalink How-To](#).

## Operating Modes

When composing a new message, you must choose how the message will be sent:



- **Winlink Message:** Your station makes a radio connection to a Radio Message Server (RMS). The RMS makes an Internet connection to a Common Message Server (CMS) that is the central message repository. Your messages are sent via radio to the RMS and then through the Internet to the CMS until the recipient connects and downloads messages addressed to themselves. This mode is efficient and highly reliable. Winlink operates multiple CMS that synchronize with each other frequently to provide completely redundancy. If an RMS is down and unable to receive a connection, the client can connect to a different RMS. Since all messages are stored in the central CMS database, it doesn't matter which RMS the sender and recipient connect to.
- **Radio-Only Message:** Where as the previous mode relies on an Internet connection between the RMS and a CMS, the Radio-Only mode does away with the CMS and the internet connection it relies on. Instead, messages are sent to a designated RMS for storage until it is retrieved by the recipient. This mode of operation can operate with local and total Internet outages.
- **Peer-To-Peer Message:** This mode of operation transfers messages directly from the sender to the recipient without going through an RMS or a CMS and without the Internet. This is like a "simplex" mode, which requires:
  - Both stations to be on the air at the same time and on the same frequency.
  - Both stations to use the same transmission protocol (Packet, Winmor, Pactor, etc).

So the steps to compose a message are to:

1. Select how the message will be sent as.
2. Enter the recipient's address (usually their callsign, which may or may not require an [SSID](#))
3. And lastly, after the message is written, **Post to Outbox**, which saves the message locally and marks it to be sent.

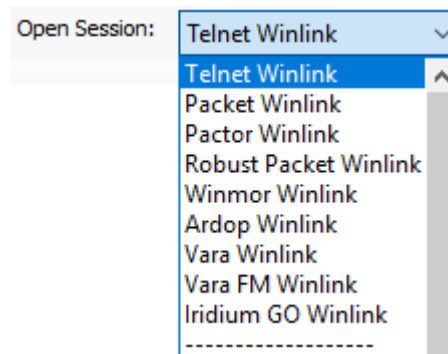
Before initiating a connection (section below), you can write and post multiple messages to the outbox first.

## SSID


Before going into more details, it might be worth taking a small detour to learn about SSIDs (the dash number after the callsign) since it has a different meaning depending on whether it's for APRS or Winlink. See the [SSID How-To](#) for more info.

## Winlink Messages

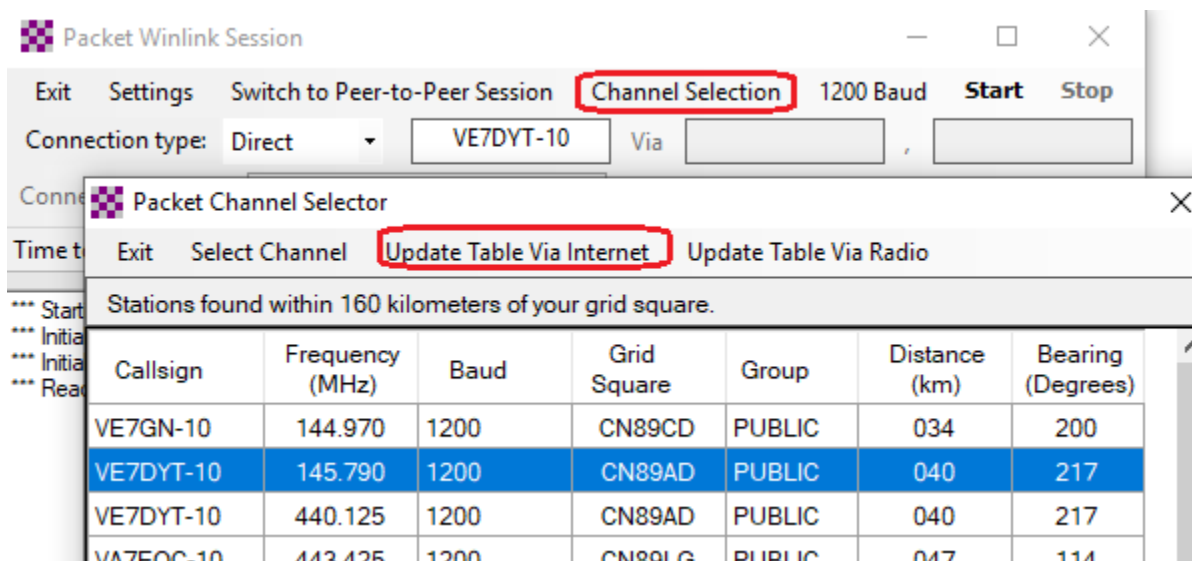
The type of connection needed is chosen from the **Open Session** drop down menu.



Messages that are marked to be sent as Winlink Messages require a Winlink connection:

- **Telnet Winlink** sends the message directly to the CMS via the Internet, by-passing the RMS. It's pretty much like sending an email and doesn't require a radio connection.
- **Packet Winlink** is typically a VHF or UHF connection to an RMS, which will then connect to a CMS via the internet.
- **Pactor Winlink** is an HF connection to an RMS. It requires an expensive  **PACTOR** TNC between the radio and computer.
- **Winmor Winlink** Winmor is deprecated. See [here](#) for more info.
- **Ardop Winlink** is another HF connection to an RMS that doesn't necessarily require a TNC. The IC-7300, for example, can connect to the computer directly with a simple USB cable. The connection is slower than PACTOR however.

For Winlink connections, the address and frequency of the session must match that of a RMS chosen (not that of the recipient). A list of RMS can be found in the **Channel Selection** table:



Once the table is updated, select an RMS near you, and ensure that the frequency of your radio matches that of the RMS listed in the table and press **Start**. At this point, two things will happen:

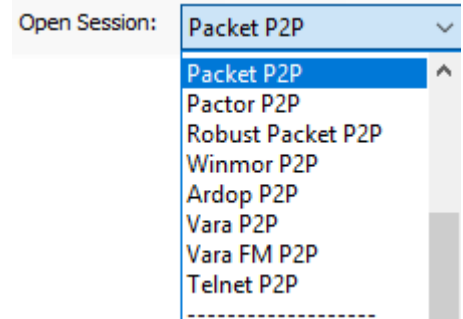
1. All the Winlink messages in your Outbox will be sent to the RMS and forwarded to the CMS, and
2. All the messages that the CMS has for you will be sent to your Inbox.

A few things to note about Winlink Messages:

- You can send a message to a station callsign (mine for example is VA7FI)
- You can send a message to a regular email address since the RMS has access to the internet.
- You can retrieve messages sent to your station callsign
- You can retrieve emails sent to CALLSIGN@winlink.org (mine for example is va7fi@winlink.org)

## Peer-to-Peer (P2P) Messages

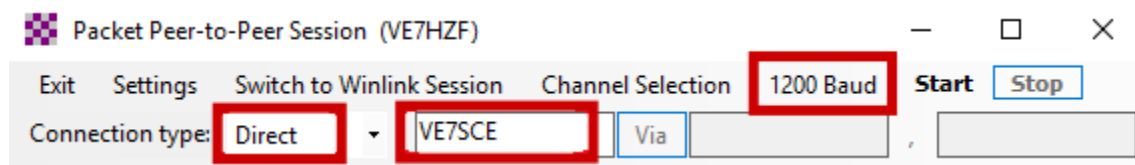
Messages that are marked to be sent as Peer-to-Peer Messages require a P2P connection:



- **Packet P2P** is a direct VHF or UHF connection between the two stations exchanging messages.
- **Pactor P2P** is a direct HF connection between the two stations exchanging messages using the PACTOR protocol.
- **Winmor P2P** Winmor is deprecated. See [here](#) for more info.
- **Ardop P2P** is a direct HF connection between the two stations exchanging messages using the Ardop protocol.

### Direct

For a Direct P2P connections, the address and frequency of the session must match that of a recipient (there is no RMS):



- Ensure that the frequency of your radio matches that of the recipient.
- Ensure that the recipient has a P2P session open.
- There are two different transmit speeds: 1200 Baud and 9600 Baud. You can only use 9600 Baud if your radio can transmit at that speed AND if the other station is also equipped for 9600 Baud and listening at 9600. Otherwise, use 1200 Baud. A rule of thumb if you're unsure what the other station is using is to:
  - Set to transmit at 1200 Baud (the other station will be able to receive you at either 1200 Baud or 9600 Baud)
  - Set your standby receive mode to 9600 baud (so you'll be able to receive stations transmitting at 1200 Baud or 9600 Baud).
- press **Start**

At this point, two things will happen:

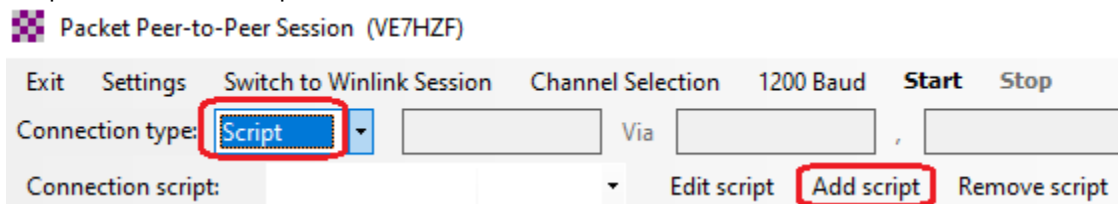
1. All the P2P messages in your Outbox addressed to the recipient will be sent to them, and
2. All the messages that the recipient might have in their outbox addressed to you will be sent to your Inbox.

This second point is worth highlighting: the session sends *and* receives messages. This can be useful in the case if the station you're trying to contact is off the air, but you expect that they'll try to connect to you in the near future. In that case, you can write them a message, post it in your outbox, and wait for them to initiate the connection.

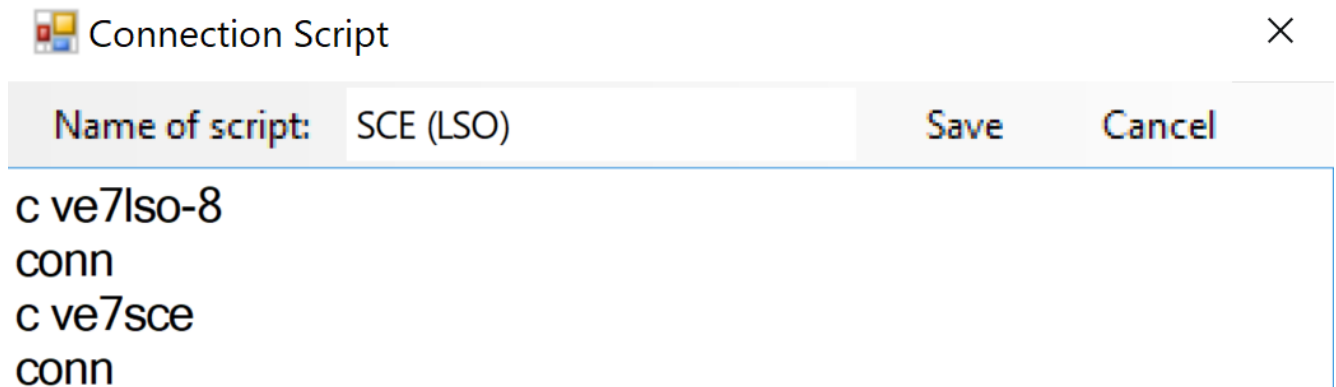
## Script

It's possible to connect to a station out of reach using a digipeater. On Vancouver Island, multiple digipeaters are setup on 144.970 MHz with an [SSID](#) of -8 and require a Script to access. For example, for VE7HZF to send a message to VE7SCE via VE7LS0-8, all three stations need to be on 144.970 MHz:

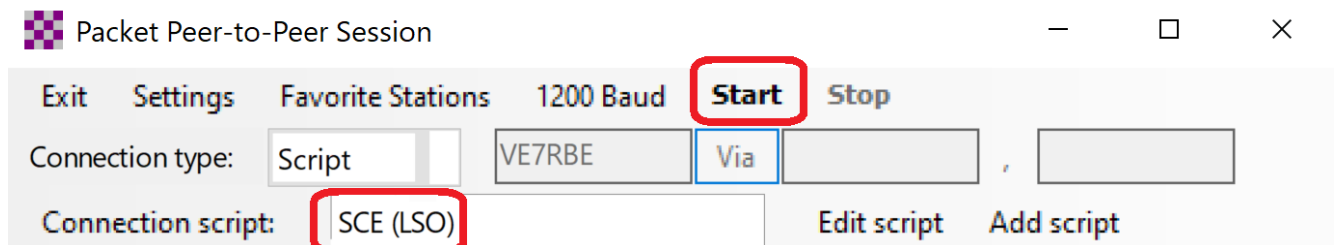
- The first step is to create a script:



- In this example, I named it LS0 to SCE so I can reuse it easily later:



- Once saved, select it and press **Start**:



If you monitor the traffic as you connect to the digipeater, you'll notice a few things:

- Everything you send to VE7LS0-8 is being repeated by the digipeater for VE7SCE
- Your callsign (in this case VE7HZF), is being retransmitted by the digipeater as VE7HZF-15. See the [SSID How-To](#) page for more info.
- The exchange takes more than twice the time of a direct connection because unlike a voice repeater that repeats in real time, a digipeater waits for you to stop transmitting before it repeats it.

## Digipeaters

From Roberts Creek, VA7FI is able to hear the following digipeater (-8) and RMS (-10) stations on 144.970 MHz:

Call sign	-8	-10	Sponsor / Location (Gridsquare)	Last MHeard
VA7ARE	-8		Arbustus Ridge Emergency Preparedness	Oct 1, 2020
VA7BCE		-10	Beaver Creek Volunteer Fire Department Amateur Radio Club, Port Alberni (CN79OG)	Oct 1, 2020
VA7CCD	-8		CVRD - EMERGENCY COMMUNICATIONS TEAM, Duncan	Feb 29, 2020
VA7CIF	-8		Strathcona Regional District, Cortes Island (CO70MB)	
VA7DXP	-8	-10	David Evans, Ladysmith	Oct 1, 2020
VA7EGP	-8		Strathcona Regional District Emergency Program, Campbell River	Oct 1, 2020
VA7EO	-8	-10	Paul Giffin, Gabriola Island (CN89CE)	Oct 1, 2020
VA7MWP	-8		Mid Island Emergency Coordinators and Managers, Duncan	Oct 1, 2020
VA7PF	-8	-10	Devan Banman, Nanaimo	Feb 29, 2020
VA7PRG	-8		Strathcona Regional District Emergency Program, Campbell River	Oct 1, 2020
VA7QBE		-10	Qualicum Beach Fire Department, About 40km west of Nanaimo (CN79SC)	Oct 1, 2020
VA7SSI	-8		Capital Regional District Emergency Program, Victoria	Feb 24, 2020
VA7ZWR	-8	-10	Walter Seiler	Feb 29, 2020
VE7CRD	-8		Capital Regional District Emergency Program, Victoria	Oct 1, 2020
VE7CRP	-8		Capital Regional District Emergency Program, Victoria	Oct 1, 2020
VE7GCT	-8		Glenn C Terrell, Mill Bay	Oct 1, 2020
VE7GEC	-8	-10	Michael J. Hale, Gabriola	Oct 1, 2020
VE7GN		-10	Michael J. Hale, Gabriola Island (CN89CD)	Oct 1, 2020
VE7LSO	-8	-10	CVRD - Emergency Communications Team, Ladysmith	Oct 1, 2020
VE7PRL	-8		Capital Regional District Emergency Program	Oct 1, 2020
VE7RYF	-8	-10	Mt McDonald at 1500ft	Oct 1, 2020
VE7SKR	-8	-10	CVRD HQ station, Duncan (CN88DS)	Oct 1, 2020
VE7SPR	-8	-10	Salt Spring Island ARC, SPI (CN88GT)	Oct 1, 2020
VE7TXD	-8	-10	Mid Island Emergency Coordinators and Managers	Oct 1, 2020
VE7WOD	-8		CVRD - Emergency Communications Team	Oct 1, 2020

**Important Caveat:** My knowledge of these stations is minimal. For more information, see:

- <http://www.gorse.ca/crdarea/vhf.html>
- <http://www.ve7ed.com/projects.html>
- <https://winlink.org/RMSChannels>

## Winlink Message via Digipeater

If a Winlink station (-10) is too far to be reached directly, a digipeater station (-8) can be used to relay the message.

- Write your message as a Winlink Message (not P2P Message)
- Open a Packet Winlink session (not Packet P2P)
- Connection type: Script
- Add a script like this one:

```
C ve7lso-8
Connected

C ve7gn-10
Connected
```

- Select your script and start.

In this example, my message will be sent to VE7LSO-8, which will repeat it to VE7GN-10, which will then send it to the CMS via the internet.

## EasyTerm by UZ7HO



I'm still learning lots about this so please consider this section to be vastly incomplete and probably wrong. - [Patrick, VA7FI](#) 2020/01/01 07:45

An easy way to connect a radio to a computer using a Signalink is to use the UZ7HO Soundmodem program (see the [Signalink How-To](#) for more information). But another really good program by UZ7HO is [EasyTerm](#), which allows you to connect to another station and send specific commands to it.

For example, VE7HZF connected to VE7LSO-8 and typed H:

```
*** Connected to station VE7LSO-8 2019-09-02 6:33:56 AM
:>H
497LSO:VE7LSO-8} TYPE 'HELP' OR ? FOLLOWED BY COMMAND FOR MORE INFORMATION
BYE          CONNECT  CQ          HELP          INFO          LINKS          MHEARD          NODES
PORTS        ROUTES   STATS     USERS        SYSOP
```

This is the list of commands that this station accepts. For example, to learn what MHEARD does, type ?MHEARD. To use it, type MHEARD.

## Setup

Station Setup (EasyTerm Settings)

Terminal Callsign: VE7HZF-11  
Mailbox Callsign: VE7HZF-1

Beacon Setup

Destination: BEACON  
Digipeaters:   
Interval: 60 Min. (Info in beacon.txt)  
Ports: 1 (Separated with comma)

TNC Setup

Host: 127.0.0.1  
Port: 8000  
PacLen: 80

OK Cancel

**EasyTerm Setup screen.**

I used -11 for the Terminal Callsign because Winlink Express is already using -0.

Settings (SoundModem Settings -> Devices)

Sound Card

Output device: Signalink (USB AUDIO CODEC)  
Input device: Signalink (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  
☐ Minimized window on startup

Server setup

AGWPE Server Port: 8000 ☒ Enabled  
KISS Server Port: 8100 ☒ Enabled

PTT Port

Select PTT port: NONE ☐ Dual PTT

**SoundModem Settings screen.**

The KISS Server Port 8100 had already been enabled for Winlink.  
Now we need to enable AGWPE Server Port 8000 for EasyTerm.

## Sources

- [Overview of the Winlink Hybrid Network](#)
- [Introduction to Packet Radio](#) By Larry Kenney, WB9LOZ