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Note: Appendices are in Master Copy only.

Regulatory and Safety Warning

Improper use of this equipment may damage the equipment, risk personal injury to the operator and bystanders, cause harmful RF interference, and violate Industry Canada regulations.

This equipment should only be operated by licensed amateur radio operators with HF privileges who have been trained and demonstrated competence on this equipment. By regulation, unlicensed operators may only run radio equipment under the guidance of a properly licensed control operator. The use of this equipment by untrained operators risks damaging the equipment and causing harmful interference.

This station license is sponsored by Warren Paulson, VE3FYN. Mr. Paulson must be made aware of, and must approve of, all uses of this station.

Revision History

Date	Revision	File
29 Jan 08	First version	Ver 1
9 Mar 08	Various corrections and updates.	
12 Nov 08	Added references to Yaesu FT-857D HF/VHF/UHF radio, and moved instructions for Tentec Corsair radio to appendix H (as backup unit).	Ver 2
12 Jun 10	Minor editing changes Updated inventory Added 'training copy' to distribution list Added 'Access to VA3EOA Station' section Added 'Emergency Call-Out Procedure' section Added 'Call-out List' in appendix Added 'EmComm Frequencies' section	Ver 3
27 Jan 11	Added iDrive (online backup) information Updated equipment list Updated UI-View setup information Updated callout list	Ver 4
21 Feb 11	Updated callout list	Ver 4
27 Jan 19	Technical revisions to reflect new hardware/software	Ver 5

Distribution Record

Name	Affiliation	Position	Revision
Atikokan EOC			27 Jan 2019
Warren Paulson VE3FYN	Atikokan Amateur Radio Club ARES EC, ARES DEC	President	27 Jan 2019
Geoff Mayne VE3SYR	Atikokan Amateur Radio Club ARES operator		27 Jan 2019
Gwen Mayne VE3SYX	Atikokan Amateur Radio Club ARES operator		27 Jan 2019

Inventory

Township of Atikokan Property			
Description	Location	Status	Condition
DXCC multiband antenna	Municipal Office	In operation	Good
Feedline & connectors for above	Municipal Office	In operation	Good
2 metre vertical antenna	VE3FYN QTH	In storage	Good
Feedline & connectors for above	Municipal Office	In operation	Good
MFJ antenna tuner	Municipal Office	In operation	Good
Feedline & connectors for above	Municipal Office	In operation	Good
Yaesu FT-857D HF/VHF/UHF radio Serial # 8L960674	Municipal Office	In operation	Good
Six Baofeng UV-82 handheld radios	Municipal Office	In operation	Good
Atikokan Amateur Radio Club Property			
Description	Location	Status / Cond.	Owner
Dell computer	Municipal Office	In operation Good	Club
GE MVS 2ch radio	Municipal Office	In operation Good	VE3FYN
TNC-X kiss-style TNC	Municipal Office	In operation Good	Club
Two bay 2 metre folded dipole	Municipal Office (tower)	In operation Good	Club
Other Available Amateur Radio Club Property			
Midland radio and TinyTrak4 configured for APRS, including digi	VE3FYN station	GPS functions not available	VE3FYN
Icom 703+ HF radio, batteries and portable HF antennas	VE3FYN station	In operation Good	VE3FYN

Emergency Call-Out Procedure

The Atikokan Amateur Radio Club is listed in the Town of Atikokan Emergency Plan as providing local, regional and Province-wide communications in the event of a declared emergency where normal communications are hampered.

It is likely that our communications role would be two-fold:

- Maintaining communications with regional EOCs.
- Maintaining communications with the Provincial Emergency Operations Centre in Toronto.
- Providing communications within the community among locations where conventional communications is compromised.

Call-outs

During an emergency, at least one operator will be required at the EOC, and a second operator on standby. During an extended emergency, at least four operators will be required, in order to provide adequate breaks. Preference will be given to operators trained in the operation of this station, but all licensed operators qualified for HF operation will be accepted.

The Town of Atikokan will contact Warren Paulson VE3FYN and Vic Prokopchuk VE3AKX in the event that our services are required. The initial call-out will be over the Atikokan repeater VE3RIB. In the event that this call-out does not generate a sufficient response, a telephone fan-out will be initiated. Refer to Appendix I for a call-out list.

EmComm Frequencies

National Frequencies

National EmComm frequencies have been established by Radio Amateurs of Canada (RAC). These are the first frequencies you should try in order to contact other EOCs during an emergency.

Note that no one group has exclusive access to any frequency within the amateur bands. These frequencies are suggested start-points only. You may need to change frequencies to manage QRM and QRN.

SSB Frequencies Tactical	CW Frequencies Tactical	Digital Frequencies Tactical
75m – 3.675 MHz LSB Alpha	80m – 3.535 MHz Golf	80m – 3.596 MHz Mike
40m – 7.135 MHz LSB Bravo	40m – 7.035 MHz Hotel	40m – 7.096 MHz November
20m – 14.135 MHz USB Charlie	20m – 14.035 MHz India	20m – 14.096 MHz Oscar
17m – 18.135 MHz USB* Delta	17m – 18.075 MHz* Juliette	17m – 18.096 MHz Papa
15m – 21.235 MHz USB* Echo	15m – 21.035 MHz* Kilo	15m – 21.096 MHz Quebec
10m – 28.235 MHz USB Foxtrot	10m – 28.035 MHz Lima	10m – 28.096 MHz Romeo
<ul style="list-style-type: none">Note, the HF antenna used at the VA3EOA station may not tune to the bands marked with a *.		

Regional Frequencies

3.750 MHz LSB is the Northwestern Ontario Calling Frequency, and should be tried first for access to regional EOCs. Note that during high sunspot activity, this frequency may only be workable during the early morning, late evening or at night.

HF Antenna Directivity

The G5RV HF antenna used at the Atikokan EOC station is oriented for East-West propagation. On the higher bands (20m and 10m) this should provide a reasonable signal to Toronto.

The 40m and 80m bands are best used for regional communications. At this antenna height, it is essentially omni-directional at these frequencies, though there may be a slight East-West bias.

Radio Station Configuration

The radio station is configured as follows:

1. The computer is connected to the Yaesu FT-857D via the microHam USB Interface III. It uses virtual COM ports 1 and 2.
2. The computer is also connected to the GE-MVS radio via the TNC-x interface, for APRS operation, using COM port 3. AGWPE provides the software-radio interface, and UI-View32 is the APRS software.

Note that as of this writing, the APRS setup will digipeat, but will not I-Gate.

3. The Yaesu FT-857D is configured for HF use only. There is neither an antenna nor a dummy load connected to the VHF/UHF antenna port, so these bands are to be avoided.
4. The Yaesu FT-857D is connected to a multi-band wire antenna with an East-West orientation. The antenna is capable of operation on 80, 40, 20 and 10 metre bands with proper tuning.
5. The GE-MVS radio for APRS operation is connected to the two-bay folded dipole on the tower.
6. The Yaesu 2 metre radio is generally used to talk through the repeater, and used the quarter-wave antenna on the cabinet. If longer-range use is required, this antenna should be switched with the GE-MVS antenna.
7. There is a Baofeng UV-5 radio in the cabinet. This may be used to monitor local FM broadcasts stations, or for general amateur use. It is property of the Club.
8. There are six Baofeng UV-82s on the cabinet. These are intended for use by members of the Municipal Control Group when not at the EOC. These are property of the Town.

Yaesu FT-857D Operation

This is a difficult radio to operate, as it is menu-driven, has a very small screen, and uses a manual tuner. Operators should read the manual in full, and practice the operation of this radio in non-emergency situations.

A manual is available for on-line reading on the [VE3RIB.ca website](http://www.ve3rib.ca/va3eoaresources.html).
(www.ve3rib.ca/va3eoaresources.html)

Please note, however the following:

1. This radio does not have an internal tuner. Ensure that the radio is properly tuned whenever operating on the HF bands. (Tuning instructions follow.)
2. This radio is not connected to a VHF or UHF antenna.
Do not transmit outside the HF bands.

Yaesu FT-857D Tuning Instructions (Voice operation)

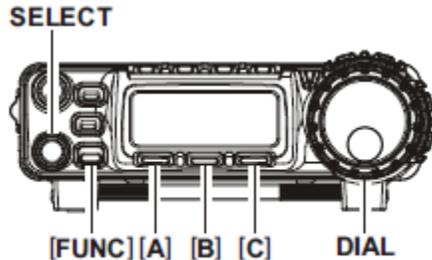
WARNING: The DXCC antenna is designed for 80m, 40m, 20m, and 10m only. It may not tune to other bands.

NOTE: This tuner is a high-Q device. In other words, it is very sensitive to small changes in the knob positions.

1. Set Transmitter and Antenna knobs to the 12 O'clock position.
2. Adjust Inductance (X_L) knob on tuner until audio level is highest.
3. On radio, set MODE switch to FM and key the mic.
4. Alternately adjust Transmitter and Antenna knobs on tuner for lowest SWR. You should be able to achieve an SWR less than 2:1
5. This process should be followed at every frequency change. However, when tuning on an active frequency (e.g. a working net) tune off frequency by 5 KHz to avoid QRM.

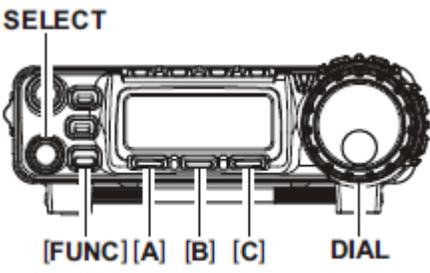
Yaesu FT-857D WinLink (digital) Operation

1. Start radio.
2. The radio meter should be on “ALC”.
 - a. Key the mic to confirm. (“ALC” should appear at the left of the screen)
 - b. If not ALC, press “FUNC” and rotate the “SELECT” knob until A B C show “MTR ___ DISP”
 - c. Press “B” until “ALC” appears



3. Start Winlink Express.
4. Select “Winmor Winlink” then press “Open Session”.
5. From the “Winmor Winlink Session window, choose “Channel Selection”.
6. Click “Path Quality Estimate” and choose the strongest station with a single mouse-click.
 - a. The radio will switch to this frequency, and to USB.
 - b. Listen for traffic.
 - c. If there is traffic, move down the list until you find a clear channel.
 - d. Double-click on the first clear channel to select and return.
7. Click “Start”
8. Check the ALC meter. It should peak about half-way.
 - a. If it peaks too high or low, you will need to adjust the Digital Gain (manual P.64).
 - b. Hold “FUNC” for one second, then turn the selector to item #037 “DIG GAIN”.
 - c. Rotate the DIAL knob to achieve a mid-level meter reading while transmitting.
 - d. Hold “FUNC” for one second to set and exit the menu.

Yaesu FT-857D Multi Function Key Settings

 <p>The diagram shows the front panel of the Yaesu FT-857D radio. A knob labeled 'SELECT' is positioned above the control panel. Below the control panel are four buttons labeled '[FUNC]', '[A]', '[B]', and '[C]', followed by a large rotary dial labeled 'DIAL'. Lines connect the labels to their respective components on the radio.</p>	<p>The [A] [B] [C] keys select most of the radio's important functions.</p> <p>Pressing [FUNC] then rotating the [SELECT] knob changes the current function of the [A] [B] [C] keys.</p> <p>Important key settings are below. Those not listed here may generally be ignored.</p>
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MFa [A/B, A=B, SPL]

We generally operate simplex, so SPL (split) should be off.

MFc [STO, RCL, PROC]

Press PROC to activate the speech processor. Press and hold PROC to view and change the speech processor level. This function will compress your audio levels to give them more intensity. Setting PROC too high, however, will distort your speech. Generally, this can be OFF.

MFi [MTR, _____, DISP]

Pressing MTR will cycle among the various meters. Leave this on ALC. This meter is important for digital operation.

MFi [NB, AGC, _____]

NB will initiate the noise blanker, which cuts out intermittent noises such as engine noises.

AGC will disable the radio's AGC, and should be left on.

C Should be set to AUTO, which sets the AGC recovery time

MFm [IPO, ATT, NAR]

IPO can be turned on, to disable the preamplifier when operating below 10 Mhz.

In very noisy environments, enabling ATT will attenuate the incoming signals.

MFp [DNR, DNF, DBF]

DNR should be ON, to activate the noise reduction system. Press and hold to adjust.

DNF will activate the notch filter, if you have a tone, such as CW on your frequency.

Push and hold DBF to activate the bandpass filter, which can help filter-out nearby signals.

Computer Operation

The computer is loaded with the following software:

1. UI-View32 for APRS applications.
2. WinLink Express for HF email.
3. WinLog32 for logging.
4. Basic word processing and office applications are available as well.

Login

The PIN is 2272

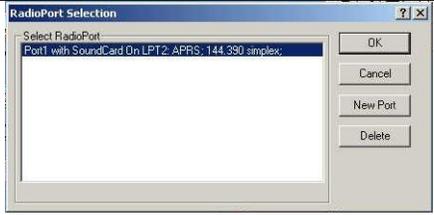
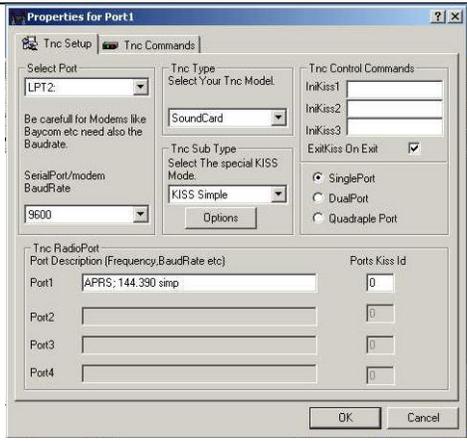
NOTE

1. Ensure UI-View32 is running at all times.
2. Do not turn the computer off.
3. When leaving, lock the computer as follows:
 - a. Press [CTRL][ALT][DEL]
 - b. Cursor to [Lock] and press [Enter]
 - c. Turn off the monitor.

UI-View32 Setup

UI-View32 is an APRS program that interfaces with the GE-MVS radio to provide automatic position reporting and basic text messaging via RF and the Internet to other like stations. UI-View32 has already be setup on this machine. The following screen shots outline the current setup should it require re-installation.

AGWPE setup

<p>AGWPE provides a soundcard interface to the radio, eliminating the need for a TNC. It loads automatically upon startup. (If it must be re-installed, download it from the Internet, and install.) Right-click on the icon shown to view and change settings.</p>	 <p>The screenshot shows the AGWPE icon in the Windows system tray. The icon is a blue square with the text 'AGWPE' in red. A red circle is drawn around the icon. The system tray also shows the time '11:46 AM'.</p>
<p>If a port has been setup, click 'OK.' If not, click the 'New Port' button.</p>	 <p>The screenshot shows the 'RadioPort Selection' dialog box. It has a title bar with a question mark and a close button. The main area contains a list box with one entry: 'Port1 with SoundCard On LPT2, APRS: 144.390 simplex'. To the right of the list box are four buttons: 'OK', 'Cancel', 'New Port', and 'Delete'.</p>
<p>'Port' is not used to trigger the PTT on the radio, so set 'Select Port' to a non-existent port such as LPT2.</p> <p>Choosing 'Sound Card' as TNC type will pop-up the soundcard settings (below).</p> <p>Other settings should be as shown.</p>	 <p>The screenshot shows the 'Properties for Port1' dialog box. It has a title bar with a question mark and a close button. The dialog is divided into several sections: <ul style="list-style-type: none"> Select Port: A dropdown menu showing 'LPT2'. Be careful! for Modems like Baycom etc need also the Baudrate. SerialPort/modem BaudRate: A dropdown menu showing '3600'. Tnc Type: A dropdown menu showing 'SoundCard'. Tnc Sub Type: A dropdown menu showing 'KISS Simple'. Options: A button. Tnc Control Commands: <ul style="list-style-type: none"> IniKiss1, IniKiss2, IniKiss3: Text input fields. ExitKiss On Exit: A checked checkbox. SinglePort, DualPort, Quadruple Port: Radio buttons. Tnc RadioPort: <ul style="list-style-type: none"> Port Description (Frequency, BaudRate etc): A text input field containing 'APRS; 144.390 simp'. Ports Kiss Id: A table with four rows (Port1 to Port4) and a column for Kiss Id, all containing '0'. At the bottom are 'OK' and 'Cancel' buttons. </p>

UI-View32.ini

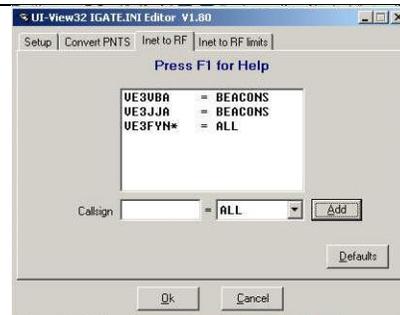
This file is in the UI-View32 program folder. Search for *[DIGI_OPTIONS]* in the file, and make the following changes:

```
[DIGI_OPTIONS]
DIGI_ENABLED=FALSE
UI_ONLY=TRUE
ALIAS_SUBSTITUTION=TRUE
DUPE_SUPPRESS_SECONDS=30
ALIAS=VA3EOA,WIDE1-1
UIFLOOD=NWO
UITRACE=WIDE
WIDEN-N=FALSE
TRACEN-N=FALSE
SUBST_ALIAS=VA3EOA
EXCLUDED=""
```

I-Gate.ini

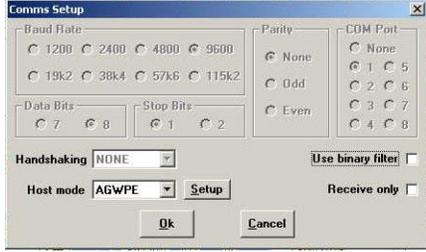
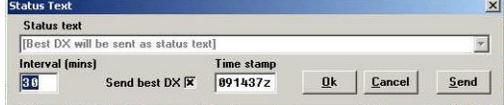
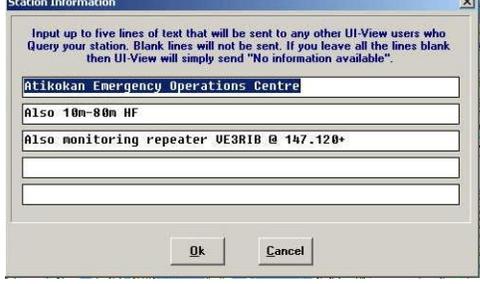
Edit this file by choosing *File / Edit I-GATE.INI* from the UI-View32 menu. Click on the *INET to RF* tab, and set it as follows:

This setting ensures that beacons from Sioux Narrows (VE3JJA) and Fort Frances (VE3VBA) will be digipeated over RF. It also ensures that local traffic generated by VE3FYN is digipeated.

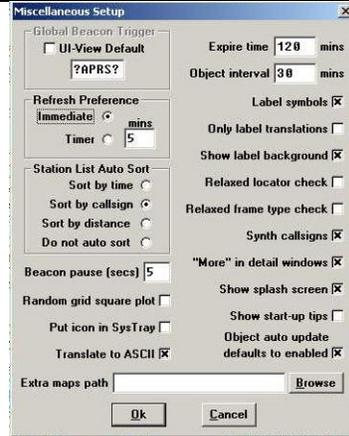


UI-View32 Setup Menu

The following setup screens are activated by the *Setup* menu in the main menu. All other setup menus not listed here may be left at their default settings.

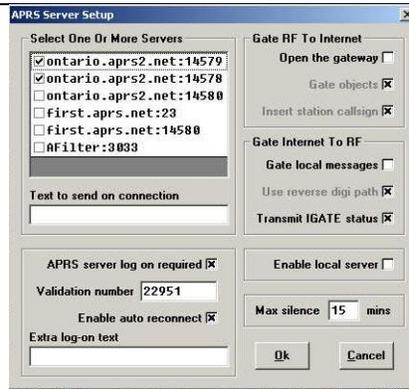
<p>Set host mode to 'AGWPE.'</p>	 <p>The 'Comms Setup' dialog box is shown with the 'Host mode' dropdown menu set to 'AGWPE'. Other settings include Baud Rate at 9600, Parity at None, and Handshaking at NONE.</p>
<p>Fill-in the station setup EXACTLY as shown.</p>	 <p>The 'Station Setup' dialog box is shown with the following values: Callsign: VA3E0A, Latitude: 48.45.40N, Longitude: 091.37.46W, Locator: EN48ES, Unproto port: 1, Unproto address: APRS,WIDE-2, Beacon comment: Atikokan EOC & municipal office, UI-View Tag checked, Beacon interval (Fixed) at 60, Mobile at 0, Internet at 30, Symbol: EOC, GPS symbol: Car.</p>
<p>During an emergency or exercise, status text may be modified to reflect the current conditions.</p>	 <p>The 'Status Text' dialog box is shown with a text field containing '[Best DX will be sent as status text]', Interval (mins) set to 30, and Time stamp at 091437z.</p>
<p>During an emergency or exercise, this information may be modified to reflect the current situation.</p>	 <p>The 'Station Information' dialog box is shown with the following text in the input fields: Atikokan Emergency Operations Centre, Also 10m-80m HF, and Also monitoring repeater VE3RIB @ 147.120+.</p>
<p>To edit this screen, turn 'Enable digi' on, then edit the various fields. Digi-peating should only be enabled if the VE3RIB digipeater is not functioning.</p>	 <p>The 'Digipeater Setup' dialog box is shown with 'Enable digi' checked, UI Only checked, Alias substitution checked, NW0n-n and WIDE n-n unchecked, Alias(es) set to VA3E0A,WIDE1-1, Sub Alias set to VA3E0A, Dupe secs set to 30, and Digi routes set to 1=1.</p>

Few settings in 'Miscellaneous Setup' are mission critical, but settings should be as shown here.



APRS servers are as follows:

Ontario.aprs2.net:14579 is all of Canada
 Ontario.aprs2.net:14578 is MB and NWO
 Ontario.aprs2.net: 14580 is user-defined.



UI-View32 Basic Operation

Startup

UI-View32 requires AGWPE in order to communicate with the GE-MVS radio. UI-View32 and AGWPE make use of the computer's sound card.

To start UI-View32, choose Programs / UI-View32 / AGWPE from the Start menu. Once AGWPE is loaded, UI-View32 will start automatically.

Messaging

Messaging may happen either via the Internet, or via RF.

To send a message, click 'Messages' from the main menu. When the message window pops-up, click the 'Mine' tab.

Messaging via RF

Send your message via RF if the recipient is within radio range of the VE3RIB digipeater (about 20 kilometres, typically). Theoretically, messages may be digipeated amongst a chain of repeaters, but in Atikokan there are not nearby digipeaters.

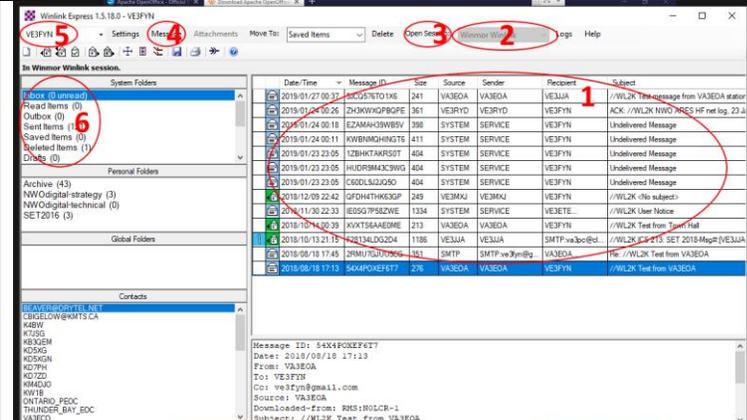
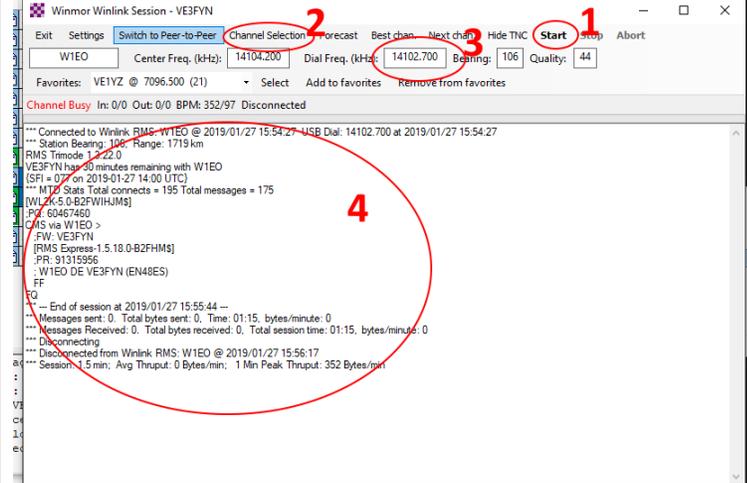
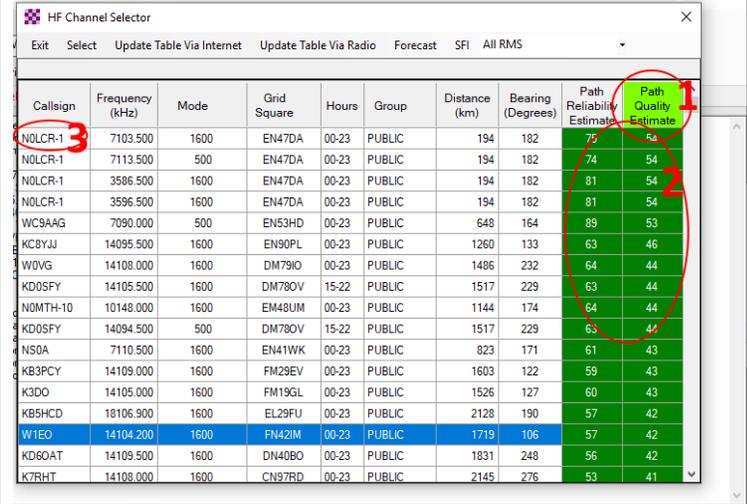
- To: set to the callsign and SSID of your recipient. (Sending to 'NWO' will broadcast to all local stations setup accordingly).
- Port: set to '1'
- Digi: set to VE3RIB (if another station, such as VE3FYN is digipeating, use that call).
- Message: Don't exceed the length of the field.

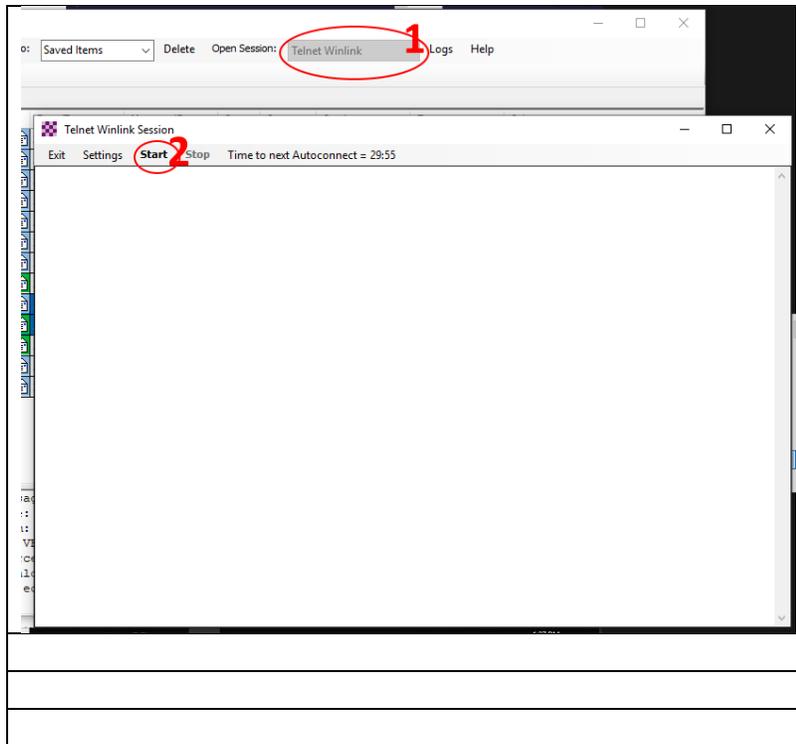
Messaging via Internet

Send your message via the Internet if the recipient is another computer connected to the Internet.

- To: set to the callsign and SSID of your recipient. (Sending to 'NWO' will broadcast to all local stations setup accordingly).
- Port: set to 'I'
- Digi: this field will be unavailable.
- Message: Don't exceed the length of the field.

WinLink Basic Operation

	<p>This is the WinLink icon. Double-click to start.</p>
	<ol style="list-style-type: none"> 1. This is the list of e-mails received. 2. Use this to select the mode (generally Winlink) 3. Click here to start. 4. Click here to write a message. 5. Ensure this shows the proper call sign (VA3EOA) 6. Click here to view e-mail folders.
	<ol style="list-style-type: none"> 1. Click to start transmission. 2. Click for channel selection. 3. This should match the frequency on the radio. If it doesn't, check connections, or set frequency manually. <p style="text-align: center;">TUNE ANTENNA WHEN CHANGING FREQUENCIES</p> <ol style="list-style-type: none"> 4. This shows your connection activity.
	<ol style="list-style-type: none"> 1. Select "Path Quality" 2. Select the best quality. 3. Single-click to monitor audio. Double-click to select.



1. For Internet operation, choose “TelNet WinLink”
2. Click “Start” to send/receive.

