

N4PY Pegasus Control Program Version 4.61

Personal Computer

This program is a 32 bit windows program. Your personal computer is an integral part of the your transceiver. The minimum system requirements for your PC to operate your radio is a Windows XP system. Connect one end of the serial cable to the serial port connection of the radio and connect the other end of the serial cable to the 9 pin serial port connector on your PC. If your computer does not have a serial port, almost any USB to serial converter will work fine.

This program will work on the following Windows versions:

- All versions of Windows XP (both 32 and 64 bit)
- All versions of Windows Vista (both 32 and 64 bit)
- All versions of Windows 7 (both 32 and 64 bit)
- All versions of Windows 8 and 8.1 (both 32 and 64 bit)
- All versions of Windows 10 (both 32 and 64 bit)
- All versions of Windows 11 (both 32 and 64 bit)

Screen resolution of at least 1024 X 768 is recommended.

For some versions of Windows 7 (not home premium), you must run the program in Windows XP compatibility mode. An indication that this is necessary is if each time you start the program, you get a different install number.

It is very important that you read the interface section of this file for the radio type you are using. The Omni VII is fully described in that section and must be read and understood to use that radio properly.

PC to Radio Serial Connection

Connect a 9 pin serial port cable between the radio and an available COM port on your PC. If your PC has only a 25 pin COM port available you will need to acquire a 25 to 9 serial port adapter. When you start the Pegasus Plus control program for the first time you will need to tell the program which COM port the radio will be using.

It is also possible to use a USB to SERIAL PORT adapter to operate the radio over a USB port. Please refer to the adapter documentation for information on using a USB port as a Serial Port. Some USB adapters do not work very well and others work great.

Basic Operation

Turn on the radio before starting the program.

Start the N4PY Pegasus Plus control program. If needed you may change the selected serial port in the INTERFACE section of the SETTINGS screen.

The program also supports the LP-100A watt meter and LP-Pan panadapter from Telepost. See www.telepostinc.com for further details on these devices.

Direct Frequency Entry

You can enter a frequency for either VFO A or VFO B directly from the computer keyboard. Mouse click on the displayed frequency. You will see a flashing cursor on the digit you clicked. Then enter the digits in MHZ from the keyboard. Once you have entered the frequency completely, using a decimal point if necessary to fully enter the frequency in MHZ, press the "enter" key on the keyboard to have the frequency take effect. If you make a mistake, press the "ESC" key to cancel the entry so you can start over.

Mouse Wheel

There are options for the mouse wheel to be used for Frequency Tuning, Volume Control, Pod Knob, Frequency Tuning + Slider, and Pod Knob + Slider.

These options are in the "Call Sign, TopTen" settings window.

You can tune the radio frequency by hovering over a displayed VFO digit and moving the mouse wheel. This allows for instant frequency tuning at almost any tuning rate you want. The supported digits are the all the digits to the right of the first decimal point in the displayed frequency area plus the MHZ digit. This works with both VFO A and VFO B.

If "Frequency Tuning" is selected, the tuning step size for the mouse wheel is the selected tuning step size.

The option called "Pod Knob" makes the mouse wheel simulate a Tentec remote tuning pod knob. If you use a mouse with a mouse wheel that can spin, this makes an excellent tuning knob. The mouse wheel can be assigned to any of the functions for the Tentec remote pod. I am using the Logitech MX 620 mouse as a pod knob with excellent results. If the mouse wheel seems a little slow, check the setting for "Tuning Knob Desense Factor" in the "Remote Pod Fkey" settings window. Set it to at 1 if you are not using the Tentec remote tuning pod. You can also make the mouse wheel have a high speed setting. In "Preferences4", you can set the "Sensitivity" to somewhere around

10 or so. This is the number of mouse wheel pulses received in 150 milliseconds. The higher this number is, the faster you have to spin the mouse wheel to go into high speed mode. The "High Speed Tuning Factor" is used as a multiplier for the frequency step. So once high speed is achieved, this factor says how much faster you move in frequency. I find a setting of 10 or so for each of these values works pretty well.

There are also two options that have "Slider" added to them. These options will allow any slider on the program radio panel to be moved with the mouse wheel when the mouse is over that slider. When the mouse wheel is not over a slider, either "Frequency Tuning" or "Pod Knob" will be in effect.

Remote Operation

There is now a new function called Client-Server. Read the file "CSRemote.txt" that is included in your folder where you installed the program. This describes exactly how to do remote operation.

Control Panel Buttons

Mode Buttons

Left clicking the mode buttons will set a new mode for VFO A. If DUAL receive is on, right clicking the mode buttons will set a new mode for VFO B. For the RX-340 and RX-331, if DUAL is off, right clicking the FM button will setup everything to receive DRM. This DRM setup will set the mode to USB, the filter to 16 kHz, the AGC to slow, PBT to +2000 and set the radio frequency down 12 khz from the GUI.

For Yaesu radios except FT-450, right clicking on the FM button will use C4 FM mode.

FM CTCSS Tones (Omni VII Only)

The CTCSS tones for FM can be set in the SSB settings window. The values go from 0 to 49 and create the following tones:

Value	Tone	Hz	Value	Tone	Hz	Value	Tone	Hz	Value	Tone	Hz	Value	Tone	Hz
0	OFF		10	91.5		20	127.3		30	167.9		40		
203.5			11	94.8		21	131.8		31	171.3		41		
206.5			12	97.4		22	136.5		32	173.8		42		
210.7			13	100.0		23	141.3		33	177.3		43		
218.1			14	103.5		24	146.2		34	179.9		44		
225.7			15	107.2		25	151.4		35	183.6		45		
229.1			16	110.9		26	156.7		36	186.2		46		
233.6			17	114.8		27	159.8		37	189.9		47		
241.8			18	118.8		28	162.2		38	192.8		48		
250.3			19	123.0		29	165.5		39	199.5		49		
254.1														

DUAL

This buttons controls the dual receive function. If this button is off the VFO B receiver will always be muted. With this button on, both the VFO A and VFO B receivers will be heard. Also, if this button is off,

no data will be sent to the VFO B receiver until DUAL is turned on.

Right clicking the "DUAL" button will turn on "A=B Frequency Tracking".

This mode is indicated by a "DIV" showing up just above the DUAL button.

With this mode on, VFO B will automatically follow VFO A in frequency.

To turn off this mode, left click on the "DUAL" button. The purpose of

this mode is for diversity reception from two receivers at the same time.

For true diversity reception, the two receivers must have separate antennas.

On the K3, right clicking DUAL causes the sub-receiver to have the opposite antenna setting. You can easily toggle the sub-receiver antenna by right clicking on the "Ant X" button where X is a 1 or 2.

Please note that if "DUAL" is off, all updates to the VFO B receiver will

be saved and not actually sent until "DUAL" is switched on.

Please note that on the KX3 this will turn on dual watch if VFO B is within 15 khz of VFO A.

This button is not available if there is no second receiver.

For the Flex 6000-8000 series radios, when DUAL is turned on, VFO A audio is sent to the left channel and VFO B audio is sent to the right channel. This is very useful when operating in a split DX pileup.

You

keep split turned on so that you will always transmit on VFO B. You then

turn DUAL on to hear the DX callers in your right ear and the DX in your

left ear. If you just want to hear only the DX station, you turn DUAL off. This causes VFO A to be heard in both ears.

ManMD

This button controls whether or not filter and step information automatically change when a new mode is selected. With this button off, when a new mode is selected, a new filter and step will automatically change according to the mode. With this button on, only the mode will change when a new mode is selected.

SAM

The mode "SAM" is for synchronous AM. It is not really sync AM, but the next best thing. This mode simply turns on the BFO and sets the step size to 1 Hz. You must carefully zero beat the AM carrier by slowly tuning for this mode to be effective. This mode is much more tolerant to AM signal fade.

For the RX-340 and the "RX-350 only" setups and the Flex radios, if you

left click the SAM button while in another mode, you will first get SAMB

(SAM for the Flex radios) which is SAM with both sidebands. If you left click again on the SAM button, you will get SAML which is SAM in lower sideband. If you then left click the SAM button again, you will get SAMU, which is SAM in upper sideband.

If DUAL is on, right clicking this button will send the mode to the VFO B receiver.

CWR

This stands for CW reverse. Normal CW mode uses LSB which causes tones to increase as the frequency is increased. CWR mode uses USB, which causes tones to decrease when the frequency is increased. You select CWR by right clicking on the "CW" button. An interesting side effect of this mode is you can tell when you are tuned directly onto a CW signal by swapping back and forth between CW and CWR mode. If the pitch of the signal does not change, you are perfectly tuned to the signal. This mode is not available on the RX350, Argonaut V, and Jupiter while in logging mode only.

RTTY

This mode is used for any digital mode you may want to run. Its default setup is for RTTY. It sets a frequency offset of 2100 hertz and turns on the accessory input for transmit audio, and uses LSB mode.

You can change the button name, frequency offset, and transmit mode through the "RTTY Settings" window of the "settings" menu.

You can also reverse the selected sideband. If you click on the RTTY mode button while RTTY mode is already selected, the selection for the RTTY sideband will be reversed. This is indicated by the color of the RTTY key changing from blue to red. The same also holds true for the second RTTY mode, which is selected by right clicking the RTTY button.

If you store a RTTY mode station in a memory, there are actually 4 RTTY modes. They are named in the memories as follows:

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"RTTY"      = RTTY mode 1
"RTTY2"     = RTTY mode 2
"RTTYR"     = RTTY mode 1 with reversed sideband
"RTTY2R"    = RTTY mode 2 with reversed sideband
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There is a way for logging programs to select RTTY mode 1 or RTTY mode 2 automatically. If a logging program set an SSB mode that is in the

CW portion of a band, if RTTY 1 real mode matches matches the SSB mode, then

RTTY mode 1 is selected. If RTTY mode 1 does not match, then RTTY real

mode 2 is checked for a match. If it matches, then RTTY mode 2 is selected. In this way, logging programs can now select RTTY mode 1 or RTTY mode 2.

If DUAL is on, right clicking this button will send the mode to the

VFO B receiver.

Store SP

This button stores the frequency, mode, and filter in a temporary memory for later retrieval.

Recall SP

This button retrieves the values of frequency, mode, and filter, last saved with the "Store SP" button.

STORE

STORE opens the Store Memory window and prompts you for station data. You can also add a PBT value to the saved memory. If you edit the memory window, you can add "PBT=" text to specify a PBT value to be set when the memory is recalled. For example, if you want a PBT value of 1000 hertz, anywhere in the "Notes" box add the following text:

PBT=1000

For a minus 1000 hertz PBT add the following:

PBT=-1000

Make sure not to have any spaces on either side of the "=". For the Omni VII in remote mode, the settings for FM CTCSS, mic gain, and TX EQ are also saved. These 3 settings are saved in the first line of the notes section of the memory. The saving of these 3 settings is controlled by the option in "Preferences4" called "Save FM CTCSS in Mem".

RECALL

RECALL brings up the Recall Memory window and allows you to select stations.

Scan

Clicking the "Scan" key will cause the stored memory file to be scanned one frequency at a time, beginning at the current entry. The time spent on each memory is called the dwell time. The dwell time is specified in the preferences window. It must be between 0.1 and 9.9 seconds. The default dwell time is 2 seconds. The dwell time is specified in tenths of a second so a value of 20 corresponds to 2 seconds. All the memories in the loaded memory file will be scanned. When it gets to the last entry, it will start over at the first memory of the file. You will most likely make special memory files to use this scan feature. You can stop the memory scan by clicking again on the "Scan" button. If you add the word "skip" in lower case anywhere in the "notes" section of a memory, the memory will be skipped during the scan function.

For the RX400, if the memory does not open the squelch, the memory

will be skipped and the program will go on to the next memory.

The memory scan will be stopped if you transmit while the scan is in progress. You can configure an automatic resume time. See the "Preferences4" section.

FAST, MED, SLOW

These buttons set the AGC speed.

Step Buttons

These buttons set the frequency step size according to their value. They are user definable in the "Steps" window of the "settings" menu. Left clicking these buttons changes the VFO A step size. Right clicking these buttons changes the VFO B step size.

Band Buttons

These buttons are band register buttons. They return you to the last frequency and mode you were using on the appropriate band section. The column labelled "CW" is for the normal "CW" section of that band. Clicking these buttons will return you to the last frequency and mode you were using when in this section of the band. The column labelled "SSB" will return you to the last frequency and mode you were using when in this section of the band. The "SWL" column will return you to the last frequency and mode you were using when in this band. The "GEN" band button is a general band register that gets used if the frequency is not in any other band.

Also, you can access the ham band buttons with the function keys. Shift F1 to Shift F9 corresponds to the 160 to 10 meter SSB band buttons and Ctrl F1 to Ctrl F9 corresponds to the 160 to 10 meter CW band buttons.

The "60" button under SSB, is a special button. In order to handle the unique requirements of this band, this button has a special click feature. Once you are on the band, you can toggle through the 5 band channels by left clicking to go down one channel or right clicking to go up one channel. New privileges now allow CW on the center frequency of each channel. If you set CW mode while on 60 meters, then left and right clicking the 60 meter band button will move you to each center frequency of each channel for CW.

ACC Inp

This button when clicked on, will change the transmit audio source to the accessory input. When clicked off, the transmit audio source will be the mike input. Note that the separate audio gain values are remembered for mike input and accessory input. Additionally, the power output setting for each input source is also remembered.

AMTN

The AMTN (AMP TUNE) button is to make tuning an amplifier easier. When you click the "AMTN" button, several steps happen automatically. They are

- 1) The current mode and frequency is save in the scratch pad memory.
- 2) The frequency is moved up 5 kHz.
- 3) CW mode is set.
- 4) A wide filter is selected.
- 5) The Step rate is set to 1 kHz.
- 6) The remote tuning knob is set to ALC to control power.
- 7) The radio power level is set to the previous saved value for this band and mode.

While the "AMP TN" button is "RED", you should first make sure the frequency is clear. If it is not, tune to a clear frequency with the mouse by clicking the radio panel knob. Once a clear frequency is found, key your rig with your PTT or CW key and tune your amplifier. Use the remote tuning knob to set the radio output power to correct drive level. When the AMP is tuned, click the "AMP TN" to exit this mode. The frequency, mode, and step will be restored to original values. The radio power output value will be saved and used anytime "AMP TN" is again clicked. This value is kept separate by band and mode. Try this function out. It is a real time saver. The more you use it, the more you will like it. There is also an option to use amptune to just tune your tuner and not key the amplifier. See "AMPTUNE DISABLE KEYING LOOP" below.

There is also a "pulse tune" method when using Amp Tune. This feature is enabled by setting "PTT Amp Tune Pulse" check box in the "preferences3" window of the "settings" menu. When "AmTn" is on, clicking the "PTT" button will cause a pulsing action to help tune an amplifier in a 50 percent duty cycle instead of 100 percent.

There is also an option in Preferences3 to have the power restored to what it was when before amp tune was turned on when amp tune is turned off. This is useful if you are using this feature to tune a tuner instead of an amplifier.

TUNE

The power when the "TUNE" button is clicked is remembered. When you click "TUNE", set the power to what you want the tune power to be with the TX slider. When you click "TUNE" off, the power will be restored to the previous value. The next time you click "TUNE", it will remember the tune power value and set it to this value. Try it, it may save your finals! This option may be overridden with the "No Tune Save" option described in the "Preferences3" section.

BOT

This button only appears on the "RX331 Only", "RX340 Only", "RX350 Only", "RX320 Only", "RX400 Only", and "Jupiter Logging Mode Only" configurations.

It's function is to simply move the frequency to the bottom of the current

band. It performs the same job as the "Band Bottom" value that can be defined for the remote tuning pod.

Poll

This button is only for the Argonaut V, the Jupiter when used in "Jupiter Logging Mode Only", and the Omni VII in front panel mode. When highlighted in blue, polling is running so that the frequency, mode, and filter are being polled from the radio so the program can follow actions done directly at the radio. With this button turned off, no polling action is performed. The advantage of turning polling off is button actions done from the program will run faster and never be missed.

ID

The ID button is to activate a 10 minute ID timer to assist in meeting the 10 minute FCC ID requirement. Clicking this button causes it to turn blue and start a 9 minute timer (The FCC requirement is 10 minutes, this gives you 1 minute to ID). When this timer expires, a sound is emitted and the button flashes between red and blue. The next time you transmit, the button goes back to blue. To turn the timer off, click the button again and it will go black, indicating the timer is now off.

There is an option in "Preferences3" called "Auto Cw ID". Setting this check box on, will cause the ID timer to send your callsign in CW each time the timer expires if you have transmitted during the 10 minute interval. The call will be sent at a fixed speed of 20 words per minute. You must be in either LSB or USB mode, split must be off, and the CW keyboard keyer must be off for this to work. If you are transmitting at the time the ID timer expires, it will wait until you are finished transmitting before sending out the call sign. While CW ID is running, if you change the TX power slider, this power setting will be remembered for all future CW ID transmissions. When the CW ID is finished, power is restored to what it was previously. The 10 minute ID and auto CW ID are not available on the Argonaut V.

If you right click the "ID" button and you are in SSB mode, it will send a CW ID immediately.

Xmit Disable

This key is used to enable and disable the transmitter. If the button red, the transmitter is disabled. This is useful for CW code practice or when leaving the station to prevent the transmitter from being accidentally keyed.

Call

This button brings up the call sign window. In order to use this feature, you must have the BuckMaster CDRom installed. Once you have installed the BuckMaster database on your hard drive, you can set the "HamCall Drive Letter or Path" in the "Preferences" window to "c:\ham0\" without the quotes. This will allow calls to be looked up without the BuckMaster CDRom in its drive.

Calibrate

This button is at the very top of the main radio window. This button allows automatic computation of the radio's frequency correction factor. It must be used in the following way:

- 1) Tune in WWV at 10 MHz.
- 2) Turn on ManMd.
- 3) Set a tune step size of 1 hertz.
- 4) Alternating between USB and LSB, tune in WWV so that it sounds the same between USB and LSB.
- 5) Once it is properly tuned, click the "Calibrate" button.

This will cause the display to change to 10.000.000 MHz and a new frequency correction factor will be saved. Please note that this function is not available for the Jupiter when in "Jupiter Logging Mode Only". Also, when this is used for the RX350, the frequency correction will cause a small difference in frequency to be displayed between the program displayed frequency and the RX350 displayed frequency.

For the RX340/RX331 operating in full transceive with a Pegasus or Jupiter, the calibrate button can also be used to perfectly match the Pegasus frequency displayed value to the RX340/RX331 value. This is a critical function to guarantee that the transmit frequency is exactly the same as the receive frequency when using the RX340/RX331 together with a Pegasus in full transceive operation. To match the two receivers:

- 1) Tune VFO A to a signal and then click A=B.
- 2) Now click "DUAL" receive on.
- 3) Now tune VFO A until the received signal sounds exactly the same pitch in both receivers. Use a 1 hertz tuning step.
- 4) Click "Calibrate" and answer the message box question with a "Yes".

Now the two receivers are exactly matched for that band segment. Note that this procedure must be repeated for each band segment you want perfect transceive transmit and receive frequency matching. By band segment, this means you have to do this procedure once for the SSB band segment for each band, and again for the CW band segment for each band.

In order for this procedure to operate, the two vfo's must be within one kHz of each other and you must be on a CW, SSB, or SWL band.

If you are on a user transverter and have defined a "Marker" frequency, this button can be used to have the program automatically compute a new crystal correction. See the "User transverters" section.

Speech

This button turns the speech processor and off and on. When the speech processor is turned on, you will see the word "Sp xxx", where xxx is the level of speech processing, near the main frequency. The level of speech processing is set with a slider in the SSB settings menu. It has a range of 0 to 100 with 0 being no processing and 100 being maximum processing.

For the Flex radios, this can also turn on the DX speech processor. The indicator will show "Sp" for the Phone speech processor, and "Dx" for the DX speech processor. The range for Flex radio is 0 to 10.

For the Yaesu FT-5000, this can also turn on the mic equalizer. The indicator will show "Sp" for the speech processor, and "Eq" for the mic equalizer.

TxLoop

This button allows the Tx Loop enable line for your amplifier to be controlled from the front panel. A "TXL" indicator comes on to tell you when TxLoop is enabled. This is to allow easy access to the TxLoop control for amplifiers that do not have a standby mode.

RxLoop

This button is only available for the Flex-5000. This button controls the RX loop setting for the radio and is remembered by band.

R Ant

This button selects the receive only antenna and is useful for selecting a beverage antenna. Its setting is remembered by band.

MIC SEL

This button is only available for the K3. It will toggle the MIC input selection between Rear Panel, Line, and Front Panel. The button will show "Mic Sel" at program startup. Each time you click the button it will jump to the next setting. These are shown on the button as follows:

"Mic RP" - Rear Panel
"Mic LI" - Line
"Mic FP" - Front Panel

S Main

This button is only available on the K3 with the sub-receiver. It toggles the K3's sub-receiver antenna between the main antenna and the sub-receiver AUX antenna input. The label on the button toggles between "S Main" and "S Aux".

Main Display Panel

The main display area contains information about A and B VFO's, tuning steps, AGC selection and Local/UTC time. The larger of the frequency displays is VFO-A; VFO-B the smaller. During key-down the Transmit VFO will change color.

Mode Selection

Select the mode for the current VFO using the mode buttons. To set the transmit mode in split mode select A/B, set the mode and press A/B again. In Simplex the current VFO's mode will be both the receive and transmit mode.

Transmit Meter Selection

This controls allows you to select the type of information displayed by the meter display during transmit mode. The display can be set to show Forward Power, Reflected Power, or SWR.

PTT

The PTT button provides manual PTT control. With Manual PTT control you can place the radio into transmit mode from the radio panel. This is equivalent to pushing the PTT control on a microphone connected to the front panel. This control is useful for operating digital modes, such as PSK-31.

If you turn off the option "PTT Toggle" then the PTT button will work as a momentary function. Left clicking on holding the mouse button down will cause transmit. Releasing the mouse button will cause receive.

Vox

Toggle VOX operation ON and OFF. The button text will change color whenever VOX is turned ON.

Mon

The Mon button allows you to hear your transmit audio. Use it when adjusting microphone or audio input levels. The Level control for the monitor is provided in the SETTINGS panel.

Mute

Used to temporarily silence the received audio.

Noise Blanker

For Yaesu radios, there is an "NB" slider to set the level of Noise Blanking. There is an "NB" button over the slider that turns noise blanking off or on. It is on when this button shows red.

For non-Yaesu radios, the noise blanker slider is shared with the squelch slider. Clicking the small label button on top of the slider toggles the slider function with squelch.

The noise blanker has values of 0 to 7. Value 0 turns off the noise blanker. Value 7 is for long pulse noises, value 1 for short pulse type noise. You should use the lowest value that gives you good results.

For the Elecraft K3, the NB slider controls the DSP noise blanker. The

IN slider controls the IF noise blanker. If you have the K3 sub-receiver, clicking on the "NB" above the NB slider will toggle it between "NB", "nb", and "SQ". For "NB", the slider controls the main receiver DSP noise blanker.

For little "nb", the slider controls the sub-receiver DSP noise blanker.

If you have the K3 sub-receiver, clicking on "IN" above the "IN" slider will toggle between "IN" and "in". For "IN" the slider controls the main receiver noise blanker. For "in", the slider controls the sub-receiver IF noise blanker.

For the Kenwood TS-590, there are two noise blanker sliders. They are "NB" and "NB2". You can set the level of each noise blanker between 0 and 10. If both noise blankers are on, only NB1 is used. To set NB2, you must set NB1 to zero.

For the ANAN radios, the slider is labelled "NB" and controls the spectral noise blanker (SNB). The SNB switches on above 30 and off below 30.

VA and VB Sliders

The VA slider (VA stands for "Volume for vfoA") controls the volume of the main receiver. If you have a second receiver attached as a sub-receiver such as an RX320, the VB slider controls the volume for the second receiver (VB stands for "Volume for vfoB") when DUAL receive is turned on. If you click the VB label above the slider, the VB will now be highlighted. This indicates the volumes for the 2 receivers are now locked together. With volume lock, moving the VA main volume will cause the VB slider to move with the VA slider at whatever volume difference existed when VB lock was turned on. With VB lock on, you can still move the VB slider to adjust the difference between the 2 receiver volumes.

TX Slider

The TX Slider allows you to set the power output. The power output value is shown under the slider. The TX label is actually a button. This button can change the range of the slider to better adjust small power levels. If you move the power below 33 watts, you can click this "TX" button and it will change to "tx" indicating you are in the low power range. Now the slide will go from 0 to 33 watts. You can click the button again to go back to 100 watt range and it will then go back to "TX". In order to go to the low range the power must first be below 33 watts.

Attn

The Attn button activates the RF attenuator inside the radio.

On the K3, this button toggles between Preamp on, Attenuator on, and both off. If the K3 has the sub-receiver and dual receive is on, right clicking this button will do the same thing for the sub-receiver. The black area above the main frequency display will show the sub-receiver preamp and attenuator status is either is on.

Filter Buttons

The radio panel provides 12 buttons for quick access to the most often used filters. Each of these 12 buttons can be programmed with your choice of filters. To see the filter options right-click on any filter. Any of the 34 filter choices may be assigned to any filter button.

If DUAL is turned on, then right clicking a filter button sets the filter for any defined sub-receiver.

Spot

Left clicking this key, if your radio has the feature, allows the CW spotting tone to be heard. This allows you to tune in a CW station by matching the CW spotting tone to the received station's tone.

Also, for the Pegasus and Jupiter in pegasus emulation mode, right clicking this button puts the receiver in a special CW/CWR flip flop mode. The receiver will swap between CW and CWR at half second intervals. During this time, if you tune the CW station until the tone does not change during the mode swaps, you will be tuned exactly to the station. The flip flop mode is indicated by the Spot button being highlighted. To stop the flip flop mode, either left or right click the spot button again.

Notch (Not Omni VII)

The automatic notch is implemented with a special digital algorithm in the DSP system. Left clicking the NOTCH button enables this function. There is no frequency adjustment for the automatic notch. It will seek out and null all constant carriers in the receiver passband. This notch works well for SSB mode but is not useful in CW as it tends to notch out the desired signal.

Notch (Omni VII remote mode only)

This button for the Omni VII is on the manual notch. For manual notch operation, the PBT drag window is used to change the manual notch center frequency and the "NW" slider is used to change the manual notch width. The PBT drag window is shared between PBT and manual notch. There is a little "P" or "N" that appears just to the right of the PBT window. If "P" is there, then the drag window controls PBT. If "N" is there, then the

PBT drag window is controlling the manual notch center frequency.

NW Slider (Omni VII remote mode only)

This slider is used to set the width of the manual notch. See "Notch (Omni VII remote mode only)" above.

NR Slider (Omni VII only)

This slider controls how much DSP noise reduction you want. A value of zero turns off NR completely.

NR Slider (Yaesu Radios)

This slider controls how much DSP noise reduction you want. Noise Reduction is turned off or on by clicking the "NR" button above the slider. It is on when the button shows red.

AN Slider (Omni VII only)

This slider controls the automatic notch. The higher settings make the automatic notch more aggressive. A value of zero turns off AN completely.

PrAmp (Omni VII remote mode only)

This button is used to turn the Omni VII preamp off and on.

Noise

The DSP noise reduction is activated by left clicking the noise button. This noise reduction system mathematically identifies desired signals and tracks them with a set of adaptive filters. Broadband noise is attenuated by as much as 15 dB depending upon conditions.

Special right click on "Split" key

Right clicking on the "split" key is used as an automatic FM repeater split function. A repeater offset is automatically set in VFO B and "split" is turned on when you right click on the "split" key and you are in an FM repeater band and in FM mode. The split offsets are calculated according to receive frequency as follows:

29.6 to 29.7 MHz	- Down 100 kHz	
53 to 54 MHz	- Down 1 MHz	
144.9 to 147 MHz	- Down 600 kHz	
147 to 148 MHz	- Up 600 kHz	
51.8 to 51.999 MHz	- Down 600 kHz	IARU Region 1 usage

Tuning Selections

When setting an "F" key on the remote pod to tuning selections, it will toggle between VFOA, VFOB, PBT, RIT, ALC, VOL, and RFG. VOL is for volume. Also, each key can be defined to expressly set one of the tuning knob functions. In addition to the functions that were already there you can directly define each function key to set the remote tuning knob to go to VFOA, VFOB, PBT, RIT, ALC, VOL, RFG,

or MGN (Mic Gain). This is done on the remote tuning pod configuration box.

You can also make one of the function keys be a "PTT" key by selecting the "PTT" entry. There also is a "SPOT" entry. When this is selected, that function key will turn on the CW spotting tone when pressed and turn it off when released. There is also a "RF Gain" entry.

When this is selected, the remote tuning knob will control the RF gain setting. Also, see the "Remote Pod Keyboard Definition" section.

There are sliders on the main control panel for Transmit Power (TX), and Keyer Speed (KS).

The keyer speed slider on the CW settings panel is a coarse adjustment.

It has a range of 40 wpm. The KS slider on the front panel is a fine adjustment. It has a range of 15 wpm. The intended use is for you to set the speed on the CW panel one time to set the general range you want.

When you do this, you should first set the front panel in the middle and then use the CW panel setting to get the middle of the range you want. You then use the KS slider on the front panel as a fine adjustment

of 15 wpm of the coarse range set from the CW panel. This allows the setting of keyer speed to not be touchy. In addition, if the keyer is enabled, the keyer speed is digitally displayed above the keyer slider on the front panel.

You can also change the keyer speed one word per minute at a time. If you left click the "KS" above the "KS" slider you will go down one word per minute. If you right click the "KS", you will go up one word per minute in keyer speed.

The upper of the two front panel offset drag control is for PBT. The tuning rate of both these drag control may be user configured. The lower of the two front panel offset drag controls is for RIT and XIT. This controls a single offset in hertz that may be applied to RIT or XIT depending on which is turned on. This is similar to the implementation of the offset function in the OMNI VI. This allows you while listening to a DX station, to tune in the station he is working with the RIT control, and then switch to XIT to actually work the DX station. Note that RIT and XIT only apply to VFO A.

Transmit Bandpass Low Frequency Cutoff

This parameter allows you to set the transmit low frequency cutoff for SSB operation. The parameter is on the SSB settings screen and is called "Low freq cutoff". It can be anywhere between 0 and 1000 hertz.

The default for this value is 200.

For example, if you are using a transmit filter of 2400 hertz and specify a low frequency cutoff of 200 hertz, your transmit passband will then be 200 hertz to 2600 hertz.

Frequency Slider Bar

The Frequency Slider displays a coarse view of the band. The displayed band width of the bar will depend on the selected tuning steps and the setting of "Variable Frequency Scale" in "Preferences3".

The radio can be tuned using the Slider. Click and hold the left mouse button on the Slider Bar display and drag left or right. The frequency display will show the change and the radio will follow. Double click within the Slider Bar display to jump to a new frequency.

S Meter

There is an automatic S meter adjustment for when the attenuator is on. This adjustment attempts to restore the S meter reading to the value when the attenuator was off. There is also an S meter compensation value that you can define to calibrate your S meter. See "S METER COMP" in the pegasus.ini section below.

Using the Spectrum Display

The Spectrum Display or Sweep Window provides the operator with the ability to quickly scan the radio bands and produce a visual representation of station activity. Several user-selectable settings are available to control the width of the sweep, sweep center frequency and display features.

Sweep Result Display

While the radio is sweeping through the selected frequency range the display will change to show each new point as it is processed. When the sweep is complete the radio will return to normal operation and the result window will keep the last data displayed until a new sweep is performed or the program is restarted.

The sweep result window provides several types of information. The left and right hand boundaries indicate the start and stop points for the sweep. The range is determined by the range setting. The vertical scale provides a relative comparison between different signals. The higher the point the bigger the signal.

Sweep Pulse Width

This box is used to select how many pixels wide each plotted sweep pulse is. Wide pulses yield a fast sweep time but low resolution. Narrow pulses yield high resolution but slow sweep times. The first selection is called "Default Pulse Width" and lets the program decide the width. This box has no effect if "High Resolution" is

checked since that size uses a fixed 1 pixel width size.

Sweep Center Frequency

The operator may choose to let the sweep center frequency be the same as the receiver tuned frequency with the TRACK_RECEIVER option or select MANUAL and enter the center frequency in the box provided. The MANUAL operation allows for the sweep of frequencies removed from where the radio is tuned. There is also an option called "Band Center". This option puts the center of the band you are currently tuned to in the center of the sweep window and automatically adjusts the width to match the band segment.

Sweep Range

The amount of spectrum covered in each sweep can be set using the Sweep Range control. The default range is 300 kHz.

Starting and Stopping a Sweep

Pressing the SWEEP button will begin the sweep acquisition of data for the sweep display. The process involves tuning the receiver to each frequency and getting a signal strength reading. The display is updated with each new point as it is gathered. To stop a sweep in progress press STOP at any time.

There is a selection for spectrum sweep called "MaxHold". When this is selected, and only signals that are stronger than what is already displayed at that location will be changed. This allows the presence of strong signals that come and go to remain on the sweep screen.

There is a selection for spectrum sweep called "Integrate". When this is selected, the sweep display is integrated over several passes with the formula:

$$\text{Displayed Value} = \text{Previous Value} - \text{Previous Value}/4 + \text{New Value}/4$$

Thanks to KH7T for this formula.

There is also a "High Resolution" check box on the spectrum sweep. Selecting it causes the sweep display to show a large increase in resolution. However, the sweep speed is significantly slowed down when this is on. You can decide between speed and resolution with this setting.

There is a "Wide Sweep" check box on the spectrum sweep. Selecting it causes the sweep display width to double. A program restart is required for the sweep panel to change size.

Main Window Title

The VFO A frequency is displayed on the main window title. This allows the frequency to be seen when the radio control panel window is minimized. This is very useful as it allows you to tune with the remote tuning knob and see

the frequency while minimized.

Local/UTC time Display

The local time and UTC are displayed in the lower right hand corner of the black display area to the right of the frequency. There is a Local/UTC time correction in the Preferences window of the settings menu. This is the amount of time in hours to be added to local time to get UTC. There is also a check box for local time to be displayed in 24 or 12 hour format. Some common time zone values for this Local/UTC correction are as follows:

ADT	+3
AST	+4
EDT	+4
EST	+5
CDT	+5
CST	+6
MDT	+6
MST	+7
PDT	+7
PST	+8

The program calculates local time by first getting GMT from the windows system time. It then subtracts the above hours to get local time. You must have your windows time zone set correctly for this to work properly.

There is also a check box that says "Automatic DST". When you turn this check box on, local time and UTC will be calculated automatically. With this setting on, the above time zone correction values are ignored by the program. For this to work properly, your Windows time zone must be defined properly. This setting has no effect if you have turned on the setting "PC Keeps time in UTC".

License Class

You can define your license class and have your transmit privileges displayed on the frequency scale. You define your license class in the "preferences" section of the settings menu. You can also decide to have your transmitter follow your license class with a check box in this same area. When you define your license class, the background of the frequency scale will be blue for CW and digital mode only operation, green for phone operation, and burgundy for operation not allowed.

When you select your license class, there are also 4 classes for foreign usage. These selections are for foreign countries that have different operating privileges than the U.S. It allows you to define your operating privileges via an ASCII file called "foreign.dat" for the first foreign entry, "foreign2.dat" for the second foreign entry, "foreign3.dat" for the third foreign entry, and "foreign4.dat" for the fourth foreign entry.

Each line of this file defines a band segment you are authorized to operate in. There are 3 entries in each line. The first entry should be either "cw" or "phone". If "cw" is specified, it means the band is restricted to CW or digital modes. If "phone" is specified, it means the band has no bandwidth restrictions. The second entry defines the starting frequency for the band segment in MHz. The third entry defines

the band segment end in MHz. There is a limit of 29 entries for the entire "foreign*.dat" files. The supplied "foreign*.dat" are an example of how one would define a file for a foreign country that had privileges identical to a U.S. general class license.

There are also pegasus.ini entries that allow you to set the names for the foreign*.dat files in the license class list box. These are called "FOREIGN LICENSE NAME", "FOREIGN LICENSE NAME 2", "FOREIGN LICENSE NAME 3", and "FOREIGN LICENSE NAME 4".

Additionally, there are also pegasus.ini entries that allow you to set the maximum power levels for each of the foreign license class entries. These are called "FOREIGN LICENSE POWER", "FOREIGN LICENSE POWER 2", "FOREIGN LICENSE POWER 3", and "FOREIGN LICENSE POWER 4".

There are also entries in the pegasus.ini file to control the point that the band button segments for the 160, 80, 40, 20, 15, and 10 meter bands switch from CW to SSB. There is also one entry to control the switchover point between 40 SSB and the 41 meter SWL band. These entries are as follows with defaults as shown:

```
160 meter line=1.840
80 meter line=3.750
40 meter line=7.150
4041 meter line=7.300
20 meter line=14.150
15 meter line=21.200
10 meter line=28.300
```

You can change these values to the appropriate value for your countries usage in these bands.

There is also a "SSBRTTY.DAT" file that can be used to define the frequencies you want RTTY or SSB mode selected automatically when doing direct frequency entry. This file can have up to 28 lines for RTTY and 28 lines for SSB. Each line for RTTY must start with "RTTY", and each line for SSB must start with "SSB". Follow the mode name with a comma, followed by the starting frequency in mhz, followed by the ending frequency for the mode in mhz. This file can be edited with notepad or any ASCII text editor. Examining the file will show the exact format. The USA SSB and CW band limits are built into the program. This file is used to override those values.

There is a scratch pad memory window. This window is toggled on and off using Alt-V. This window has a repeat of the Sto and Rcl buttons to manage the scratch pad memories and also shows you the frequency memory contents of each of the 3 scratch pad memories.

The Rcl 1 button first stores the frequency, mode, and filter in temporary scratch pad memory X and then retrieves the values of frequency, mode, and filter, last saved with the "Sto 1" button.

The Rcl 2 button first stores the frequency, mode, and filter in temporary scratch pad memory X and then retrieves the values of frequency, mode, and filter, last saved with the "Sto 2" button.

The Rcl 3 button first stores the frequency, mode, and filter in temporary scratch pad memory X and then retrieves the values of frequency, mode, and filter, last saved with the "Sto 3" button.

The Rcl X button retrieves the values of frequency, mode, and filter, last saved in scratch pad X when Rcl 1, Rcl 2, or Rcl 3 was clicked.

CW Keyboard Keyer

There is a CW keyboard keyer. It is turned on with the "Alt-K" key sequence. When the keyboard keyer is enabled, the letters "Cw Kb" will appear to the right of the frequency scale. Pressing "Alt-K" again will turn off the keyboard keyer. Some buttons may cause the keyboard focus to move from the main radio panel causing the keyboard keys to not send CW. When this happens, either click on the radio front panel with the mouse or do Alt-K twice to restore the keyboard focus. Using the CW Keyboard will force the radio internal keyer to be enabled.

If you accidentally press the "enter" key while using the CW keyboard, it will put you into "direct frequency entry" mode. Press the "Esc" key to get back to CW keyboard mode or key in a frequency and press "enter" again.

Please note that the Yaesu radios do not have a CW key line from software. The CW Keyboard is only supported for Yaesu if you use the K1EL keyer. See the next section below about the K1EL keyer.

The keyed characters will not be sent until a full word is typed. The space bar is necessary to define the end of a word. This allows words to be transmitted smoothly and also gives you an opportunity to correct a keying error before the word is transmitted. This full word feature can be turned off by unchecking the check box labelled "Transmit full words only" located in the "CW Keyboard" window.

The setting "Pop Out Window" when turned on allows the CW Keyboard window to go outside the main program window. This allows you to place it anywhere on the screen. However when this window is a pop out window, you will not be able to edit the CW memory text. In order

to edit this text, you will need to first turn off the pop out selection.

The F12 key will toggle the CW Keyboard buffer between pause and transmitting. This key will allow you to type ahead while you are receiving.

The speed and weight of the keyboard keyer are controlled with CW keyer speed and weight controls. Typing at the keyboard will cause the appropriate character to be transmitted in CW.

Special CW characters are as follows:

- BT is sent with the "=".
- SK is sent with the ">".
- AR is sent with the "+".
- KN is sent with the "(".
- AA is sent with the "<".
- KA is sent with the "%".

The "escape" key will immediately end sending and empty the CW internal keyboard buffer.

There are two CW weight controls. They are a "Dah Wght" and a "Dit Wght" control. The value of each weight setting appears as a number from 0.8 to 1.70 at the bottom of each weight slider. The length of a dah is computed as the length of a space times 3 times the dah weight setting.

The length of a dit is computed as the length of a space times the dit weight setting. The length of a space is fixed at the keyer speed setting. Theoretical perfect 3 to 1 spacing occurs at a dah weight setting of 1.00 and a dit weight setting of 1.00. These weight controls

are used on both the CW keyboard keyer and the internal paddle keyer.

Additionally, there is a slider marked "Btwn Char". This slider controls a weighting of the between character time. The normal between character time is multiplied by the value of this slider. The range is 0.5 to 4.0. This is used to either lengthen or shorten the time between sending characters. A value of 1.00 results in normal spacing for the selected speed. Obviously, this slider is only for the CW Keyboard Keyer and not for the paddle keyer.

For the Jupiter with firmware version 1.28 or later, there are two "Enable Keyer" boxes. One is to enable the keyer in curtis mode A and the other is to enable the keyer in curtis mode B. I believe curtis mode B is much more common and that is how the Jupiter was previously setup.

For Omni VII users in remote mode, the CW Rise/Fall setting is in the CW settings window.

There is a CW Keyboard window for showing the contents of the CW keyboard buffer. This window is visible when the CW Keyboard is turned on. It may be hidden by clicking the "X" in the upper right hand corner of the

window. You can make the window visible again by doing Alt-K twice.
The keyboard buffer is 500 characters long.

There are 5 memories that can be used with the keyboard keyer. The memories are loaded with the edit boxes in the "CW Keyboard" window. The memories are transmitted by pressing F1 for memory 1, F2 for memory 2, F3 for memory 3, F4 for memory 4, and F5 for memory 5.

There are also 5 mouse buttons at the bottom of the radio panel labelled "M1" to "M5" to transmit the memories. There are also 5 CW Memory Tag edit boxes. These edit boxes, located in the "RTTY KB Settings" window, will change the labels on the M1 through M5 memory buttons. You can use these tags to help remember what is in each memory. They are limited to 3 characters. You can kill a memory that is playing by right clicking on any of the 5 memory buttons.

The special character "#" followed by a number from 1 to 5 can be placed in a memory to cause the contents of the memory number to be sent in place of the "#" character. This is useful to increase the size of a memory for a longer message.

The special character " (double quote) can be placed at the beginning of a memory to send a file instead of the text in the memory. When you start a memory with a " (double quote), you directly follow the " with the name of the file you want to send text from. The internal CW keyboard buffer is limited to 511 characters so the file cannot be larger than 511 characters. You can never be more than 511 characters ahead of what is being transmitted. The file must be built with an ascii text editor such as notepad. If you build the file with notepad, the actual name of the file will have a ".txt" added to it. The basic name itself must be 8 characters or less and not have spaces or special characters in it. The file must be located in the c:\n4py folder or wherever you have the program installed.

The special character "%" followed by a number from 1 to 9 can be placed at the end of a memory to cause a delayed repeat of the memory. The number 1 to 9 is the delay in seconds before the memory is resent. When the repeat function is active, a capital "R" will show in the keyboard display buffer. The repeat function is cancelled when any new character is added to the keyboard buffer or a new memory is selected with the F keys.

K1EL Keyer

The program has full support for the K1EL Winkey keyer version 4 or later.

Information on getting this keyer can be found at www.k1el.com. There is a check box in the CW settings window labelled "K1EL Keyer".
Checking

this box causes all the CW setting controls to change to the K1EL settings controls. Using this keyer allows the keying to be much smoother, especially for Windows XP, NT, and 2000. The controls are as follows:

Additionally, if you are using the Winkey 2 keyer, the 4 buttons on top of the keyer will can be defined to be any function key on the computer keyboard. See section on modifying the Pegasus.ini file for details on how to do this.

"Key Spd" -

This slider sets the minimum range for the K1EL speed pot. The speed pot low end is set to this value and the high end is set to this value plus 15. Thus the range of the speed pot is always 15 wpm. Note that the actual keying speed of the K1EL is always set with the speed pot on the keyer itself. The "KS" slider on the program front panel will show the current speed but the "KS" slider cannot be used to change the K1EL keyer speed. If you do not have a speed pot on your keyer, check the "No Speed Pot" box and the KS slider will control the keyer speed.

"Wgt" -

This slider controls the keyer weighting. A value of 50 is no weighting.

"Ptt Lead" -

This slider controls the lead time the PTT line is energized before keying begins. The values are in 10 millisecond increments. This is useful to control an amplifier to ensure the amplifier relay comes up before RF is applied. The range is 0 to 38.

"Ptt Tail" -

This slider controls how long PTT stays energized after keying stops. The value is in 10 millisecond increments. The range is 0 to 38.

"1ST Ele" -

This slider controls how much time is added to the first CW element. The value is in 1 millisecond increments. The range is 0 to 38.

"Key Comp" -

This slider controls the amount of keying compensation applied to all keying elements. It is in milliseconds and adds a fixed amount of milliseconds to all character elements.

"Dit Dah" -

This slider controls the dit/dah ratio and allows you to change it from the standard 1:3 ratio. A value of 50 corresponds to the normal 1:3 ratio. The range of the control is 33 to 66, with 33 being a 1:2 ratio and 66 being a 1:4 ratio.

"AutoSpace" -

This check box enables or disables the keyer's autospace function.

"CT Spacing" -

This check box enables or disables the keyer's contest spacing option.

"No Speed Pot" -

Turn this check box on if you do not have or do not wish to use the speed pot on your WinKey keyer.

"Reverse Paddle" -

This check box allows you to use a paddle with the dit and dah connections reversed.

"Iambic B" -

This list box selects between Iambic B, Iambic A, Ultimatic, and Bug operation.

"COM setting box" -

This box allows you to define the correct comport the K1EL keyer is connected to.

Consult the K1EL manual for more explanation of these controls. If you have the CW Keyboard turned on, you will get character echos from the paddle in the CW Keyboard window. This will show you what you the last 20 characters you have sent with the paddles.

There is an interesting use for this keyer if you are running the Omni VII remotely via ethernet. You can use this keyer and turn on the program's CW keyboard window. When you send characters with the keyer, the program will capture these characters and send them to the Omni VII. You must have a sidetone installed directly on the K1EL winkey keyer to allow you to key with paddles for this to work. You may have to turn off the K1EL keyer setting and one time turn on the Omni VII keyer in Mode A or Mode B and then go back and turn on the K1EL keyer option before this will work.

There is a feature where you can save all the paddle echos for the keyer to a file. In pegasus.ini, find the line

CW FILE NAME=

and put in a file name. Then all the paddle characters that K1EL sends back will be saved to the file. You can clear out the file with the check box "Clear File" in the CW Keyboard window.

Kenwood, Yaesu, and K3 Voice Recorder

If you have a Kenwood TS-870, TS-570, TS-480, TS-2000, Elecraft K3, or Yaesu radio and have purchased the optional voice memory unit, the program can control this device. If you are in SSB, AM, or FM mode then

pressing Alt-K toggles the Voice Recorder window on or off. This window

allows recording and playback of the voice memories in the radio.

Clicking a "Play Back" button will start a memory. Clicking the button

again while the memory is playing will stop it. During playback, VOX

is

automatically turned on to allow the memory to transmit (not needed on the K3 and Yaesu). To record a memory, click "Record Mem" for the memory you wish to record and speak into the mic. When you are finished, click "Record Mem" again to stop the recording.

In between the "Play Back" and "Record Mem" buttons is a little edit box that allows you to put a label on the memory so you can remember what you have loaded in each voice memory.

Also, the colors setting window allows you to set the Voice Recorder window background color to whatever you want. The box for this is labelled "VR Bkgnd".

Additionally on the K3, you can right click the "play back" buttons to cause a memory to auto repeat. And on the K3, transmit audio monitor is turned on during memory playback. The transmit audio monitor level can be adjusted in the SSB settings window.

Using direct entry from the keyboard

Keyboard frequency entry is always active while on the main radio panel unless the CW keyboard is active. If the CW keyboard is active, you should first press the "enter" key to get into direct frequency mode.

Entry works by simply typing in the frequency. You may also click inside the frequency display to edit the frequency as in a normal text box. If you enter a frequency that is above 1000, the program assumes you have entered the frequency in kHz. If the value is below 1000, the program assumes you have entered the frequency in MHz. If you begin the entry with a ".", the program assumes you are only entering the kHz portion of the current MHz you are tuned to. To enter a frequency below 1 MHz, start the entry with a "0" followed by the "." and then the kHz value. To enter 680 kHz, key in "0.680".

Remote Pod Keyboard Definition

All the keys on the remote pod are programmable. There are four entries in the settings window to define the keys. The entry "Remote Pod Fkey" is used to define the three function keys. The entry "Remote Pod 789" is used to define the 7, 8, and 9 keys. The entry "Remote Pod 456" is used to define the 4, 5, and 6 keys. The entry "Remote Pod 123" is used to define the 1, 2, and 3 keys. The entry "Remote Pod P0" is used to define the period key and 0 key.

Most of the values you can select are self-explanatory. An entry labelled "5" would be for the "5 key" to define it just for direct frequency entry. An entry labelled "up 5" would be for the "5 key" to define it to turn on

split and make VFO B be up 5 from VFO A. The entry marked "Band Bottom" takes you to the bottom of the band.

The entry labelled "AccInp Xmit" is a special one for slow-scan TV users. Clicking this button will cause the mike input to switch to accessory input, the radio to go into transmit mode, and the monitor audio to come on. Clicking this again, will switch AccInp back to mike input, turn off transmit, and turn off monitor audio. This is extremely useful during slow scan TV sessions when you are changing from sending pictures to SSB to describe them. Also, when in this mode, the main program title adds additional text to note you are transmitting.

If you have the pod in RIT tune mode and RIT is on, if you press the pod RIT button again, it will set the RIT value to zero.

If you have the pod in PBT tune mode and PBT is on, if you press the pod PBT button again, it will set the PBT value to zero.

The entry marked "Up Numeric" causes that key to set "up numeric mode".

When you follow this key with a numeric key it sets VFO B equal to VFO A plus the numeric value of the key and then turns on "split". Note that the zero key causes you to go up 10. This allows you have a "quick split" ability of 1 to 10 kHz without having to use all your numeric key definitions for this feature.

The nice part of all this is you do NOT lose direct frequency entry from the remote pod when you define the numeric keys for other things. All you have to do is press the "E" key first, and the pod is then put into numeric mode for direct frequency entry.

I leave it up to the creativity of the user to come up with a really nice remote pod key definition.

Note that this ability now makes the "DX SPLIT" option obsolete as that function can now readily be defined this way.

The "Remote Pod Fkey" window also has two entries to control the knob sensitivity for frequency tuning. They are:

"Tuning Knob Desense Factor" - This controls how much the tuning knob pulses are divided by to desensitize the tuning.

"Tuning Knob Desense Step Threshold" - This controls the minimum step size that the desense factor comes into play. I set this at 500 and use a desense factor of 10. The end effect is when I set my step size to 500 or greater, the knob pulses are divided by 10. This results in much easier tuning when using large steps.

"Pod Knob keys are Toggles" - With this check box turned on, all the pod knob functions are toggles. For example, if you press and hold a key defined for RIT, then while holding the RIT button, the pod knob will move RIT. Once the key is released, the pod knob will always return to VFO A control.

There are over 25 pod functions that can be assigned to keyboard keys. You can get pod functions from the keyboard without having a griffin knob or TenTec remote pod. The pod functions for numeric 6 to 9 can be done with F6 to F9 on the keyboard. The pod function for the zero key can be done with F10. The pod function for F1 can be done with F11. You can also use the numeric 1 to 5 for pod functions 1 to 5

if the CW keyboard is turned off and you have defined that you have a griffin powermate. Additionally, if the CW keyboard is off, F1 to F5 will operate as pod functions for 1 to 5. Also, if the CW keyboard is turned on and the memory for the F key is empty, then the F key will work as a pod key. Please note the F keys only work as pod keys when the griffin powermate option is selected.

Main Tuning Knob Configuration

Selection of this option is done in the "Preferences2" window of the "settings" menu. When this option is checked on (the default), the standard graphic tuning knob is displayed and used for frequency changing. Anytime this option is changed, the program must be exited and then started again for the new option setting to become active.

When this option is set unchecked, eight buttons appear where the tuning knob used to be located. These buttons are as follows:

VFO A - Left clicking this button will cause the main VFO A frequency to go down by one step amount. Right clicking this button will cause the main VFO A frequency to go up one step amount.

VFO B - Left clicking this button will cause the alternate VFO B frequency to go down by one step amount. Right clicking this button will cause the alternate VFO B frequency to go up one step amount.

FAST A - Left clicking this button will cause the main VFO A frequency to go down by one step amount times the "Fast Tuning Mult". Right clicking this button will cause the main VFO A frequency to go up by one step amount times the "Fast Tuning Mult" amount. See "Fast Tuning Mult" below.

FAST B - Left clicking this button will cause the alternate VFO B frequency to go down by one step amount times the "Fast Tuning Mult". Right clicking this button will cause the alternate VFO B frequency to go up by one step amount times the "Fast Tuning Mult" amount. See "Fast Tuning Mult" below.

FILTER A - Left clicking this button will cause the main VFO A filter to go to the next wider filter. Right clicking this button will cause the main VFO A filter to go to the next narrower filter.

FILTER B - Left clicking this button will cause the alternate VFO B filter to go to the next wider filter. Right clicking this button will cause the alternate VFO B filter to go to the next narrower filter.

The VFO B filter setting is displayed in the black area just to the right of the S meter. Here, there are three green indicators to show VFO B mode at the top, then VFO B filter just below mode, and finally VFO B step just below filter.

LO CUT - Left clicking this button will cause the next wider filter to be selected and move the pass band tuning to keep the high frequency cutoff constant causing the low frequency cutoff to move down by the change in filter bandwidth. Right clicking this button has exactly the opposite effect. The next narrower filter is selected and the passband tuning is moved to keep the high frequency cutoff constant causing the low frequency cutoff up by the change in filter bandwidth.

This button is useful when QRM appears on the low side of the passband. It allows the low side of the passband to be tuned while keeping the high side of the passband constant. This button is only active in SSB mode.

HI CUT - Left clicking this button will cause the next narrower filter to be selected causing the high frequency cutoff to move down by the change in filter bandwidth and leaving the low frequency cutoff fixed (the default low frequency cutoff with PBT off is 200 hertz). Right clicking this button has exactly the opposite effect. The next wider filter is selected causing the high frequency cutoff to move up by the change in filter bandwidth. This button is useful when QRM appears on the high side of the passband. It allows the high side of the passband to be tuned while keeping the low side of the passband constant. This button is only active in SSB mode.

The value of the "Fast Tuning Mult" can be set using the "Fast Tuning Mult" edit box in the "Preferences2" window of the "settings menu". This value controls the amount of step multiplication used when the "FAST A" and "FAST B" buttons are used. The default value is 10. If the step being used is 50 hertz and this has a value of 10, then when the "FAST A" and "FAST B" buttons are used, the step would become 500 hertz. This controls how much tuning speed up is invoked when using these buttons.

Default Filter Definition for Each Mode

The default filter positions for each mode are defined with numbers from 1 to 12. Number 1 refers to the top left filter button, number 2 refers to the top center button, and so on to number 12 for the bottom right filter button. These default filter positions are defined in the "Preferences2" window of the "settings" menu.

pegasus.ini file add the following to define the default filter buttons for each mode:

Default AM Filter Position	2
Default CW Filter Position	12
Default SSB Filter Position	8
Default RTTY Filter Position	11
Default RTTY2 Filter Position	10

This example would make the AM default filter the top center button, the CW default filter the bottom right button, the SSB default filter the third row center button, the RTTY default filter the bottom center, and the RTTY2 default filter the bottom left button.

Default AGC Setting for Each Mode

The default AGC setting for each mode can be defined in the "Preferences2" window of the "settings" menu. The entry labelled "Do Not Use Auto AGC" simply means to not change the AGC setting when going to that mode.

Preferences3 Menu Window

The second decimal point in the displayed frequency can be removed. This is useful if you are doing a lot of cut and paste operations. Use the "Remove Extra Decimal" check box.

Turning on the "Passive Mode" setting will stop the program from remembering and changing the power and all other band settings as you change bands. This is useful when the radio itself remembers settings by band and you don't want the program to override this. This setting being on has been expanded to make the program run completely passively. The program will not send power, filter, or any other values.

Setting the "No Tune Save" check box will cause the tune power to always be whatever the ALC power slider is set to. Setting it unchecked will cause it to remember the value last set while tune was in progress.

The "Left-Right Tuning Knob" check box allows the selection of the tuning method for the main tuning knob. With the check box unchecked, the left mouse button tunes up or down depending on where you are on the knob. With the check box checked, the left mouse button tunes down and the right mouse button tunes up.

When the "Variable Frequency Scale" check box is checked, the analog frequency scale will vary with the step size. For steps less than 100 hertz, the scale is multiplied by 100. For steps between 100 and 1000 hertz, the scale is multiplied by 10. For steps above 1000 hertz, the scale is unchanged. This scale change is primarily for people that do not have the remote tuning pod to aid in dragging the frequency. With this option unchecked, the analog frequency scale

is fixed.

For the K3, if you have the new synthesizer installed and want to allow PREAMP2 to be used on the main receiver above 24 mhz, turn on "Allow K3 Main Preamp2". If you also have the new synthesizer board installed in the sub-receiver and want to allow PREAMP2 to be used on the sub receiver above 24 mhz, turn on "Allow K3 Sub Preamp2".

The "PTT Amp Tune Pulse" check box causes a "pulse tune" method when using Amp Tune. When "AmTn" is on, clicking the "PTT" button will cause a pulsing action to help tune an amplifier in a 50 percent duty cycle instead of 100 percent.

Turning off "Allow Direct Frequency Entry" will stop allowing direct entry of a frequency. This is useful when running a logging program and you accidentally have the focus on Pegasus Plus instead of the logging program. With the box unchecked, you can still enter a frequency by first clicking on the frequency box. Normally you would have this setting turned on.

The "PTT Toggle" check box allows operation of the PTT functions from the PTT mouse button, space bar, and remote pod PTT button in 2 different ways. With PTT Toggle on, clicking the PTT button, pressing the space bar, or pressing the remote pod PTT button causes transmit. Transmit remains until this button is clicked or pressed again. With PTT Toggle off, these buttons operate as momentary functions. The PTT mouse button will cause transmit as long as the button is clicked, and transmit ends will the button is released. The space bar and remote pod PTT button when pressed will cause transmit and transmit will end when the key is released.

The "Use Tool Tips" will show tips on buttons as you hover over them with the mouse. This check box can be used to turn this feature off or on.

The "Use Space for PTT" check box allows the space bar to be used as a PTT button. The action of the space bar depends on the settings of "PTT Toggle" above.

Setting the "Manual MIC AccInp" check box stops automatic changing between MIC input and acc input when changing between RTTY and other modes.

Setting the "Mute Speaker Only" check box causes mute to only mute the speaker and not mute "line out".

For the Flex-5000, the "Receive Antenna Selection" selects the antenna that is used for receive when the "R Ant" button is turned on. The receive antenna button setting is remembered by band.

For the Flex-6000 and 8000 series, the "Auto Transmit Slice VFO A" option is a special option. When this option is turned on, VFO A in Pegasus Plus will be automatically set to the transmit slice. This is very useful when you have third party program attached to Pegasus Plus and you want them to always follow the transmit frequency. This option should only be done when

Pegasus Plus runs passively to control other devices based on the transmit slice. This option is incompatible with the "Split" button and

disables
split mode.

For the Flex-6000 and 8000 series, the "New Slice to VFO A" option is a special option. When this option is turned on, when a new slice is created on a different panadapter, that new slice will become slice A and the old slice A will be removed. This is very useful in a contest when you see a new signal on another band and want to immediately jump to it and have your logging program follow it. This option is incompatible with allowing the program VFO A to follow a slice other than slice A and the program VFO B to follow a slice other than slice B.

Setting the "PC keeps time in UTC" check box assumes time on your PC is kept in UTC time. Unchecking this box assumes time in your PC is kept in local time. This value is used in displaying local and UTC time in the radio panel.

Setting "Round off Freq by Step size" causes the frequency to be set to a multiple of the step size when the step size changes.

When the "Use Line Out for Speaker" is checked, the speaker in the radio is always muted. The volume control becomes a line out setting. This is for people who use their sound card in their PC as their speaker and don't want to hear anything from the radio speaker. When this check box is changed, a program restart is required for this change to take effect.

If you have a Kenwood TS-570S, TS-570D, TS-870S, TS-480, or TS-2000, you can have the program turn the radio on at program start and turn the radio off at program exit. To enable this feature, check the check box labelled "Power On/Off at start/exit". This feature will also work on the Elecraft K3 but it can only be used to turn power off at exit. For the Flex radios, this setting will start and stop PowerSDR at program start and exit.

The setting "Adjust CW-SSB Freq" controls whether or not to adjust the frequency by the CW offset when changing between CW and SSB using the mode buttons. This is very useful in an SSB QSO where one of the operators needs to switch to CW mode.

When the "Ten-Tec File Interface" is checked, logging program that use the Ten-Tec file interface will be able to control the radio. This is the default and this should normally be set on. When this box is off, the N4PY file interface will be used. There are not many programs that use the N4PY file interface.

When the "Using Touch Screen" is checked, the buttons that require a left and right click such as "VFO A", "VFO B", "FAST A", and "FAST B",

will be split in the center. On a touch screen you cannot quickly right click, so when you want to right click, instead you press the right side of a split button. Please note that when turning this setting on, a program exit and restart is required so the screen can be redrawn.

The "Auto Memory File Entry Select" check box, when on, causes an entry in the memory file that corresponds to the current tuned frequency to be automatically selected. This automatic selection only occurs if the memory file has been sorted by frequency. With this check box off, this selection does not occur. The reason for setting this off is a performance reason. Under some circumstances, this automatic selection can slow down tuning of the radio.

The option "Frequency Event Timer" is explained in the "Frequency Event Timer" section.

The "Cross Band Split" check box when unchecked will stop split from being turned on when VFO B is not on the same band as VFO A. When checked cross band split operation is allowed.

There are scale factors for the main radio window to control its size. For horizontal scaling use the SCALE X edit box. It is a multiplier for the horizontal scale.

For vertical scaling use the SCALE Y edit box. It is a multiplier for the vertical scale.

The scale factors are used as multipliers of all coordinates in the program. With these values set to 1, the size of the main radio window will be unchanged. To make the window twice as large in both axis use a value of 2.0 for each scale factor. You must exit and restart the program for the change to take effect. You can also make the fonts in the buttons larger in the "Colors" settings window.

There are also scale factors for the settings window to control its size. For horizontal scaling use the Settings Scale X edit box. It is a multiplier for the horizontal scale.

For vertical scaling use the Settings Scale Y edit box. It is a multiplier for the vertical scale.

The setting "Use Amp Tune Pwr on Band Change" is useful for amplifiers.

If you set the amp tune level for each program band button to match your amplifier drive level, this feature will guarantee you will not overdrive your amplifier. Anytime you change bands, the amp tune drive level will be set automatically.

The "PBT Drag Scale" and "RIT Drag Scale" are used for setting the fine tuning rate of RIT/XIT and PBT. You can set the fine tuning rates to 1, 2, 4, 8, 16, or 32. Changes to these values do not go into effect until the program is restarted.

The "Transfer Folder" box is used to set the folder for the Ten-Tec file interface. It is only valid with "Ten-Tec File Interface=1". Some logging programs using the Ten-Tec file interface are not configurable for the location of "pegasus.out" and "pegasus.in". This parameter allows you to specify the folder for these files.

Setting TRANSFER FOLDER C:\PEGASUS

would cause the location of the "pegasus.out" and "pegasus.in" files to be in the "c:\pegasus" folder. The default for this parameter is the folder the N4PY control program runs in. The default is in effect if the window shows all blanks.

The "High Speed tuning Factor" box causes the tuning rate when the tuning knob is turned at a high rate to be multiplied by this factor's amount. Legal values for this factor are 1 to 10. Use the value of 1 to disable this feature. The Sensitivity box next to this box controls the sensitivity of switching to high speed tuning. A value of 1 makes high speed very easy to trigger. A value of 10 makes high speed almost impossible to trigger. A value somewhere

between 2 to 5 should make this work nice. Once in high speed tuning mode, the pod will stay there until the pod stops turning for 0.3 second.

The "S Meter Compensation" box is an S meter compensation value that you can select to adjust the calibration of your S meter. This value is expressed in + or - dB. Remember each S unit is 6 dB. For example, to make your S meter always read 12 dB lower (2 S units), you

would set the value as follows:

S Meter Compensation -12

To make your S meter always read 12 dB higher (2 S units), you would set the value as follows:

S Meter Compensation 12

If the "RED Frequency Display on Transmit" check box is on, when transmitting the frequency is displayed in RED. If this box is set off, the frequency is always displayed in yellow. If split is on, the VFO B

frequency box will always display the transmit frequency in red as a reminder that split frequency operation is being used.

If the "S Meter Display Only" check box is on, the S meter display will not change when transmitting.

For the Omni VII, the setting "Save FM CTCSS" being on will cause the FM CTCSS, TXEQ, and Mic gain, to be saved in a memory for later recall.

The "Low AM Power" check box is used when you cannot get enough AM power on the higher frequencies. Set this check box on to get additional AM power if you cannot get 25 watts.

The option "AMPTune Disable Keying Loop" is for people that use the amptune feature not to tune their amplifier, but instead to set their antenna tuner. With this option checked on, your amplifier will NOT be keyed when amptune is on and you transmit.

The radio "Sweep Delay" setting may be configured. Because the AGC in the radio receiver is not extremely fast even in fast mode, a delay needs to be added when the sweep is running to allow time for the AGC to react to the new frequency as the frequency is swept. The normal value for this parameter is 10 millisecond. You can experiment with increased delays for more sweep resolution. Valid values are 0 to 500. For the Omni VII, you can set this to 0, but do not use 0 for other radios.

The box "2nd Receiver Frequency Correction" is a frequency correction factor to account for errors in the displayed frequency when a secondary receiver is used with the radio. This correction factor can apply to a direct connected Rx320, or secondary Pegasus or Jupiter.

This factor must be the error in hertz at 10 MHz. This value can be expressed as + or -.

The box "Scan resume after transmit time" allows you to configure a scan automatic resume time. If the scan was stopped because the transmitter came on, this value controls how long transmit has to be off before scan comes back on again. A zero value means no automatic scan resume is used. The value of the resume time is in seconds. If you run Sweep in continuous mode, this timer will also cause sweep to resume after clicking on a signal.

Frequency Scan Window (not Omni VII) FrScan, Options Window (Omni VII)

Selecting this window will show the frequency scan controls. The scan will start at the "Frequency Start" setting. When the radio reaches the "Frequency Stop" setting, it will loop back to the "Frequency Start"

setting. The "Frequency Increment" controls how much is added to the scan frequency for each dwell time. The "Dwell Time" setting controls how long the radio remains on each frequency. To start the scan, "click" the "Start Frequency Scan" button. To stop the scan, "click" the "Stop Frequency Scan" button. The scan will not start

if a memory scan or spectrum sweep is in progress. The scan will be stopped if the radio goes into transmit mode.

You can control the direction of the scan. If the start frequency is less

than the stop frequency, the scan will go up in frequency. If the start

frequency is greater than the stop frequency, the scan will go down in frequency. This cannot be done on the RX400.

The RX400 has special frequency scanning options.

Pause Frequency Scan - This pauses the frequency scan and allows scan resumption.

Restart Frequency Scan - This allows you to restart a paused scan.

Dead Time - Dead time refers to the time the radio will remain on a channel after activity has ended. The factory default for the RX400 is 8 seconds. If the DWELL TIME setting is less than the DEAD TIME setting, the radio will resume scanning when the DWELL TIME timer runs out. If the DWELL TIME setting exceeds the DEAD TIME setting, scanning will resume when the DEAD TIME timer runs out. The edit box value is in seconds.

Gaze Time - Gaze time is the time the radio will spend waiting for activity on each new channel or frequency. The factory setting is for the RX400 is 50 milliseconds. The value in the edit box is in seconds. If you enter 0, you will get 50 milliseconds. This time can be adjusted to control the rate of scan.

Additionally, if you are using the Omni VII in remote mode, there are some Omni VII configuration controls in this window. They are:

"Enable IF 300 Filter" - turn this on if the have the 300 hertz Collins mechanical filter installed.

"Enable IF 500 Filter" - turn this on if the have the 500 hertz Collins mechanical filter installed.

"Master Reset" - This button is only available in ethernet mode. It will completely reset the Omni VII. Once the Omni VII completes its reset, which takes several seconds, the program must be exited and restarted to synchronise itself back with the Omni VII.

"IF Filter Selection" - This drop down window allows you to specify the IF filter you want. Setting it to "Auto" lets the Omni VII select the appropriate filter that best matches the DSP filter selected.

"RX Equalizer" - This drop down window allows you to specify how much receiver equalization you want. See the Omni VII owner's manual for a full explanation of these values and what they mean. A value of "Flat" means 0 DB and no equalization.

"TX Equalizer" - This drop down window allows you to specify how much transmit equalization you want. See the Omni VII owner's manual for a full explanation of these values and what they mean. A value of "Flat" means 0 DB and no equalization.

Colors Window

In order to help out hams with sight difficulties, the color of the button text can be configured. There are three settings to control the text colors of the buttons. Additionally, you can also

define the color for local time display and UTC time display. There are 8 standard colors that can be selected. They are BLACK, WHITE, RED, GREEN, BLUE, YELLOW, PURPLE, and CYAN. There are also 6 low intensity colors. They are LO RED, LO GREEN, LO BLUE, LO YELLOW, LO PURPLE, and LO CYAN. Additionally, there are also 2 user definable colors that can be selected with the names COLOR1 and COLOR2.

Local Time

This entry sets the color of the text for the display of local time.

UTC Time

This entry sets the color of the text for the display of UTC time.

Button Text

This entry sets the color of the text for all non-selected buttons.

Button Sel Text

This entry sets the color of the text for all selected buttons.

Special Button Sel Text

This entry sets the color of the selected text for the five special buttons LOCK, TUNE, DUAL, AMPTN, and SPLIT.

CW Bkgnd

This entry sets the color of the background for the CW keyboard window.

Settings Bkgnd

This entry sets the color of the background for the settings window.

Radio Bkgnd

This entry sets the color of the background for the radio panel window.

Radio Small Font (default 14)

Radio Micro Font (default 12)

These are font sizes for the radio panel window buttons. You can change these values for font sizing to go with the scale factors. Experiment with making these numbers a little larger depending on your SCALEX and SCALEY size.

Settings Small Font (default 14)

Settings Micro Font (default 12)

These are font sizes for the settings panel window buttons. You can change these values for font sizing to go with the scale factors. Experiment with making these numbers a little larger depending on your Settings ScaleX and Settings ScaleY size.

Memory Window Font (default 16)

This font is the size of the text in the memory window.

VR Bkgnd

This entry is only available for the Kenwood TS-570, TS-870, TS-480, and TS-2000. It allows you to set the background color for the Voice Recorder window.

CW Text

This entry sets the color of the text for the CW keyboard window.

To define the user color called COLOR1, three settings are used to specify the amount of red, green, and blue to make up the color. The range for the amount of each color is 0 to 255.

Color1 Red

This entry controls the amount of red in the Color1 color.

Color1 Green

This entry controls the amount of green in the Color1 color.

Color1 Blue

This entry controls the amount of blue in the Color1 color.

To define the user color called COLOR2, three settings are used to specify the amount of red, green, and blue to make up the color. The range for the amount of each color is 0 to 255.

Color2 Red

This entry controls the amount of red in the Color2 color.

Color2 Green

This entry controls the amount of green in the Color2 color.

Color2 Blue

This entry controls the amount of blue in the Color2 color.

Center Bkgnd

This entry controls the button background color of the center area buttons. If you don't want this area to have a different background color, select "White".

Left Right Bkgnd

This entry controls the button background color of the left and right area buttons. If you don't want this area to have a different background color, select "White".

SWL Band Assign Window

This window allows the 11 SWL band buttons to be defined to any frequency range you like. If you do not use the SWL bands and prefer to make these buttons be RTTY buttons or if you just want to make these buttons be any band you desire, you can do it here. The first column is labelled "Caption". The 11 edit boxes in this column allow you to name the button text for the SWL band buttons. The second column labelled "Lower Limit", allows you to set the lower frequency limit for the band you are defining. The third column labelled "Upper Limit", allows you to set the upper frequency limit for the band you are defining. Be careful when you set up your band ranges not to have any bands overlap. The first time you go to the new band you have defined, you should set the mode you desire for this band. The button will now remember the frequency, mode, and filter when you return to this band.

You can change the column name for the SWL band buttons. This is the box at the bottom labelled "Column Name" in the "SWL Band Assign" window.

There is a shortcut to instantly change all the SWL band buttons to FT8 band buttons. Click the "FT8 Values" button to change the buttons

for FT8 usage. You can click the "SWL Values" to change them back to SWL band buttons.

Call Sign, TopTen Window

Your call sign can be displayed on the control panel. You set your call sign in the "Call Sign" box in this window.

You can define the color of the text of your call sign on the radio panel. They are BLACK, WHITE, RED, GREEN, BLUE, YELLOW, PURPLE, and CYAN. There are also 2 user definable colors that can be selected with the names COLOR1 and COLOR2. The default is BLACK.

You can also define the relative size of the characters by using the "Call Sign Size" box. You can set the relative size from a value of 1 (the default), to a value of 15 (probably too large).

For the boxes labelled "TopTen Devices", see the section on using Top Ten devices antenna control near the end of this file.

There is also a setting to turn on or off mouse wheel frequency tuning.

6 & 2 Transverters Window

6m Crystal Correction

If you use the Ten-Tec 6 meter transverter, you can get the display to show the frequency very accurately by specifying the amount of error in the transverter crystal frequency. Specify this error in hertz with a plus or minus sign in the edit box.

6M Drive Power Max (0-255)

You can specify the maximum amount of ALC drive to the transverter with this parameter. Its range is 0 to 255 with 255 corresponding to 100 watts. Use caution when setting this. 5 watts is the recommended setting which corresponds to a setting of 13.

The scale of the TX slider is adjusted so that full scale corresponds to this value.

6M IF

This parameter controls the internal IF frequency to the radio will be set at when using the converter. The TenTec transverter uses at 14 MHz IF. This is the default value. If you are using some other transverter that uses a different IF, you can specify it in this edit box.

2m Crystal Correction

If you use the Ten-Tec 2 meter transverter, you can get the display to show the frequency very accurately by specifying the amount of error in the transverter crystal frequency. Specify this error in hertz with a plus or minus sign in the edit box.

2M Drive Power Max (0-255)

You can specify the maximum amount of ALC drive to the transverter with this parameter. Its range is 0 to 255 with 255 corresponding to 100 watts. Use caution when setting this. 5 watts is the recommended setting which corresponds to a setting of 13.

The scale of the TX slider is adjusted so that full scale corresponds to this value.

2M IF

This parameter controls the internal IF frequency to the radio will be set at when using the converter. The TenTec transverter uses at 28 MHz IF. This is the default value. If you are using some other transverter that uses a different IF, you can specify it in this edit box.

TxOut

This setting only appears for the Flex 6000 and 8000 radios. It allows you to define TX1, TX2, or TX3 to be used with the transverter for transmit control.

If the "Suppress Transverter Warnings" check box is on, no warnings will be issued when leaving a transverter band.

User Configurable Transverters Window

There are 5 user configurable transverter setups that the user can setup to work with virtually any transverter. These transverters are in

addition to the 6 and 2 meter transverter setups that are built in. These transverters are configured in the "User 1 & 2 TranV" window, the "User 3 & 4 TranV" window, and the "User 5 TranV" window. The transverter must not be in the 1.7 MHz to 30 MHz range (the pegasus

can transmit in this range) and the transverter must tune in the same direction as the IF frequency. That is to say, as you tune the transverter to a higher frequency, the radio IF frequency must also go higher as well. You cannot use an inverting transverter.

For each transverter, there are 6 parameters to configure. They are:

User N Lower Limit

This sets the lower frequency limit for the transverter. It also enables the transverter and makes its band button appear after and program restart.

User N Upper Limit

This sets the upper frequency limit for the transverter.

User N IF

This tells the program what frequency to set the radio to at the lower limit of the transverter range.

User N Button Text

This tells the program what text to display on the band button for this transverter. It is limited to 4 characters.

User N Drive Pwr Max (0-255)

This sets the maximum drive power the radio will run at to drive the transverter. Its range is 0 to 255. 255 corresponds to 100 watts. 13 is the default which corresponds to 5 watts. Great care should be used in setting this value. The scale of the TX slider is adjusted

so that full scale corresponds to this value.

User N Crystal Correction

You can get the display to show the frequency very accurately by specifying the amount of error in the transverter crystal frequency. Specify this error in hertz with a plus or minus sign in the edit box.

There is also a "Marker" edit box. This allows you to place a value for a calibrating marker frequency. You can then tune in this marker frequency and click "Calibrate". This will then automatically compute a new crystal correction.

TxOut

This setting only appears for the Flex 6000 and 8000 radios. It allows you to define TX1, TX2, or TX3 to be used with the transverter for transmit control.

The band buttons for these transverters only appear when the particular transverter is configured. The buttons are in the lower right corner of the radio window. Care must be taken when setting up these parameters, as bad values can cause strange problems.

If you are using PowerSDR for a Flex radio, setup the transverter in PowerSDR first. Then setup a dummy transverter entry in the N4PY program that has the correct start and end frequency, and an IF frequency that is equal to the starting frequency. This will give you a band button for the transverter.

Acom 2000 Amplifier (using old Acom control box)

There are special settings in the pegasus.ini file for using an ACOM 2000 amplifier that has the older control box. If you have an this amplifier, with the program NOT running, open the pegasus.ini configuration settings file and find the line that says:

```
ACOM COMPORT=NONE
```

and change it to

```
ACOM COMPORT=COMx
```

where COMx is the actual comport number for the amplifier. Then save the change.

The program will send frequency information to the Acom 2000 amplifier.

Connect the serial cable to the Acom amplifier serial connection. The serial cable must be a null modem cable and only use pins 2, 3, and 5. That is to say that pin 2 on one end goes to pin 3 on the other and vice versa. This will cause the Acom 2000 to follow the frequency of the radio without the need to transmit to set the frequency. Once you have made these changes to the program settings, exit and restart the program for these changes to take full effect.

Now when you start the program, go to the "Call Sign, TopTen" settings window. Here you will see a line that is labelled "ACOM 2000".

There is a "Oper" button. Clicking this will cause the button to turn red and set the amplifier in operate mode. Clicking it again will cause the button to go back to black and put the amplifier back in standby mode.

The amplifier will be polled once a second for power output. This value will be displayed just to the right of the "Oper" button.

The default baud rate for the amp is 1200. This can be change in the pegasus.ini configuration setting file by change the line

```
ACOM BAUD=1200
```

with the program NOT running.

The setting "Use Amp Tune Pwr on Band Change" is useful for amplifiers. See the description of this in Preferences3. Also see the Amp Tune description to prevent amp overdrive.

Alpha 87A Amplifier

There are special settings in the pegasus.ini file for using an Alpha 87A amplifier. If you have an this amplifier, with the program NOT running, open the pegasus.ini configuration settings file and find the line that says:

```
ALPHA 87A COMPORT=NONE
```

and change it to

```
ALPHA 87A COMPORT=COMx
```

where COMx is the actual comport number for the amplifier. Then save the change.

Now when you start the program, use "Alt-J" to bring up the Amp Window. Here you will see a line that is labelled "Alpha 87A".

There is an "Off" button, Clicking this button will change the button text to "On" and turn on the amplifier. The "ON" button will stay while the amp is warming up. After the 3 minute warmup, the "ON" button will turn red, indicating the amp is ready. Clicking this button again will change the button text to "Off" and turn the amplifier off.

There is a "Oper" button. Clicking this will cause the button to turn red and set the amplifier in operate mode. Clicking it again will cause the button to go back to black and put the amplifier back in standby mode.

The amplifier will be polled once a second for power output. This value will be displayed just to the right of the "Oper" button and also on the S meter display during transmit.

The default baud rate for the amp is 4800. This can be change in the pegasus.ini configuration setting file by change the line

ALPHA 87A BAUD=4800

with the program NOT running.

FlexRadio PGXL Amplifier

The FlexRadio PGXL amplifier can be controlled from the program.

To configure the PGXL amp, go to the Ustr5, TransV settings window and turn on the check box "Using Flex PGXL". Make sure the IP Address edit box on the bottom of this window is completely blank. Then exit and restart the program.

The program will automatically find the amplifier via its ethernet connection.

This will then get you an amp panel window. This window can be shown by pressing Alt-J. This window is meant as a helper for the PGXL application and not a replacement.

There are 3 controls for the amplifier.

1) MEFFA

This button can turn MEFFA on and off for digital and CW modes. This setting is remembered by band button so can you make MEFFA be turned off for bands you do not wish to use MEFFA.

2) Fan Mode

This button allows you to change fan mode between standard and contest mode without passing through broadcast mode.

3) Auto fan Mode

This check box controls the automatic function of changing the fan mode based on temperature. If the temperature goes above 60C, the fan mode is automatically changed to contest mode. If the temperture drops below 50C, the fan mode is automatically changed to standard mode.

Also if you want the PGXL to automatically follow the radio band, put the PGXL comport in one of the 8 external ports. The frequency and mode will

be sent to the PGXL at 9600 baud over this port. You will need to use a null modem cable adapter for this. Set the PGXL to "Kenwood 2" at 9600 baud, 8N1.

Also there is an AMP THP setting in the pegasus.ini file to identify this external port as an amplifier port. Set AMP THP to the external port number (1 to 8, not the comport name) that you are using for the amp.

Elecraft KPA500 Amplifier

There are special settings in the pegasus.ini file for using an Elecraft KPA500 amplifier. If you have an this amplifier, with the program NOT running, open the pegasus.ini configuration settings file and find the line that says:

```
KPA500 COMPORT=NONE
```

and change it to

```
KPA500 COMPORT=COMx
```

where COMx is the actual comport number for the amplifier. Then save the change.

Now when you start the program, use "Alt-J" to bring up the Amp Window. Here you will see a line that is labelled "KPA500".

There is an "Off" button, Clicking this button will change the button text to "On" and turn on the amplifier. Clicking this button again will change the button text to "Off" and turn the amplifier off.

There is a "Oper" button. Clicking this will cause the button to turn red and set the amplifier in operate mode. Clicking it again will cause the button to go back to black and put the amplifier back in standby mode.

The amplifier will be polled once a second for power output. This value will be displayed just to the right of the "Oper" button and also on the S meter display during transmit.

The KPA500 must be set to 38400 baud. This is the only baud rate that allows the amp to be powered on.

There is a fault button at the end of the KPA500 line. If the KPA500 sends any faults, they will be displayed in this button. You can click this button to clear the fault condition.

The temperature of the KPA500 power output section is displayed just to the left of the fault button. The temperature is displayed in degrees C.

The setting "Use Amp Tune Pwr on Band Change" is useful for amplifiers. See the description of this in Preferences3. Also see the Amp Tune description to prevent amp overdrive.

B26-PA RF2K5 Amplifier

Frequency control via Ethernet is now available.

To configure the RFKit, go to the Ustr5, TransV settings window and type in the RFKit IP address. If you are then using the original RFKit that was a true kit, turn on "RFKit Original". If you are using the S model,

turn on "RFKit S Model".

The program will then send the transmit frequency to the amp and allow automatic band switching for the amp.

In the B26 amp, set the rig control to UDP-SRV. I also set a static IP in the amp so it would not change.

The setting "Use Amp Tune Pwr on Band Change" is useful for amplifiers. See the description of this in Preferences3. Also see the Amp Tune description to prevent amp overdrive.

Elecraft KPA1500 Amplifier

Frequency control via Ethernet is now available.

To configure the KPA1500 for ethernet control, go to the Ustr5, TransV settings window and type in the KPA1500 IP address. Also turn on the "KPA1500" checkbox.

The program will then send the transmit frequency to the amp and allow automatic band switching for the amp.

The setting "Use Amp Tune Pwr on Band Change" is useful for amplifiers. See the description of this in Preferences3. Also see the Amp Tune description to prevent amp overdrive.

Using any Amplifier for SO2R with N1MM and a Non Flex 6000 series radio

This is for an amplifier that uses an Ethernet control connection.

Any amplifier can be setup with N1MM and be shared with 2 radios using a 403A 1 amp 2 radio switch. N4PY software can then be setup to send frequency information to the amp according to which radio is the active radio.

In N1MM, set 2 broadcast addresses using 2 different ports in the Radio broadcast section of N1MM.

In N4PY, use 2 copies of the N4PY program and set the following in the N4PY INI file for each radio.

N1MM RADIO=X where X corresponds to the active radio selected in N1MM. Setting this to 1 or 2 turns this feature on. Setting this to 0 turns this feature off.

N1MM PORT=13060 set this to the correct value for the port the receive the radio information from N1MM to match the port values set in the Radio broadcast section of N1MM configuration.

Once all these settings are in place, the amp frequency will follow the active radio.

Using any Amplifier for SO2R with N1MM and a Non Flex 6000 series radio. This is for an amplifier that uses a serial connection.

Any amplifier can be setup with N1MM and be shared with 2 radios using a 403A 1 amp 2 radio switch. N4PY software can then be setup to send frequency information to the amp according to which radio is the active radio.

In N1MM, set 2 broadcast addresses using 2 different ports in the Radio broadcast section of N1MM.

In N4PY, use 2 copies of the N4PY program and set the following in the N4PY INI file for each radio.

N1MM RADIO=X where X corresponds to the active radio selected in N1MM. Setting this to 1 or 2 turns this feature on. Setting this to 0 turns this feature off.

N1MM PORT=13060 set this to the correct value for the port the receive the radio information from N1MM to match the port values set in the Radio broadcast section of N1MM configuration.

The radio that is setup as the N1MM radio 1 will be the pegasus copy that controls the amplifier frequency. In order to do that radio 1 needs to get the radio 2 frequency sent to it. The radio 2 frequency will be the radio 1 VFO B frequency with this setup.

For pegasus for radio 1, set the amplifier comport as one of the external ports.

Set AMP THP=X where X is the 1 to 8 external port that connects to the amplifier. This causes the only transmit frequency to be sent to the amplifier.

Make a new comport pair and put one side of the new pair in the in the radio 1 pegasus copy as an external port.

Set THP VFOB=Y where Y is the 1 to 8 external port number for this connection.

In the pegasus copy for radio 2, add the other side of the new comport pair as a new external port. This allows radio 2 to send its frequency to radio 1.

Once all these settings are in place, the amp frequency will follow the active radio. The DUAL receive button must be turned on for radio 1.

Using any Amplifier for SO2R with N1MM and Flex 6000 or 8000 series radio

Any amplifier can be setup with N1MM and be shared with a Flex 6000 or 8000 series

using a 403A 1 amp 2 radio switch. N4PY software can then be setup to send

frequency information to the amp according to which radio is the active radio.

In N1MM, set a broadcast address using a port in the Radio broadcast section of N1MM.

In N1MM, set radio 1 for slice A and radio 2 for slice B.

In the N4PY INI file,

N1MM RADIO=1

Setting this to 1 turns the feature on.

Setting this to 0 turns this feature off.

N1MM PORT=13060 set this to the correct value for the port the receive the radio information from N1MM to match the port value set in the Radio broadcast section of N1MM configuration.

Once all these settings are in place, the amp frequency will follow the active transmit slice.

Palstar HF Auto Tuner

The program can be set to send frequency messages to the HF Auto tuner.

This is done by sending UDP messagest a program written by W1TR. Send him an email to w1tr@arrl.net to get that program. Pegasus can then send

frequency information to that program. To configure this tuner, setup the pegasus.ini as follows:

With the program NOT running, open the pegasus.ini configuration settings file and find the line

HF AUTO=0

and change it to

HF AUTO=1

and save the change. Now frequency messages will be sent to HF Auto Tuner once a second.

The program uses a default port of 12070 also defined in the pegasus.ini as

HF AUTO PORT=12070

The program uses a default IP of 127.0.0.1 also defined in the pegasus.ini as

HF AUTO IP=127.0.0.1

Expert SPE 1.3K, 1.5K, 1K-FA and 2K-FA Amplifiers

There are special THP settings in the "External Ports" settings window. Here you will find a "THP Comport 1" check box and comport list box. Also turn on the setting "Use THP Comport for

EXT Logging Program". If you are using the SPE amps, this is where you

define the comport number for the amplifier. The program will run the comport at 9600 baud and use a Flex radio interface to communicate with

the amplifier. Connect the serial cable to the amplifier serial connection and set the band control on the amplifier to "Flex". The program will send out the operating frequency to the amplifier once a second. Using the Flex radio interface allows the amplifier to send the radio power drive level. This drive level is received from the amplifier and sent to the radio. This allows the drive level to be automatically set for those radios that do not have an ALC input from the amplifier. If your radio does use ALC for the amplifier, then set the band control in the amplifier to "Kenwood".

Make a special cable with just 3 wires in it. The cable will have a female DB9 and a male DB15.

Connect the pins together as follows:

DB9	DB15
pin 2	pin 9
pin 3	pin 1
pin 5	pin 4

The program will run the comport at 9600 baud and use a Kenwood radio interface to communicate with the amplifier. The program will respond to queries from the amplifier as though the radio were a Kenwood radio no matter what radio you are actually using.

If you use this program with more than one radio, there is a method whereby you can use the same amplifier power input settings with different radios. There are two ways to use this.

Method 1 (One global multiplier for all bands) - This method allows you to set one percentage multiplier for the second radio. The idea is the expert amp has been set to change the power out from the radio for each band. Now with a second radio, you may find that every band is a little high or a little low.

Go to the settings window and select the "Transmitter Settings". Turn off the check box "Expert Amp Drive by Band". Put the multiplier in the "Expert Amp Drive Factor" edit box for the correct drive level.

Change this to a little higher or a little lower depending on whether power output is high or low. This value will be the same for all bands.

Method 2 (A different multiplier for each band segment) - This method allows you to set a percentage multiplier for the second radio for each band. The idea is the expert amp has been set to change the power out from the radio for each band. Now with a second radio, you may find that each band is either a little high or a little low.

First, with the amp running and connected to Pegasus Plus, open the settings window and in the "Transmitter Settings" window, turn on the check box "Expert Amp Drive by Band". Then go to each band and adjust the edit box "Expert Amp Drive Factor" for the correct drive level to the amp for that band segment.

There is also an interface to use the Expert RS232 DB9 for frequency

control. To use this interface, you need to set a parameter in the pegasus.ini file.

With the program not running, open the pegasus.ini configuration settings file and find the line

```
EXPERT 232 COMPORT=NONE
```

and change it to

```
EXPERT 232 COMPORT=COMx
```

 where COMx is the actual comport going to the

Expert RS232 DB9.

and save the change.

Now the frequency information will be sent to the Expert DB9 connection. Note that the Expert Amp must have CAT set to RS232 for this to work.

Tokyo High Power Amplifier HL-1.5KFX and
Acom 2000 Amplifier, OMPower Amplifier,
Ameritron ALS-1306

There are special settings in the "External Ports" settings window. Here you will find a "THP Comport 1" check box and comport list box. If you are using the Tokyo High Power Amplifier HL-1.5KFX or the newer Acom 2000 amp, or an OMPower amp, or any of the SPE amps, this is where you define the comport number for the HL-1.5KFX amplifier. The program will run the comport at 9600 baud and use a Kenwood interface to communicate with the amplifier.

Connect

the serial cable to the amplifier serial connection and set the band control on the amplifier to "Kenwood". The program will send out the operating frequency to the amplifier once a second.

The serial cable for the Tokyo High Power SPE, OMPower amp, and Acom amp needs to be a null modem cable. That is pin 3 (transmit data) on the computer end needs to go to pin 2 (receive data) on the amp end. Also pin 5 for ground on the computer end needs to go to pin 5 on the amp end.

For the Ameritron ALS-1306, you can use the Ameritron Kenwood cable with a null modem adapter on the serial port end. Or you can make your own cable which is what I did. I made a cable with two female DB9's. I connected them as follows:

PC END		ALS-1306 END
pin 3	to	pin 3
pin 2	to	pin 4
pin 5	to	pin 6

Nothing else should be connected.

Special Yaesu FTDX-9000 Menu Setting Feature

For the FTDX-9000 only, in the User Buttons settings window is a box to

put menu commands. The box is labelled "FT-9000 Menu". In the box you can put any of the 176 menu function commands. You will need the Yaesu CAT manual to know what these commands are. They are all part of the "EX" command. You type in the command and must end it with a semicolon.

So for example if you want to make the TFT color be contrast blue you would type in

```
0131;
```

The 013 is the P1 function and 1 is the value for contrast blue. And then the ending semicolon. Once you have typed in the command with the ending semicolon, click back on the radio window and the command will be sent. You can tell it is sent because what you typed in will then get blanked out.

The setting "Use Amp Tune Pwr on Band Change" is useful for amplifiers. See the description of this in Preferences3. Also see the Amp Tune description to prevent amp overdrive.

Yaesu FTDX-9000 User Buttons

On the left side of the program radio panel there are 4 user buttons. These buttons can be defined to send menu commands to the radio. You can define the button text for each button and the command to be sent for each button.

You will need the Yaesu CAT manual to know what these commands are. They are all part of the "EX" command. You type in the command and must end it with a semicolon. The settings for the user buttons are in the yellow settings window named "User Buttons".

So for example if you want to make the TFT color be contrast blue you would put for the command value

```
0131;
```

The 013 is the P1 function and 1 is the value for contrast blue. And then the ending semicolon.

Kenwood TS-890 and TS-990 User Buttons

On the left side of the program radio panel there are 4 user buttons. These buttons can be defined to send commands from a file to the radio. You can define

the button text for each button and the file name to be sent for each button.

You will need the Kenwood CAT manual to know what these commands are. You make a text file with a list of the commands to send. Each line has a command and must end with a semicolon.

The settings for the user buttons are in the yellow settings window named "User Buttons".

Yaesu Quadra VL-1000 Amplifier

The Yaesu Quadra can be automatically controlled for band settings. To set this up you need to use two serial ports and make a special cable.

The cable is made from two female DB9 connectors that connect to the two serial ports and 1 Din plug that connects to the Yaesu Quadra din plug for band information.

The cable itself is two rg-174 lengths of wire long enough to go from the Yaesu Quadra to the two serial ports.

Connect the cable as follows:

VL1000		Serial DB9's	
DIN			
pin 4	A	Serial AB pin 7	for the Serial AB port
pin 5	B	Serial AB pin 4	for the Serial AB port
pin 6	C	Serial CD pin 7	for the Serial CD port
pin 7	D	Serial CD pin 4	for the Serial CD port
pin 3	Gnd	Serial pin 5	for both port grounds

Once the cable is made, you need to put settings in the pegasus.ini configuration settings file as follows:

With the program NOT running, open the pegasus.ini configuration settings file and find the line

```
SERIAL AB COMPORT=NONE
```

and change it to

```
SERIAL AB COMPORT=COMx when COMx is the comport for the AB lines
```

and for the CD port find the line

```
SERIAL CD COMPORT=NONE
```

and change it to

```
SERIAL CD COMPORT=COMx when COMx is the comport for the CD lines
```

and save the changes.

Now when you run the program with the amp, the amp will automatically follow the band the radio is on.

The setting "Use Amp Tune Pwr on Band Change" is useful for amplifiers. See the description of this in Preferences3. Also see the Amp Tune description to prevent amp overdrive.

Palstar AT-Auto Tuner

The Palstar AT-Auto tuner can be controlled from the program. It is controlled through the Steppir comport. In the "Usr5 TrnsV, Steppir" settings window. Here you will find a "Separate Steppir Comport" check box and comport list box. Turn this on and select the comport you will be using with the tuner. You will then need to set two parameters in the Pegasus.ini configuration file. Change this file only when the N4PY program is not running.

Find the line

```
STEPPIR KENWOOD=0
```

and change it to

```
STEPPIR KENWOOD=1
```

Find the line

```
STEPPIR BAUD=57600
```

and change it to the actual baud rate you have selected in the tuner. Also, in the tuner setup, set it to Kenwood CAT only. Save the changes.

The program will send out the operating frequency to the amplifier once a second.

The serial cable for the tuner needs to be a standard straight through cable. That is pin 3 (transmit data) on the computer end needs to go to pin 3 (receive data) on the tuner end. Also pin 5 for ground on the computer end needs to go to pin 5 on the tuner end.

External Ports for other Programs Overview

The N4PY Control program has 8 external ports for hooking up digital programs, logging programs, panadapter programs, and CW skimmer. These

external ports are called THP ports. The name "THP" comes from the first use of external ports for the Tokyo High Power amplifiers. The idea on hooking up programs through these ports is to simulate a Kenwood radio operating on a different comport. The ports are actually connected

with a software cable called a virtual comport pair. Don't let the name

scare you, it's just a fancy word for programs to share memory and

communicate with each other. Virtual comports will work with any baud rate and serial settings so don't worry about the comport settings. Again this is simply because they are just memory transfers and not real serial ports at all. Anyway, all you need to make them is a program called VSPManager. This is a free program and there's a link on my "Previous Versions" page to send the author an email and ask him for it. Once you create a virtual comport pair (again it's really a software cable with a comport on each end), you put one of the comports as the radio comport in one program and the other comport in the N4PY control program as a THP port. The THP ports are set in the "External Ports" settings window.

Third Party Logging Programs

The easiest way to interface a logging program with an N4PY control program is to use the Tentec File Interface. This can be done with any logging program that has a Tentec Pegasus listed as a supported radio. What you do is in the logging program, select the Tentec Pegasus as the radio type. Also, in the logging program you must set its transfer folder to c:\n4py of wherever you installed the N4PY control program. Once you do this, the logging program will no longer use a comport to communicate to the radio. Instead, it will communicate with the N4PY control program via a file. This is a very easy way to connect logging programs.

DXLab uses the tentec file interface. In DXLab, select "Pegasus-N4PY" for the radio type and set the "Control Folder" to the folder where Pegasus Plus is installed.

If the logging program does not support the Tentec Pegasus, then you can still hook up the logging program to the N4PY control program via a virtual comport pair. There is where for the external ports comes in.

If you have a logging program such as N1MM or a digital program such as FLDigi that does not support the Tentec file interface, you can use this port in conjunction with the VSP Manager virtual comport driver to get the third party program to work with your radio and the N4PY control program at the same time. First, you need to install the virtual comport driver. You can get it on my website at www.n4py.com. Go to the "Previous Versions" page and there is a link to ask the author for it. For FLDigi, see the next section.

Once this virtual comport driver is installed, it will give you a pair of comports to use as a software cable. Use VSP Manager to define these comport pairs. In your logging or digital program, set it for one of these comports and select a radio type of Kenwood TS-570 (Kenwood TS-50 for HRD, just "Kenwood" for N1MM). Set the other comport in the "External Ports" settings window for one of the THP comports. Also turn on the check box "THP Comport 1" and "Use THP Comport for EXT Logging Program". After these changes are made, exit and restart the program. Your third party logging program should now see the N4PY Pegasus program as though it was a Kenwood radio, regardless of the actual radio you are using.

If your third party logging program supports the K1EL winkey keyer, you can get it to send its CW messages to the N4PY program. This is done through K1EL keyer emulation in the N4PY program. First you make a virtual comport pair for this function. You can use any virtual comport program. If you don't have one, there is a link to VSP Manager the "Previous Versions" page of the N4PY website. This is an excellent virtual comport program.

Please note VSPManager and MicroHam are not compatible. If you are using MicroHam, see the section "MicroHam and VSPManager".

Once you have the virtual comport pair, define one of the pairs in the third party logging program as the K1EL keyer comport. Then with the N4PY program NOT running, open the pegasus.ini configuration file.

Find the line that says

```
EMUL K1EL=0
```

and change it to

```
EMUL K1EL=1
```

Next find the line that says

```
BOB COMPORT=NONE
```

and change it to

BOB COMPORT=COMx where COMx is the other half of the virtual comport pair. Then save the changes.

Now when you run the N4PY program, the CW messages sent in the third party logging program will come to the N4PY program. This is very useful when running remotely using either an Omni VII or the Client-Server function since this will cause the CW message characters to get sent to the N4PY server for transmission.

FLDigi Setup

This assumes you have run VSPManager and created a virtual comport pair using COM14 and COM15. This makes a software cable with COM14

on one end and COM15 on the other end. The pair can be anything but COM14 and COM15 is used in this example.

In N4PY, select the "External Ports" settings window from the yellow settings window.

Turn on "THP Comport" check box.
Below it select COM14, one end of the software cable.
Turn on "Use THP Comport for Ext Logging Program".

Exit and restart N4PY.

Now start FLDigi.
Select "Configure"
In the list box you get select "Rig Control".
In the new window, select "RigCAT".
There is a rig description file in the folder where you installed the N4PY program called TS-570.xml. Set this as the rig description file.

Turn on "CAT command for PTT".
For Device select COM15, the other end of the software cable.
Turn on "Use RigCAT".
Click "Initialize"
Click "Save", then "Close".
FLDigi should now show the same frequency as N4PY and your radio.

MicroHam and VSPManager

MicroHam and VSPManager are not compatible with each other. If you are

using MicroHam you cannot create virtual comport pairs with VSPManager.

Instead, you create a "virtual cable" and turn on the TX check box in the "Create Virtual Cable" dialog of MicroHam. This action will give you a virtual comport pair just like VSPManager. You may need to reboot

your computer after doing this so that Windows can get everything straight.

Using LP-Pan and PowerSDR-IF with your Radio

The PowerSDR-IF has been replaced with the NaP3 program. See below for setting up NaP3.

Using LP-Pan and NaP3 with your Radio

The Tokyo HP comport can also be used with your radio and N8LP's panadaptor. To use the N8LP panadaptor, several steps must be done. This setup interfaces the N4PY program directly to NaP3. The N4PY program will emulate a K3 and appear as a K3 to NaP3.

They are as follows:

- 1) Install hardware to your radio to bring out the a wide band IF and convert it to 8.83 mhz for LPPan.
- 2) Install VSP Manager. I have a link on my "Previous Versions" page for it.

Please note VSPManager and MicroHam are not compatible. If you are using MicroHam, see the section "MicroHam and VSPManager".

- 3) Use VSP Manager to define these comport pairs.
- 4) Install NaP3. Configure its setup comport for one half of the virtual comport pair defined in VSP Manager. Also, configure NaP3 for a K3, regardless of the radio you are using.
- 5) Configure the N4PY Pegasus program's THP comport for the other virtual comport in the "External Ports" settings window for the THP comport. Also turn on the check box "THP Comport 1", "Use THP Comport for EXT Logging Program", and "NaP3 Panadapter". After these changes are made, exit and restart the program.

The THP comport will now communicate with NaP3 and act as a K3 radio. This will allow the N8LP panadapter to work very nicely with the radio and run the N4PY program at the same time.

Using LP-Pan and TRX-Pan with your Radio

If you have LP-Pan, there is a much simpler panadapter program that can be used with it. TRX-Pan is available with direct interface from N4PY that does not use any virtual comport or LP-Bridge. This interface does not use any virtual comports at all. Instead, it uses a unique interface through the Windows Registry.

If you have TRX-Pan installed, all you need to do in N4PY is go to the "External Ports" settings window and turn on the check box labelled

"TRX-Pan Panadapter". This will cause frequency, mode, and filter settings to be sent to TRX-Pan and also allow clicking on signals in TRX-Pan to change the radio frequency.

In the TRX-Pan program, turn on the "N4PY" for CAT control setting. You must have TRX-Pan V2.0.5 or later for N4PY. TRX-Pan does not run on Windows Vista.

Using LP-Pan directly to NaP3 and also using N1MM and CW Skimmer all at the same time

The program has 4 additional THP comports that can be configured along with the main THP comport described above to allow other programs to operate with the N4PY program. These additional comports can be used to run N1MM and CWSkimmer. These comports emulate a K3 radio to the other programs.

After you have setup the main THP comport for NaP3, create a second virtual comport pair. Configure one of these pairs in the N1MM comport setting. Configure the other half of this second comport pair in N4PY as follows:

With the N4PY program NOT running

- 1) Open the pegasus.ini configuration file
- 2) Find the line that says

THP2 COMPORT=NONE

and change it to

THP2 COMPORT=COMx where COMx is the other half of this second comport pair.

Then save the change.

If you then also want to use CWSkimmer, create a third virtual comport pair. Configure one of these pairs in the CWSkimmer comport setting. Configure the other half of this third comport pair in N4PY as follows:

With the N4PY program NOT running

- 1) Open the pegasus.ini configuration file
- 2) Find the line that says

THP3 COMPORT=NONE

and change it to

THP3 COMPORT=COMx where COMx is the other half of this third comport pair.

Then save the change. You will now be able to run the N4PY program along with NaP3, N1MM, and CWSkimmer all at the same time without the need to use LP Bridge.

There is also THP4 COMPORT=NONE through THP8 COMPORT=NONE that can be setup for more combinations.

Also if you want a THP port to send out VFO B frequency information for a THP port, find the line

THP VFOB PORT=0

and change it to

THP VFOB PORT=X where X is 1 to 8 depending on which THP port you want to follow VFO B. This is useful if you have a radio that has two receivers and you want CW Skimmer to follow the second receiver. Setting this to 0 turns this feature off.

VE7TK has done a great writeup at putting this all together. It is at <http://www3.telus.net/ve7tk/LP_PAN.pdf>

This writeup is for the Orion but it still very appropriate with the Pegasus program. The main difference is in the Pegasus program, you must turn on the setting "PowerSDR Panadapter".

Using a KX3 and NaP3 as a radio and Panadapter

The Tokyo HP comport can also be used with your KX3 as a panadaptor. To use the KX3 as a panadaptor, several steps must be done.

This setup interfaces the N4PY program directly to NaP3. The N4PY program will emulate a K3 and appear as a K3 to NaP3.

They are as follows:

- 1) Connect the KX3 IQ outputs to your sound card.
- 2) Install VSP Manager. I have a link on my "Previous Versions" page for it.

Please note VSPManager and MicroHam are not compatible. If you are using MicroHam, see the section "MicroHam and VSPManager".

- 3) Use VSP Manager to define these comport pairs.
- 4) Install NaP3. Configure its setup comport for one half of the virtual comport pair defined in VSP Manager. Also, configure NaP3 for a K3, regardless of the radio you are using.
- 5) Configure the N4PY Pegasus program's Tokyo HP comport for the other virtual comport in the "External Ports" settings window for the THP comport. Also turn on the check box "THP Comport 1", "Use THP Comport for EXT Logging Program", and "NaP3 Panadapter". After these changes are made, exit and restart the program.

The THP comport will now communicate with NaP3 and act as a K3 radio. This will allow the KX3 IQ output panadaptor to work very nicely with the N4PY program at the same time.

Using any Flex Radio or SDR-IQ with your Radio as a Panadapter

The Tokyo HP comport can also be used with your radio and Flex Radio's Flex 1500 (or any other Flex radio, or SDR-IQ) as a panadaptor and sub-receiver. This radio is a great one to use because the Flex-1500 is only \$579 from Flex Radio. To use the Flex-1500 as a panadaptor, several steps must be done. This setup is built around the current version PowerSDR version from Flex Radio. Please note all panadapters are muted unless Dual receive is turned on.

They are as follows:

- 1) Install VSP Manager. I have a link on my "Previous Versions" page for it.

Please note VSPManager and MicroHam are not compatible. If you are using MicroHam, see the section "MicroHam and VSPManager".

- 2) Use VSP Manager to define these comport pairs.

for Flex radios:

- 3) Install the Flex radio with all its supporting software.

Configure PowerSDR for CAT using one of the comport pairs. In PowerSDR, turn on "Allow Kenwood AI Command". When running with PowerSDR, changing the mode or filter from the PowerSDR program does not change anything in the N4PY program. Mode changes in the N4PY program are sent to PowerSDR. Filter values are not sent to PowerSDR.

Or for SDR-IQ

- 3) Install all the SDR-IQ supporting software. This is the SDR-RADIO program from SDR-RADIO.COM

Configure the SDR-IQ software for HF Tracking using one of the VSP Manager comport pairs.

OR

Use Spectravue with "External Radio Setup" as Kenwood TS850/870/950.

Keep Same Center Frequency, HF Tracking Mode, and Mode Tracking are check/enabled.

- 4) Configure the N4PY Pegasus program's THP comport for the other virtual comport in the "External Ports" settings window for the THP comport. Also turn on the check box "THP Comport 1", "Use THP Comport for EXT Logging Program". For Flex radios also turn on "PowerSDR Panadapter". For SDR-IQ radios, also turn on "SDR-IQ/HSDR Pan". After these changes are made, exit and restart the program.

The THP comport will now communicate directly with powerSDR or SDR-IQ. This will allow the Flex or SDR-IQ radio panadapter to work very nicely with your radio.

Using any HSDR Radio with your Radio as a Panadapter

The Tokyo HP comport can also be used with your radio and any radio controlled with HSDR as a panadapter and sub-receiver. The setup requires several steps.

They are as follows:

- 1) Install VSP Manager. I have a link on my "Previous Versions" page for it.

Please note VSPManager and MicroHam are not compatible. If you are using MicroHam, see the section "MicroHam and VSPManager".

- 2) Use VSP Manager to define a comport pair. Let's assume you define COM10 and COM20. They can be anything as long as they are not used by anything else.

- 3) Install HSDR and the panadapter radios drivers.

In HSDR, in F7 Options, select "CAT to HSDR". Set the PORT to one of the comport pairs (like COM10 in this example).

Select "Activate". Make sure it shows a check mark.

The baud rate does not matter with a virtual comport.

- 4) In "External Ports", configure the N4PY Pegasus program's Tokyo HP comport for the

other half of the virtual comport pair (like COM20 in this example) for the Tokyo HP comport. Also turn on the check box "Tokyo HP Comport", "Use THP Comport for EXT Logging Program". If you are using an antenna connection to the SDR radio, turn on "SDR-IQ/HSDR Pan". If you are using a a fixed IF output to the SDR radio, turn on "HSDR Fixed IF". After these changes are made, exit and restart the program.

The THP comport will now communicate directly with HSDR. This will allow the HSDR radio panadaptor to work very nicely with your radio.

Using WSJT-X with N4PY Software

1) Install VSP Manager. I have a link on my "Previous Versions" page for it.

Please note VSPManager and MicroHam are not compatible. If you are using

MicroHam, see the section "MicroHam and VSPManager".

2) Use VSP Manager to define a comport pair. Let's assume you define COM10 and COM20. They can be anything as long as they are not used by anything else.

3) Download and install OmniRig.

4) In OmniRig, set the radio type to "Kenwood".

5) Set the PORT to one of the comport pairs (like COM10 in this example).

6) Set RTS to High (in OmniRig).

7) The other OmniRig parms do not matter for virtual comports.

8) In "External Ports", configure the N4PY Pegasus program's Tokyo HP comport for the

other half of the virtual comport pair (like COM20 in this example) for the Tokyo HP comport. Also turn on the check box

"Tokyo HP Comport",

"Use THP Comport for EXT Logging Program".

After these changes are made, exit and restart the program.

9) In WSJT-X, set the radio to "OmniRig Rig 1".

10) Use CAT PTT for keying.

The THP comport will now communicate directly with OmniRig and OmniRig will

communicate with WSJT-X.

Using any SDRConsole Radio with your Radio as a Panadapter

The Tokyo HP comport can also be used with your radio and any radio controlled with SDRConsole as a panadaptor and sub-receiver. The setup

requires several steps.

They are as follows:

1) Install VSP Manager. I have a link on my "Previous Versions" page for it.

Please note VSPManager and MicroHam are not compatible. If you are using MicroHam, see the section "MicroHam and VSPManager".

2) Use VSP Manager to define a comport pair. Let's assume you define COM10 and COM20. They can be anything as long as they are not used by anything else.

3) Install SDRConsole and the panadapter radios drivers.

In SDRConsole, in "Options", select Controllers and then "CAT" and then

Port Selection.

Set the PORT to one of the comport pairs (like COM10 in this example).

The baud rate does not matter with a virtual comport.

4) In "External Ports", configure the N4PY Pegasus program's Tokyo HP comport for the

other half of the virtual comport pair (like COM20 in this example) for the Tokyo HP comport. Also turn on the check box

"Tokyo HP Comport",

"Use THP Comport for EXT Logging Program".

If you are using an antenna connection to the SDR radio, turn on "SDR-IQ/HDSDR Pan".

If you are using a a fixed IF output to the SDR radio, turn on "HDSDR Fixed IF".

After these changes are made, exit and restart the program.

The THP comport will now communicate directly with SDRConsole. This will allow the SDRConsole radio panadaptor to work very nicely with your radio.

Using the Alinco DX-R8 as a Standalone Panadapter

In this setup, PowerSDR is used as the main radio you configure in Pegasus Plus. The IQ outputs from the Alinco DX-R8 are then connected to your sound card and NaP3 is used as the IQ decoder to provide the audio output. Many steps are used to configure this setup.

They are as follows:

1) Install VSP Manager. I have a link on my "Previous Versions" page for it.

Please note VSPManager and MicroHam are not compatible. If you are using MicroHam, see the section "MicroHam and VSPManager".

2) Use VSP Manager to define one comport pair.

3) Install NaP3. There is a link to it on my "Previous Versions" page.

- 4) In NaP3, select a K3 as the radio type. Select one of the VSP comport pairs as the K3 comport. The baud rate does not matter.
- 5) In Pegasus Plus, in the "Interface" window, select Flex as the radio type, and set the COM number to the other half of the VSP manager virtual comport pair.
- 7) In the Pegasus Plus program, with the program NOT running, you need to change two lines. Find the line that says

ALINCO 2 COMPORT=NONE

and change it to

ALINCO 2 COMPORT=COMx where COMx is the comport connected to the Alinco DX-R8.

Find the line that says

RECEIVE ONLY=0

and change it to

RECEIVE ONLY=1

Then save the changes.

The Pegasus Plus program will now communicate directly with NaP3. It will also send frequency information to the DX-R8 and keep the two on the same frequency.

Using the Alinco DX-R8 with your Radio as a Panadapter

The Tokyo HP comport can also be used with your radio and the Alinco DX-R8 as a panadaptor and sub-receiver. To use the DX-R8 as a panadaptor, several steps must be done.

They are as follows:

- 1) Install VSP Manager. I have a link on my "Previous Versions" page for it.

Please note VSPManager and MicroHam are not compatible. If you are using

MicroHam, see the section "MicroHam and VSPManager".

- 2) Use VSP Manager to define these comport pairs.
- 3) Install the latest version of NaP3. There is a link to this on my previous versions page.
- 4) In NaP3, select a K3 as the radio type. Select one of the VSP comport pairs as the K3 comport. The baud rate does not matter.
- 5) Configure the N4PY Pegasus program's THP comport for the other virtual comport in the "External Ports" settings window for the THP comport. Also turn on the check box "THP Comport 1",

"Use THP Comport for EXT Logging Program".
Also turn on "NaP3 Panadapter".
After these changes are made, exit and restart the program.

- 7) In the Pegasus Plus program, with the program NOT running, you need to change one line. Find the line that says

ALINCO 2 COMPORT=NONE

and change it to

ALINCO 2 COMPORT=COMx where COMx is the comport connected to the
Alinco DX-R8.

Then save the change.

The THP comport will now communicate directly with NaP3. And the DX-R8 will follow the frequency of your radio. This will allow the DX-R8 panadaptor to work very nicely with your radio.

Using the Alinco DJ-X11 as a Standalone Panadapter

In this setup, PowerSDR is used as the main radio you configure in Pegasus Plus. The IQ outputs from the Alinco DJ-X11 are then connected

to your sound card and NaP3 is used as the IQ decoder to provide the audio output. Many steps are used to configure this setup.

They are as follows:

- 1) Install VSP Manager. I have a link on my "Previous Versions" page for it.

Please note VSPManager and MicroHam are not compatible. If you are using MicroHam, see the section "MicroHam and VSPManager".

- 2) Use VSP Manager to define one comport pair.

- 3) Install the latest version of NaP3. There is a link to this on my previous versions page.

- 4) In NaP3, select a K3 as the radio type. Select one of the VSP comport pairs as the K3 comport. The baud rate does not matter.

- 5) In Pegasus Plus, in the "Interface" window, select Flex as the radio type, and set the COM number to the other half of the VSP manager virtual comport pair.

- 7) In the Pegasus Plus program, with the program NOT running, you need to change four lines. Find the line that says

ALINCO 2 COMPORT=NONE

and change it to

ALINCO 2 COMPORT=COMx where COMx is the comport connected to the
Alinco DJ-X11.

Find the line that says

ALINCO BAUD RATE=9600

and change it to

ALINCO BAUD RATE=57600

Find the line that says

RECEIVE ONLY=0

and change it to

RECEIVE ONLY=1

Find the line that says

USING ALINCO DJ-X11=0

and change it to

USING ALINCO DJ-X11=1

Then save the changes.

The Pegasus Plus program will now communicate directly with NaP3. It will also send frequency information to the DJ-X11 and keep the two on the same frequency.

Using the Alinco DJ-X11 with your Radio as a Panadapter

The Tokyo HP comport can also be used with your radio and the Alinco DJ-X11 as a panadapter and sub-receiver. To use the DJ-X11 as a panadapter, several steps must be done. This setup is built around the current version PowerSDR version from Flex Radio. Please note all panadapters are muted unless Dual receive is turned on.

They are as follows:

1) Install VSP Manager. I have a link on my "Previous Versions" page for it.

Please note VSPManager and MicroHam are not compatible. If you are using MicroHam, see the section "MicroHam and VSPManager".

2) Use VSP Manager to define these comport pairs.

3) Install the latest version of NaP3. There is a link to this on my previous versions page.

4) In NaP3, select a K3 as the radio type. Select one of the VSP comport pairs as the K3 comport. The baud rate does not matter.

5) Configure the N4PY Pegasus program's THP comport for the other virtual comport in the "External Ports" settings window for the THP comport. Also turn on the check box "THP Comport 1", "Use THP Comport for EXT Logging Program".

Also turn on "NaP3 Panadapter".
After these changes are made, exit and restart the program.

- 7) In the Pegasus Plus program, with the program NOT running, you need to change three lines. Find the line that says

ALINCO 2 COMPORT=NONE

and change it to

ALINCO 2 COMPORT=COMx where COMx is the comport connected to the
Alinco DJ-X11.

Find the line that says

USING ALINCO DJ-X11=0

and change it to

USING ALINCO DJ-X11=1

Find the line that says

ALINCO BAUD RATE=9600

and change it to

ALINCO BAUD RATE=57600

Then save the changes.

The THP comport will now communicate directly with NaP3. And the DJ-X11 will follow the frequency of your radio. This will allow the DJ-X11 panadaptor to work very nicely with your radio.

Using the Microtelecom Perseus Receiver as a Panadapter

The Tokyo HP comport can also be used with your radio and Microtelecom's

Perseus receiver as a panadaptor and sub-receiver. This radio is a great one to use because of its excellent receive characteristics.

Please

note all panadapters are muted unless Dual receive is turned on.

To use Perseus as a panadaptor, several steps must be done. They are as follows:

- 1) Install VSP Manager. I have a link on my "Previous Versions" page for it.

Please note VSPManager and MicroHam are not compatible. If you are using

MicroHam, see the section "MicroHam and VSPManager".

- 2) Use VSP Manager to define a comport pair.

- 3) Install the Perseus radio with all its supporting software.

Configure the Perseus program for one of the virtual comport pairs. When running with Perseus, changing the mode or filter from

the Perseus program does not change anything in the N4PY program. N4PY only picks up the frequency from the Perseus program. Frequency, mode, and filter changes in the N4PY program are sent to the Perseus program.

- 4) Configure the N4PY Pegasus program's THP comport for the other virtual comport in the "External Ports" settings window for the THP comport. Also turn on the check box "THP Comport 1", "Use THP Comport for EXT Logging Program", and "Perseus Panadapter". After these changes are made, exit and restart the program.

The THP comport will now communicate directly with the Perseus program.

This will allow the Perseus program panadaptor to work very nicely with your radio. Please note when split or dual is turned on in N4PY, the VFO B frequency will be sent to the perseus program. Likewise, with split or dual on in N4PY, N4PY will get the frequency from Perseus and put it in VFO B.

Antenna Hookup for a second radio to be used as a Panadapter

When using a Flex radio or Perseus receiver or HDSDR radio as a Panadapter,

it is very advantageous to share the same antenna with the transceiver. If

the transceiver is an Omni VII, Jupiter, or Pegasus, there are descriptions

in this manual for modifying the transceiver to allow sharing the antenna.

The Yaesu 3000, 5000, and 9000 also have an easy way to share antennas.

For all other transceivers, the DXE-RTR-1A can be used to share antennas

between the transceiver and the SDR receiver. This is a \$170 unit that will

provide a safe way to share antennas between the SDR receiver and transceiver.

Setup

- 1) Place the "Main On" switch in the middle "RX ANT" position.
- 2) Connect the amp key line of the transceiver to the "Transmit Ground" connection.
- 3) Connect a radio shack Y cable (part #42-2535) between the "Main ANT OUT" and "RX ANT IN" connections.
- 4) Connect the third leg of the Y cable to the antenna input of the SDR receiver.

Bob S Meter

Woodbox radio at www.woodbox.com has a little program that produces a very nice looking analog S meter. This program can be run with N4PY software.

To use this Bob Smeter software, first go to www.woodbox.com (the

exact link is on my website on the "Previous Versions" page) and download and install this program.

Then using any virtual comport program such as VSPManager, make virtual comport pair for the Bob Smeter. Set one of these pairs in the Bob Smeter program.

With the Pegasus program not running, go to the c:\n4py folder or wherever you installed the program and open the pegasus.ini configuration file.

Find the exact line that says:

```
BOB COMPORT=NONE
```

And change it to

```
BOB COMPORT=COMx
```

where COMx is the other comport for the virtual comport pair. Then save the change.

You start and stop the Bob Smeter with the second button from the left on the Bob Smeter window. Always start N4PY before starting the Bob Smeter. Always stop the Bob Smeter before stopping N4PY.

Change the timeout of 20 milliseconds in the Bob Smeter to 100.

S Meter Lite

There is also an interesting S meter program provided by W8WWV. There's a link for this on my previous versions page.

To use this S Meter software, first from my "Previous Versions" page download and install this program.

Then using a virtual comport program such as VSPManager, make virtual comport pair for the S Meter Lite. Set one of these pairs in the S Meter

Lite program. Configure S Meter Lite for an Icom 756Pro, regardless of what radio you are actually using.

With the Pegasus program not running, go to the c:\n4py folder or wherever you installed the program and open the pegasus.ini configuration file.

Find the exact line that says:

```
BOB COMPORT=NONE
```

And change it to

```
BOB COMPORT=COMx
```

where COMx is the other comport for the virtual comport pair.

Find the Line

SMETER LITE=0

and change it to

SMETER LITE=1

Then save the change.

The S Meter Lite program will now work with the N4PY program.

Steppir Settings Window

For Steppir control with the Omni VII, if your Omni VII is at firmware version 1.023 or later, you can do it with just one serial port. You need to set the Omni VII menu command to "Steppir/CT". Then simply use

a Y cable and set steppir to listen only mode for an Orion. Do not turn on the Steppir setting in the "Usr5 TrnsV, Steppir" settings window.

For serial remote mode, also turn on the setting in the "Interface" window

labelled "Using Microham Band Decoder". This causes the program to poll the radio for frequency so the steppir controller can follow it. This setup will work fine except over ethernet. For ethernet operation see below.

If you need to use 2 serial ports there are special Steppir settings in the "Usr5 TrnsV, Steppir" settings window. Here you will find a "Separate Steppir Comport" check box and comport list box. If you are using the Steppir and need to use a separate comport for Steppir, this is where you define the comport number for the Steppir controller.

The program will run the Steppir comport at 57600 baud and use a TenTec Orion interface to communicate with the Steppir controller. Connect the serial cable to the steppir "data in" port, not the data out port. For the Omni VII, the separate comport must be used.

For the Omni VII operating directly at the computer site via its serial

you need to make up a special cable to connect the computer serial port

to the steppir controller "data in" port. The cable can be made with a

piece of coax with a female DB9 on the computer end and a female DB9 on the

"data in" steppir controller end.

On the computer end, connect the coax center pin to DB9 pin 3.

Connect

the coax shield to DB9 pin 5.

On the steppir end, connect the coax center pin to DB9 pin 2. Connect the coax shield to pin 5. Also jumper pins 7 and 9 together.

For the Omni VII operating remotely via ethernet, you need to make up a special cable to connect the Omni VII serial port to the steppir controller "data in" port. The cable can be made with a piece of coax with a male DB9 on the radio end and a female DB9 on the "data in"

steppir
controller end.

On the radio end, connect the coax center pin to DB9 pin 2. Connect the coax shield to DB9 pin 5. Also, jumper pins 7 and 8 together only at the radio end.

On the steppir end, connect the coax center pin to DB9 pin 2. Connect the coax shield to pin 5. Also jumper pins 7 and 9 together only at the steppir end.

Turn on the check box in "Usr5 TrnsV, Steppir" that says "Separate Steppir Comport". In this case the selected comport number is not used.

RTTY Settings Menu Window

The "RTTY Settings" window of the "settings" menu contains options to control the RTTY and digital mode operations. The RTTY button is configurable. The label for the button can be specified, the actual operating mode can be set to USB or LSB, and the frequency offset in hertz can be specified. If an offset of zero is specified, the mode will operate just like USB or LSB. For example, you can define this button for use for PSK31 as follows:

RTTY Label	PSK31
RTTY Mode	USB
RTTY Offset	0

You can also define a second RTTY mode. You select your second RTTY mode by right clicking on the "RTTY" button. To define a second RTTY mode set the following settings:

RTTY Label 2	RTTY
RTTY Mode 2	LSB
RTTY Offset 2	2100

The RTTY Label 2 parameter being defined activates RTTY mode 2. The bottom line is if you are using any of the newer digital modes, use the PSK31 example above. If they are using the older RTTY standard RTTY, use the example above for RTTY Mode 2.

For the Elecraft K2, the offset is handled in the firmware so there is no setting for offset.

When the "Output RTTY Mode is RTTY Label" check box is set, the text for the mode in the pegasus.out file for the RTTY modes will show as the value you have defined for your RTTY label. With this check box set to off (the default), either USB or LSB will show as the mode text for the RTTY modes in the pegasus.out file.

Step Window

The "step buttons" are user configurable to any step between 1 and 10000. They are configured in the "step" window of the "settings" menu.

The default values for the operating modes can be configured to any step between 1 and 10000. They are also configured on the "step" window of the "settings" menu.

Note that in AM mode, if the frequency is in a HAM band, the AM step will be the value specified for SSB step. Also note that MW Step defines the step value for the American AM broadcast band.

Interface Window

This window allows you to configure the radio you have connected to your primary comport. There are 2 list boxes to define your radio type. The TenTec Radio Selection allows you to select the following:

"Pegasus/Jupiter" -

This selection defines the Pegasus or Jupiter in "Pegasus Emulation Mode" as the primary interface.

"Get Radio at Start" -

This check box is used to get the Jupiter VFO A frequency, mode, filter, and VFO B frequency from the Jupiter at startup when using the Jupiter in "Pegasus Emulation Mode". It will also cause the current VFO A frequency, mode, filter, and VFO B Frequency to be sent to the Jupiter at exit of the program. This setting makes using the Jupiter with the program more streamlined with front panel mode. Do not turn this setting on with a Pegasus!!! Also, the Jupiter must be at firmware version 1.19 or later to use this setting. One other note- if you see a small discrepancy in frequency, it is because you have calibrated the program to allow for a small frequency error in the Jupiter.

For the Flex radios, turning this on causes the settings in PowerSDR to be ignored. At program start, the N4PY program will send all its saved settings from the previous program setup to powerSDR. This is very useful when you have installed a new version of powerSDR and want to get your old settings back.

For the Omni VII, this can be set in Front Panel serial mode only. It will cause the program to use the Omni VII frequency, mode, and filter settings at program startup.

"Jupiter Logging Mode Only" -

To use this mode on the Jupiter, the Jupiter must be at firmware version 1.19 or later. This is a special check box. It says you are only using the N4PY control program to allow logging programs to get and set information to and from the Jupiter by using the Pegasus "Ten-Tec File Interface". You must tell your logging program you are using a Pegasus. In this mode, you should never try to set any values to or from the Jupiter with the N4PY control program. You should be doing all your Jupiter functions from the Jupiter front panel or the logging program. The N4PY control program will poll the RX350 at 1 second intervals to get new frequency, filter, and mode information. There are also two buttons for saving and restoring the Jupiter memories. The two buttons are as follows:

SvMem - Clicking this button will allow you to select a "CDF"

file

to save the memories in. The memories will be saved in a standard CDF file that can be used later to import files. It takes about 2 minutes to save the 128 memories. The Jupiter memories are numbered 0 to 127. If this function does not work, power the

jupiter

off and then back on and run this function again. There is a problem in firmware version 1.19 that sometimes prevents this save memory function from working properly.

RsMem - Clicking this button will allow you to select a "CDF" file to restore memories from the file to the Jupiter. Firmware

version

1.18 has a few problems associated with restoring memories. If the Jupiter memories are empty, you need to store one memory manually first. You then run the restore memory function of the program. When this function completes, you then need to store any one memory manually again to get the memories saved into the flash memory of the Jupiter. If you don't do this, the memories will be gone when you power off the Jupiter.

During the Save and Restore memory operations, the current memory will show as the text on the "Store" below, just to the left of

the

"Recall" button.

"RX350 Only" -

This selection defines the RX350 as the primary and only interface.

With this setup, the normal operation is to use the N4PY control program for all RX350 control. However, if you temporarily use the RX350 front panel for control, you can click the "Refrsh" button to get the RX350 front panel and N4PY control program back in step for frequency, filter, and mode.

If you are seeing a frequency difference between what the rx350 displays and what the program displays, this is normal. It is because a "calibrate" function (See Calibrate) was performed at some previous time. When a calibrate function is done, the program determines the error in hertz that the rx350 has. This error is then corrected and the display on the program will be the correct frequency. The display on the rx350 will show the uncorrected frequency. If you do not like this and want to remove the correction, tune from the program until the rx350 display shows 10.000.000 MHz. Once there click "calibrate" at the top of the program, and the two displays will be in sync. Because of rounding errors, this may take a couple of tries to get the frequency correction completely removed. An alternate way to remove this correction is to go into the "pegasus.ini" file, find the "frequency correction" parameter, and set it to zero.

There are also two buttons for saving and restoring the RX350 memories. The two buttons are as follows:

file SvMem - Clicking this button will allow you to select a "CDF"

to save the memories in. The memories will be saved in a standard CDF file that can be used later to import files. It takes about 2 minutes to save the 128 memories. The rx350 memories are numbered 0 to 127. Only the current bank of memories is saved.

If you want to save more banks, you can just change to a new memory bank and save again to another file. The RX350 memories contain the frequency, mode, and filter setting.

RsMem - Clicking this button will allow you to select a "CDF" file to restore memories from the file to the rx350. All the memories will go to the current memory bank. Firmware version 1.14 has a few problems associated with restoring memories. If the RX350 memories are empty, you need to store one memory manually first. You then run the restore memory function of the program.

During the Save and Restore memory operations, the current memory will show as the text on the "Store" below, just to the left of the "Recall" button.

"RX320 Only" -
This selection defines the RX320 as the primary and only interface.

"RX340 Only" -
This selection defines the RX340 as the primary and only interface.

"RX331 Only" -
This selection defines the RX331 as the primary and only interface.

"RX330 Only" -
This selection defines the RX330 as the primary and only interface.

"RX400 Only" -
This selection defines the RX400 as the primary and only interface.

"RX340 BAUD Rate" -
This list box defines the baud rate to be used to communicate with the RX331/RX340/RX400.

"Argonaut V" -
To use this mode on the Argonaut V, the Argonaut V must be at firmware version 1.04 or later. When using the Argonaut V you can use logging programs to get and set information to and from the Argonaut V by using the Pegasus "Ten-Tec File Interface". You must tell your logging program you are using a Pegasus. In this mode, you may control the Argonaut V with the N4PY control program or the Argonaut V front panel or the logging program. The N4PY control program will poll the Argonaut V at 4 second intervals to get new frequency, filter, and mode information. During a poll operation which is very brief, you may occasionally find a mouse button will not operate. If this happens simply click the button again until it takes effect. Also,

because the

Argonaut V serial interface is very slow, the program S meter is only updated 5 times a second (instead of 20). Also, spectrum sweep is slow because of the slow serial port. The S meter is shut off while using the CW keyboard Keyer to improve timing.

One thing to notice is that if the Argonaut V is in AM mode, the filters are actually twice the normal bandwidth. They will display on the Argonaut V in their true bandwidth but the program will show the bandwidth as half the true value. Thus if a 3000 hertz filter is selected in AM mode, it will display on the radio as 6000 hertz but show in the program as 3000 hertz.

There are several features that cannot be used on the Argonaut V because the serial commands are not available for them. There is no volume setting, power setting, transmit notification, CW offset, mic gain, transmit filter, line level, squelch control, or vox control in the serial interface. There is also no separate transmit frequency.

So you will notice that split mode comes on when you use RIT.

The user transverters may be a problem with the Argonaut V. It is impossible to transmit out of the ham bands with the Argonaut V and the power level cannot be controlled from the PC.

The main VFO in the Argo V will follow VFO A in the program. The Argo V inactive VFO will follow the program VFO B. Do not confuse the meaning of VFO A and B in the program verses the meaning of VFO A and B in the Argo V. In the Argo V, either VFO A or VFO B can be the main VFO. In the program, VFO A is always the main VFO. So, if the Argo V has VFO B set as the main VFO, the program VFO A and the Argo V VFO B will be the same. If you keep the main VFO on the Argo V always set to VFO A, it will be less confusing.

There are also two buttons for saving and restoring the Argonaut V memories. The two buttons are as follows:

SvMem - Clicking this button will allow you to select a "CDF" file to save the memories in. The memories will be saved in a standard CDF file that can be used later to import files. It takes about 2 minutes to save the 100 memories. The Argonaut V memories are numbered 1 to 100.

RsMem - Clicking this button will allow you to select a "CDF" file to restore memories from the file to the Argonaut V. It takes about 2 minutes to restore all 100 memories.

During the Save and Restore memory operations, the current memory will show as the text on the "Store" below, just to the left of the

"Recall" button.

"Omni VII Front Panel Mode"

The Omni VII is supported in 3 different ways. If you primarily want to operate the Omni VII directly from the radio and just do occasional things from the program, then in the "Interface" window, you should select "Omni VII Front Panel". The Omni VII must be in normal front panel mode for this. You put the Omni VII normal front panel mode press rebooting the Omni VII with the "1" key pressed and held. Please note in this mode the Tentec 302 remote tuning knob cannot be used under program control.

There is an interesting way to get all your settings restored if you have to do a master reset. Once all your settings are lost, put your Omni VII in remote serial mode. Then run the N4PY program also in remote serial mode. Make sure all the settings you want are correct and set in the N4PY program. Then exit the N4PY program. While still in remote mode on the Omni VII, go into and then out of the menu. This will save all the settings in the Omni VII. Now when you go back to radio front panel mode, all your settings will be restored.

"Omni VII Remote Serial Mode"

The second way the Omni VII is supported is remote mode. This does not mean you must be using the Omni VII remotely, only that all the function of the Omni VII must be from a computer. This mode in the program allows full Omni VII operation from the serial port. You select remote mode if you want to control everything from the program and nothing from the radio. This is the preferred mode to operate. The radio is 100% controllable from the program this way. To select remote mode in the program, go to the "Interface" window and select "Omni VII Remote Serial Mode". You will also need to put the Omni VII itself into remote mode. You do this by rebooting the Omni VII with the "2" key pressed and held.

Make sure in remote mode, you go to the Omni VII menu and set the first gateway IPADDR to 0. This turns off all ethernet processing in the Omni VII and makes serial port processing much faster. If you see ethernet statistics on the Omni VII screen, you need to do this.

Also, do not change frequency, volume, or press any of the band buttons directly on the Omni VII while in this mode. Doing this will get the program and radio out of step.

Use of the Tentec 302 remote tuning pod is highly recommended for full control of the Omni VII in local remote mode.

"Omni VII Ethernet Remote Mode"

To use this mode with remote transmit and receive audio, you must first install One Plug and go through all the help information supplied by Tentec to get One Plug running. Once you have One Plug up and running, exit the One Plug program. This serves as a diagnostic that your sound card will function with One Plug.

In order to use this version via ethernet, your Omni VII must be at firmware version 1.019 or later.

To select remote mode via ethernet in the N4PY program, select "Omni VII Ethernet Remote Mode" This will cause the comport list box to go away and give you 3 new edit boxes and 1 new check box.

They are:

radio
this
goes
VII

Radio IP - put the TCP/IP address in dotted decimal form that you have selected for the Omni VII. This would be a value like 192.168.1.123 and it must be the same as what you put in the
for the RADIO IPADDR, just that in the program each value is separated with a period. You can also put a network name in
field if your radio has a registered network name.

Port - this is the same value that you put in the Omni VII radio for UDP CMD PORT. Note there is no period in the value that
into the program. The default is 49152. The port value must be between 49152 and 65430.

Pass Code - this value is the same as what you put in the Omni
radio for NET PASSCODE. This must match the radio's value. The default for this is 0.

You will also need to put the Omni VII itself into remote mode. You do this by rebooting the Omni VII with the "2" key pressed and held.

When using Ethernet audio, you must first install OnePlug. Even though OnePlug is not used, it installs necessary drivers for Ethernet audio.

panel.
that

When operating the Omni VII remotely via ethernet, you will see a small number in the upper left corner of the program radio
This number shows the number of unacknowledged messages in the programs send queue. At program startup there are 45 messages
are sent to the radio to get the radio in a completely known condition. You should wait for this number to go to zero before trying to operate the radio remotely. Normally on a good network, this should only take a few seconds. If after a while connection with the radio is lost, the program will say "Initializing Radio" again and this queue number may go above zero. It is normal for this number to occasionally go to 5 or 10 when changing bands. This is a useful indicator of how well the internet connection is operating. The closer to zero this number stays, the better network. Also, this box's background color is color coded to tell you the state of the ethernet connection. The background colors are as follows:

Red - no connection with the radio has been established.
If this box stays red for more than a few seconds, check your ethernet connections and the 3 ethernet setting boxes in the "Interface" window.

Yellow - The radio has been heard from and initialization

is in progress.

Green - The radio is fully initialized and operating.

After the radio is communicating and the above status indicator shows green, a "RIP OK" button will show. Normally you will have this button show blue for selected. If for some reason you want to stop receiving RIP digital audio packets from the radio, you can click this button off. The default setting for this is on, and it will remember the setting from the previous running of the program. Also, just below this button is a link quality percentage. This shows the percent of good messages received on the link. The closer this is to 100.00 the better.

If you leave the "RIP OK" button off, then the N4PY sound card program will not be started. This allows you to run your own sound card program such as Skype. The N4PY sound card program is not started until the N4PY control program receives the first RIP audio packet from the Omni VII.

If you want to use Skype just for transmit audio and still use RIP on receive, then set "RIP OK" to on, and set "Do Not Use TRIP" in the SSB settings window.

The "RIP OK" button can also be used as a mute button.

The slider on the very left labelled "PV" controls the PC Volume. Please note this slider does not operate when using Vista. For Vista, use the PC volume controls directly.

There are two settings in the SSB settings window for RIP and TRIP compression. Experiment with these settings and see what works best for you. Having both RIP and TRIP compression turned on reduces internet bandwidth and is probably the best setting.

"RIP OK" must be off to change the "Use Compressed RIP" setting. You also must be in receive mode to change either the "Use Compressed TRIP" or "Do Not Use TRIP" setting.

You must be in receive mode to change the "Do Not Use TRIP" setting.

When "RIP OK" is turned on, the direct audio on the Omni VII may be

muted, and the display may be blanked according to 2 settings in the SSB settings window. "Display Always On" will keep the display

from being blanked when "RIP OK" is turned on. Also, "Sound Always

On", will keep the Omni VII direct sound always on when "RIP OK" is

turned on. You can of course still set the VA slider to its minimum

value to stop the direct audio. Having this setting on is useful when you want to hear transmit monitor audio directly from the Omni VII.

There is also a slider in the SSB settings window for PC mic gain. This is used to set the best gain for the PC microphone. The range for this is 1 to 127. The default is 30.

The edit box "Latency 200 - 10000" sets the Omni VII buffer latency time. A value of 200 produces about 250 msec of latency. A value of 10000 produces about 1.5 seconds of latency. Lower settings have less latency but you may hear drop outs. The higher settings have less drop outs but more latency. The default is 400. Experiment with this for the smallest value that has low drop outs. All values are truncated to a multiple of 100.

If for some reason the program terminates abnormally, the Omni VII sound card program will be left running and must be manually terminated. To do this, press "Alt-Ctrl-Delete" to bring up the task manager. Here look for the task "N4PY Sound Card" and select it. Then click "End Task". This will manually terminate the program.

For quick and easy remote PTT, I turn the option on "Use Space for PTT" in "Preferences3". This allows the keyboard space bar to be used to turn PTT on and off.

"RX400 Only"

This selection is for the Tentec RX400 receiver. The RX400 should be setup for 57600 baud and all the switches in the back of RX400 should be in the factory default position as shown in the RX400 manual.

The radio must be on before you start the Pegasus Plus program.

For the program's frequency scan, the scan features directly in the RX400 are used.

There is an "RX400 Scan lockout" settings window to manage the frequency scan lockout ranges. This settings window allows you to add, delete, and display these lockout ranges.

For the program's memory scan, the N4PY program's memory scan is used, utilizing the N4PY memory files. See the section in this manual about the "Scan" button for more details.

There is also a "Prg AGC" settings window. This window allows you to setup the Attack, Hang, and Decay values when "Pgm" AGC is selected. There is also a "Reset" in this window to perform a software reset of the RX400.

There is also a "FMB" band button. This button is for the FM broadcast band. Define a step button for 200 khz to step through band.

"Kachina"

This selection is for the Kachina 505 DSP transceiver. The radio must be on before you start the Pegasus Plus program.

Some special things for the Kachina -
First when the program starts, wait several seconds before

operating any controls to give the Kachina time to catch up on all the commands sent to it at program start.

Notch functions -

The NW slider controls notch width. The number under slider shows the notch width. They are:

- 0 = Wide
- 1 = Medium
- 2 = Narrow
- 3 = Automatic

The notch frequency is controlled by first turning on notch with the "Notch" button. Then the PBT slider becomes a notch frequency slider. This slider alternates between PBT and notch by clicking on "Pbt" or "Notch". A little "N" or "P" shows which setting the PBT slider is controlling.

RxAntA - this buttons controls the antenna used during receive.
TxAntA - this buttons controls the antenna used during transmit.

SSB monitor volume is controlled by the ST Vol (side tone volume) control in the CW settings window.

The RF slider controls AGC action which acts similar to RF gain on other radios.

In the "Vox, Line Controls" settings window, there are 3 settings for the AGC Fast, Med, and Slow speeds. 0 is fast and 255 is slow.

In the "FrScan, Options" settings window, there is a setting for Transmit Equalizer.

"Kenwood/Flex/Elecraft/Yaesu Radio Selection"

This list box allows you to select a Kenwood, Flex, Yaesu, or Elecraft radio type.

When using any of these radio you can use logging programs to get and

set information to and from the Kenwood radio by using the Pegasus "Ten-Tec File Interface". You must tell your logging program you are using a TenTec Pegasus. In this mode, you may control the Kenwood radio with the N4PY control program or the Kenwood radio front panel or the logging program. The N4PY control program will automatically update itself from the Kenwood radio.

For the TS-850 and TS-950, the program filter selections have special meanings. They select various IF filter combinations according to the following table:

Selected Program Filter Setting	Actual 8.83	Actual 455
12K	none	Wide FM
7K	none	Narrow FM
6K	6K	6K
2.7K	2.7K	6K
2.6K	6K	2.7K
2.4K	2.7K	2.7K
600 Hz	500 Hz	2.7K

500 Hz	2.7K	500 Hz
400 Hz	500 Hz	500 Hz
270 Hz	270 Hz	2.7K

For the TS-950 you can also have:

250 Hz	2.7K	250 Hz
220 Hz	270 Hz	250 Hz

You can right click on the 12 filter front panel buttons and make each

filter button be what you like. Once you have the 12 filter buttons

defined, make sure the Preferences2 window has the correct settings

for the default filters for each mode.

The TS-850 and TS-950 are fixed at 4800 baud. For the TS-570, TS-870,

TS-480, and TS-2000, there is a baud rate option that appears in the

Interface section when these radios are selected. You should use the highest speed (38400) that works well. In the TS-570, this is menu item 35. For the TS-870, TS-480, and TS-2000, this is menu item 56. Remember when you change the baud rate in the program,

the change does not take effect until the program is exited and restarted.

This is also true for the radio, in that after changing the baud rate

in the radio, you have to power the radio off and then on for the menu change to take effect.

Also, the TS-450 will work with the TS-950 setting.

For the TS-480, you must have menu function 45 turned OFF for correct

operation of the HICUT and LOCUT program buttons.

The main VFO in the radio will follow VFO A in the program. The inactive VFO will follow the program VFO B. Do not confuse the meaning of VFO A and B in the program verses the meaning of VFO A and B in the radio. In the radio, either VFO A or VFO B can be the main VFO. In the program, VFO A is always the main VFO. So, if the radio has VFO B set as the main VFO, the program VFO A and the radio VFO B will be the same. If you keep the main VFO on the radio always set to VFO A, it will be less confusing.

The TS-950 sub-receiver will follow VFO B when the DUAL button is on.

For the Kenwood ts-570, 870, 480, and 2000, there is a meter button that says either ALCmtr or SWRMtr. Clicking this button toggles between the S meter displaying ALC or SWR during transmit.

For the TS-990, the best baud rate is 57600 baud. If you use the comport, this is menu item 61. If you use the USB port, this is menu item 62 in the radio itself.

The TS-990 must be turned on prior to starting the Pegasus Plus program.

When the program starts it will take a few seconds for the program to

read all the settings from the radio and set them in the program. Just wait a few seconds before changing any controls.

In CW mode, the 12 filter buttons control the filter setting. You cannot use a filter wider than 2200 hertz. The 12 filter buttons will be setup to the values in the radio the first time the main receiver is in CW mode.

Also in CW mode, the PBT drag scale controls PBT. This will be set to the value in the main receiver the first time the main receiver is in CW mode.

For the sub-receiver, if DUAL is on, you can right click the 12 filter buttons to change the filter in the sub for CW mode.

In SSB mode, the PBT drag scale and 12 filter buttons are not used.

Instead you use the LOCUT and HICUT buttons and left and right click them to adjust filter width and PBT. For the sub-receiver, there are LoCutB and HiCutB buttons for filter width and PBT.

The LOCUT and HICUT values will be set to the main receiver values the first time the main receiver is in LSB or USB mode.

The LoCutB and HiCutB values will be set to the sub receiver values the first time the sub receiver is in LSB or USB mode.

Menu Item 6-07 MUST be set to HIGH AND LOW CUT for normal SSB.

The ANotch button controls auto notch and manual notch on/off. It toggles between "Anotch" not selected, "Anotch" selected, and "MNotch" selected. When "MNotch" is selected, the "MN" slider controls the manual notch frequency.

Do not leave the SUB button turned on in the TS-990. If you do, it will cause program errors.

If DUAL is turned on, right clicking the mode buttons will change the mode on the sub-receiver.

The CW Pitch setting and the sidetone volume control are not read from the radio. They must be set from the program. For the sidetone volume control, values less than 20 cause it to be linked with the radio's monitor control. Values 20 to 39 set it to "off".

The PSel button turns on the Preselector. The PS slider controls the Preselector center frequency. You can right click on the PSel

button

to center the Preselector frequency. If you change bands with the preselector on, you must turn it off and then back on.

The Elecraft K3 is also selected with an entry in the Kenwood drop down list. The K3 is now supported and even the K3 sub-receiver. If your K3 has the sub-receiver, select "Elecraft K3 DUAL" from the Kenwood drop down list. I recommend you run the K3 at 38,400 baud only. You set this speed in the "Kenwood Baud" box of the "Interface" window. Just remember to exit and restart the program for a change in this window to take effect.

Also, in the K3 CONFIG menu, the VFO IND setting must be set to YES.

When using the K3 in AM mode, if you have the AM board installed, you can toggle between AM and sync AM by left clicking the AM mode button again once you are already in AM mode. Also, in AM mode, the filter width displayed in the program is half of what is displayed by the K3.

If you have the K3 sub-receiver installed, with DUAL turned on, right clicking the "Ant 1" or "Ant 2" button will toggle the sub-receiver antenna connection between antenna 1 and 2. Do not turn on BSET on the K3 while the program is running.

There are 10 user configurable buttons for the K3 (9 if you have the sub-receiver). They are initially labelled "User1", "User2", "User3", "User 4", "User 5", "User 6", "User 7", "User 8", "User 9",

and "Usr 10". These buttons can be defined to perform any K3 front panel button function. In the "User Buttons" window, you can define the button text you want for each of these buttons and the switch values for the user button. The switch values are "H" or "T" (for hold or tap) followed by 2 numeric digits (nn in the table below) to define the switch value. There must be exactly 3 characters with no spaces to define each key value. When you change any of these settings in the "User Buttons" window, you must exit and restart the program for the change to take effect.

The K3 front panel button switch values are as follows:

TAP nn	HOLD	nn	TAP	HOLD	nn	TAP	HOLD
BAND- 40	VOX	09	FREQ Ent	SCAN	41	CWT (0)	TEXT Dec
BAND+ 43	QSK	10	FINE	COARSE	49	AFX (<-)	DATA Md
MODE- 15	ALT	17	RATE	LOCK	50	V->M	AF REC
MODE+ 23	TEST	18	*SUB	Lnk/Unlnk	48	M->V	AF PLAY
MENU 21	CONFIG	14	A/B (1)	BSET	11	M1	M1-RPT
XMIT 31	TUNE	16	REV (2)	n/a	12	M2	M2-RPT
RX ANT 35	Sub Ant	25	A->B (3)	SPLIT	13	M3	M3-RPT

DISP 39	METER	08	PRE (4)	ATT	24	M4	M4-RPT
ATU Tun 37	ATU	19	AGC (5)	OFF	27	REC	MSG Bank
ANT 45	ANT Name	26	XFIL (6)	DUAL PB	29	RIT	PF1
SHIFT/LO 47	NORM	58	NB (7)	LEVEL	33	XIT	PF2
WIDTH/HI 53	I/II	59	NR (8)	ADJ	34	CLR	n/a
SPD/MIC	DELAY	57	NTCH (9)	MANUAL	32		
CMP/PWR	MON	56	SPOT	PITCH	42		

For example, to make a user key perform a band down function you would put "T09" for that user key.
To make a user key perform QSK, you would put "H10" for that user key.

Also in the "User Button" settings window there is a checkbox "K3 Utility Terminal Passthru Virtual Comport". Checking this box and then selecting a virtual comport on the left from the comport list box will turn on a special feature that allows the "Elecraft K3 Utility" program to run at the same time as the N4PY program. This is used ONLY for the K3 Utility terminal program so that digital modes can be used in conjunction with the K3 Terminal program and Pegasus Plus. You must create a virtual comport pair using a virtual comport program such as VSP Manager. I have a link on my "Previous Versions" page for it. One of the comports must be set here in the Pegasus Plus program and the other half of the pair must be set in the K3 utility under "Port". It is important to note that this pair will ONLY work for the terminal program. If you are going to run the utility for anything else, you must change the utility comport back to the real K3 comport.

The K3 must be at MCU firmware level 3.48 or later.

The KX3 can also be controlled. There is an entry for the Elecraft KX3. There is also an entry for the Elecraft KX2.

The "Flex" selection is to select a Flex radio type such as the Flex-5000, Flex-3000, Flex-1500, or SDR-1000. If you have the Flex-5000 with the second receiver built in, select Flex-5000 & RX2. You must start the PowerSDR program first before starting the N4PY program. You must use a virtual comport pair to access powerSDR unless you have the Flex-5000C. VSP Manager is the recommended virtual comport driver. See the Flex Knowledge base for installing this driver. Do not use this selection for the Flex 6000 series. Instead use the "Flex 6000-8000" selection.

In PowerSDR, you must allow the "AI" command in its CAT settings. When the program sets a filter in PowerSDR, it uses the "VAR2" filter position for this. There is a feature that if split transmit is turned on, clicking a new frequency on the panadapter will cause this frequency to go to VFO B. This is great for working split DX pileups.

The program is designed for you to control most things from the

N4PY program. But most things can be changed from either N4PY or PowerSDR. The only exception to this is antenna control on the Flex-5000, volume control, and the monitor setting. The antenna and receive antenna must be done in the N4PY program. The program will remember antenna settings by band. The monitor setting must be done in the N4PY program because powerSDR sometimes leaves it on in CW after transmitting. The program fixes this problem.

CW mode in the N4PY program uses CWL. Right clicking on the CW button sets CW reverse (CWR) which uses CWU.

"Elecraft K2" -

When using the Elecraft K2 you can use logging programs to get and set information to and from the Elecraft K2 by using the Pegasus "Ten-Tec File Interface". You must tell your logging program you are using a TenTec Pegasus. In this mode, you may control the Elecraft K2 with the N4PY control program or the Elecraft K2 front panel or the logging program. The N4PY control program will automatically update itself from the K2.

Filters on the K2 are handled with a special settings window called "K2 Filters". In this window, you define for the program, the bandwidth for FL1, FL2, FL3, and FL4 for CW, SSB, and RTTY mode. You should pick the nearest bandwidth value that is in the list for each filter. Once you have all 12 filter boxes defined properly, right click on the 12 filter front panel buttons and make sure each K2 filter size you have selected is somewhere on the 12 filter buttons. Lastly, make sure the Preferences2 window has the correct settings for the default filters for each mode.

The K2 DSP unit is supported. If you have the K2 DSP unit, enable it in the program by turning on the check box "DSP Installed" in the "User Buttons" window. You must exit and restart the program for this to take effect.

There are 7 buttons on the left side of the program radio panel to control DSP. They are as follows:

"DSP" - This button is used to turn DSP on or off. DSP is enabled if this button is highlighted.

"FIL 1" to "FIL 4" - These buttons select the appropriate DSP filter.

"NR 1" - This button is used to turn noise reduction off and on. Left clicking the button toggles NR off and on. Right clicking this button, advances the NR level to the next level.

"Anotch" - This button toggles the auto notch off and on.

Please note that while a DSP operation is in progress, do not press any keys until the DSP operation has finished. This is indicated by the K2 display returning to a frequency display.

Also,

the program needs the K2 display to be returned to the frequency display if you manually bring up the DSP or other menus. When the program is started, the K2 display must not be in any menu.

There are 6 user configurable buttons for the K2. They are initially labelled "User1", "User2", "User3", and "User4". These buttons can be defined to perform any K2 front panel button function. In the "User Buttons" window, you can define the button text you want for each of these buttons and the switch values for the user button. The switch values run from 1 to 69 and are defined in the table below. You can assign more than 1 value for each button, just separate the values with a space. For example, if you want to make the "User1" button be "Band Up", you would put "Bnd Up" for the User1 button text and a value of "1" which corresponds to the band up switch number. Use a value of blank to disable the key.

Switch	Value	Switch	Value	Switch	Value	Switch	Value
BAND+	01	A/B	09*	RECALL	17	REV	25*
DISPLAY	02	A=B	10*	RF/ALC	18	SPLIT	26*
BAND-	03	PRE/ATT	11*	STORE	19	SPOT	27*
ANT 1/2	04*	AGC	12*	TUNE	20*	CW RV	28*
MENU	05	XFIL	13	EDIT	21	AFIL	29
NB	06*	RIT	14*	NB LEVEL	22*	PF1	30
RATE	07	XIT	15*	LOCK	23	PF2	31
MODE	08	MSG	16	VOX	24*	REC	32

Function	Value
FINE RIT on/off	33
Direct Freq. Entry	34
Fwd/Refl Power	35
AGC on/off	36*
XFIL/AFIL status	37

Please note that values above marked with "*" should be done through the normal program buttons and not by setting the User buttons to do them.

Primary Menu				Secondary Menu			
Entry	Value	Entry	Value	Entry	Value	Entry	Value
ST L	38	LCD	46	SLCH	54	RTC	62
ST P	39	GRPH	47	RATES	55	RIT	63
T-R	40	OPT	48	DOT	56	ACC	64
INP	41	ATU	49	FPLY	57	AT2	65
RPT	42	RANT	50	PORT	58	PA	66
IAB	43	CAL	51	SPLT	59	TRN1	67
SSBA	44	PF1	52	Po28	60	TRN2	68
SSBC	45	PF2	53	RTTY	61	TRN3	69

There are several features that cannot be used on the K2 because the serial commands are not available for them. There is no volume setting, power setting, mic gain, transmit filter, line level, vox gain, or anti-vox.

The user transverters may be a problem with the K2. It is impossible to transmit much out of the ham bands with the K2.

If you have 6 and/or 2 meter transverters that already work with your K2, you can still use the "6" and "2" band buttons to use them. All you have to do is configure the 6 meter and 2 meter transverters as straight through. You do this by going to the "6 & 2 TransV" window and setting the "6m IF" to "50.0" and the "2m IF" to "144.0". Set both crystal corrections to 0. And set both drive levels to 255.

The main VFO in the K2 will follow VFO A in the program. The inactive VFO will follow the program VFO B. Do not confuse the meaning of VFO A and B in the program verses the meaning of VFO A and B in the K2. In the K2, either VFO A or VFO B can be the main VFO. In the program, VFO A is always the main VFO. So, if the K2 has VFO B set as the main VFO, the program VFO A and the K2 VFO B will be the same. If you keep the main VFO on the K2 always set to VFO A, it will be less confusing.

There is a button on the program radio panel called "Ant 1". This button will cause the K2 to select antenna 1 or antenna 2. This button is remembered by band and must be set to what you want the very first time you go to a new band with the program.

Also, make sure you have the "SPLT" option on the K2 set to "NOR" and not "PER". When in "PER", the program has trouble with band changes and will not remember the "split" setting properly.

"Flex 6000-8000"

This selection is for using the Flex 6000 and 8000 series radios. The program connects directly to the Flex 6000 or 8000 radio and operates

as a control extension for SmartSDR. Both the Flex 6000 or 8000 and

SmartSDR must be running when the N4PY program is started. Also slice A should be already created before starting Pegasus Plus. Please note SmartSDR CAT is no longer required or used at all.

You must be using SmartSDR version 1.3.0 or later.

This will allow simple control for frequency, mode and filter. Also if you want the FlexKnob to be controlled by Pegasus Plus (highly desirable), turn off the FlexKnob setting in SmartSDR. To activate the FlexKnob in Pegasus Plus, go to the "Aux Single" menu in Settings and select "Using FlexControl Knob".

In the Interface settings window, the setting "Direct IP Address Connect"

is used when the program has difficulty finding the radio. When you

turn on this setting, it will give you an edit box to enter the IP address

of the radio directly. You will also have to select the correct model.

Also in the Interface settings window, if you have multiple Flex radios,

turn on "Multiple Flex Radios". This will allow you to enter the

serial
number of the radio you want to connect to. This is very valuable
with
multiple Flex radios and you want to run multiple copies of
Pegasus Plus
with each copy dedicated to one of the Flex radios. Enter the 16
digit
serial number and include the dashes.

Pegasus Plus now will set the Flex radio receive ant to RX A
and set the transmit ant to XVTR for transverter use. When you
leave
the transverter band, these antenna settings will be restored to
ANT 1. There is also a selection on each transverter setting for
which TX OUT connection to use for transmit control for each
transverter.

In the transmitter settings windows, HF TxOut is used to select
TX1, TX2, or TX3 for HF operation. For SO2R, when you need a
different
TxOut setting for slice B, use the HF TxOut B selection. If you
want
the TxOut selection to always be the same for slice A or slice B,
set
HF TxOut B to "Use A".

Flex Version 3 Multiflex Feature
Support in Pegasus Plus allows this program to work in a
multiflex
environment. The only pegasus plus configuration for this is

F6K STATION NAME=

This station name will be filled in automatically with the
station
name of the first GUI client that is seen by Pegasus Plus. Once
this station name is filled in, from then on that will be the
station
that Pegasus Plus will operate with. If you want to change the
station that Pegasus Plus works with, then exit Pegasus Plus and
blank out the station name field. Then just have the GUI client
that you want to connect to running and start Pegasus Plus. The
program will then remember this GUI client and only connect to
it.

You can run multiple copies of Pegasus Plus and have each copy
connect
to a different GUI client in this way. A GUI client is a
program such
as SmartSDR or Maestro that displays a panadapter.

There are two new buttons on the Pegasus Plus radio panel for the
Flex 6000. They are as follows:

VFOA=A

Clicking this button will give you a list of all possible slices
in the 6000-8000. You can reassign the Pegasus Plus VFO A to
any
available slice shown on SmartSDR. In order to reassign a slice
to VFO A, the slice must exist and not be assigned to VFO B.
Also, "split" must be off when this assignment is done.
This feature cannot be used when running with multiple GUI-

clients

with Version 3 multiflex.

VFOB=B

Clicking this button will give you a list of all possible slices in the 6000-8000. You can reassign the Pegasus Plus VFO B to

any

available slice shown on SmartSDR. In order to reassign a slice to VFO B, the slice must exist and not be assigned to VFO A. Also, "split" must be off when this assignment is done.

This feature cannot be used when running with multiple GUI-

clients

with Version 3 multiflex.

When you click "Split", if the VFO B slice does not exist, it will be create automatically.

The "RF" slider actually controls the AGC threshold for the slice associated with VFO A.

The "rf" slider actually controls the AGC threshold for the slice associated with VFO B.

The "NB" slider controls the noise blanker for the slice associated with VFO A.

The "WN" slider controls the wide noise blanker.

The "VA" slider controls the volume for the slice associated with VFO A and the "VB" slider controls the volume for the slice associated with VFO B.

Swap AB Asn

This button will swap the vfo assignment between Slice A and Slice B.

Both slice A and slice B must exist when it is clicked.

This feature cannot be used when running with multiple GUI-

clients

with Version 3 multiflex.

PreAm0

This button will send the preamp value to the Flex 6000-8000. It will

remember this setting by band. Left clicking this button will reduce

the preamp value and right clicking will increase the value.

For

the 6300, the values are 0 and 20 db. For the 6500, the values are

-10, 0, 10, and 20 db. The 6700 has all the 6500 values plus a

30 db value. For the 6700, the preamp value is only changed for the receiver

assigned to slice A.

MPreA0

This button will send the preamp value for the monitor panadapters to

the Flex 6000-8000. Left clicking this button will reduce the preamp value

and right clicking will increase the value. For the 6300, the

values

are 0 and 20 db. For the 6500, the values are -10, 0, 10, and 20 db.

The 6700 has all the 6500 values plus a 30 db value. For the 6700, the preamp value is only changed for the receiver assigned to slice A.

Fix Pans

This button is used when the panadapters start out with their settings all changed from normal at SmartSDR startup. This button will send the following 4 settings to all panadapters according to what you have set in the pegasus.ini configuration settings file.

Here are the settings with their defaults:

F6K PAN AVERAGE=50

F6K PAN FPS=24

F6K PAN GAIN=24

F6K PAN RATE=80

You can change these settings with the pegasus plus not running.

Clear Spots

This button will remove all spots sent to the radio from any source.

QSK (Qsk or Semi button)

There is a Qsk/Semi button. Left clicking this button will change the CW QSK delay value. It will alternate between a QSK value and a semi-breakin value each time you click this button. If you want to change the values used by this button for semi and QSK delays then proceed as follows:

To change the QSK button delay value for Qsk

- 1) Set the button so it says "Qsk".
- 2) Set the CW Qsk slider in the CW settings window to the desired value.
- 3) Right click on the Qsk button.
The button will change to highlighted indicating the Qsk value has been changed. It will stay highlighted until the button is left clicked again.

To change the QSK button delay value for semi-breakin

- 1) Set the button so it says "Semi".
- 2) Set the CW Qsk slider in the CW settings window to the desired value.
- 3) Right click on the Semi button.
The button will change to highlighted indicating the semi-breakin value has been changed. It will stay highlighted until the button is left clicked again.

The TxLoop button at the top of the program can be used to control the setting of TX1, TX2, or TX3 for amplifier keying. First you decide which TX connection you want to use. Then, in the "Transmitter" settings

window, select None, TX1, TX2, or TX3.

Now, when you turn on TxLoop (indicated by a little TxL in the black frequency

area), the corresponding TX PTT output will get enabled. This line will only

be enabled when the operating frequency is below 144 mhz. In this way you can

easily control whether or not to key your amplifier.

OTRSP commands are now supported for the Flex 6600, 6600M, 8600, 8600M, and 6700 since these

radios allow real SO2R with a single radio. To enable OTRSP

1) Create a virtual comport pair with MicroHam or VSPManager. Let's assume you

create COM10 and COM11.

2) If you do not have a comport assigned in "External Ports", turn on

"THP Comport 1" and "Use THP Comport for EXT Logging Program".

If you already have assigned a comport to the THP Comport 1, then pick another one from THP Comport2 to THP Comport8.

3) In the pegasus.ini file, set OTRSP THP=x where x is 1 to 8 depending

on which THP comport you have used for this.

4) In your logging program, select OTRSP for audio usage and for this example

use COM11.

Fixed Panadapter Ranges

There is a file called "f6kpan.txt". This file is used to define fixed

ranges for the panadapter display. When any panadapter frequency is within

any range defined in this file, the panadapter frequency limits are set to

how you have this defined. The file is an ASCII text file and the format

is obvious by looking at the file. You can add as many entries to this file

as you need with a limit of 90 entries. This feature is turned on and off

by the setting "Pan Ranges" found in the "Preferences3" settings window.

You can also set the ranges for panadapters that are mainly used for band

monitoring. In the "f6kpan.txt" file, if you add a panadapter number to

the name of a line entry, that panadapter will have its range set to the

range of the line. For example, if you had a line

PAN,21.0,21.100

and wanted this line to go to panadapter 2, you would change it to

PAN2,21.0,21.100

The number defines the panadapter number from 1 to 8, This is only set at program start and the monitor panadapters must exist before you start the program. There is also a "Res PAN" button that will rerun the panadapter initial setting again if you want to reset your panadapters to the initial setup.

If Pegasus Plus is stuck at "Waiting to Connect" and SmartSDR is connected to the Flex 6000-8000, it is most likely because Windows Firewall is blocking it.

To allow Pegasus Plus to run and not be blocked by Windows Firewall, do the following:

- 1) Click "Start".
- 2) Select "Control Panel".
- 3) Select "Windows Firewall".
- 4) Click on "Allow a program or feature through Windows Firewall.
- 5) Click on "Browse" and navigate to the folder where you installed Pegasus Plus (default c:\n4py).
- 6) Click on BBTRX1.EXE and then click "Open".
- 7) Finally click "Add".

"Expert SDR"

This selection is for using the Expert SunSDR radios. As long as you are using Windows 10 or later, the program connects directly to these radios via an Ethernet connection using their TCI interface. No comports are used. Please note that the ExpertSDR program must be started and connected to the radio before starting Pegasus Plus. And in ExpertSDR, make sure you enable the TCI function in the Options window. The program uses a default port of 40001. This is the default port for ExpertSDR2. If you are using ExpertSDR3, the default port is 50001. You can change this in Pegasus Plus to 50001 to match what is in ExpertSDR3. The TCI Port setting for Pegasus Plus is in the Interface settings window.

The DUAL button has 2 ways of operating. If the RX2 receiver is switched off, the second vfo of the primary receiver becomes the programs VFOB. If the RX2 receiver is on, then the primary receiver in RX2 becomes VFOB.

The "Center PAN" button will center the panadapter according to the range definitions in the sunpan.txt file. You can change this file and customize these ranges to your liking.

The "Clear Spots" button will remove all the spots this program has sent to ExpertSDR.

For the MB1 when running ExpertSDR in a different computer than Pegasus Plus, you need to define the IP address for ExpertSDR.

To do this, open the whtp.ini configuration settings file and find the line

TCI IP=127.0.0.1

and change it to the IP address of ExpertSDR.

If you are using Windows 7, then the Ethernet interface is not available. Instead a comport is used providing a traditional comport interface. In this interface you must use a virtual comport pair that you define in VSPManager. And for RX2 control, you use a second comport pair and enter one side of the second pair in the Interface2 settings window for RX2 control.

"Elecraft K4"

To configure the program for the Elecraft K4 over ethernet:

- a) Start the program.
- b) Select "Settings" at the top of the Radio screen.
- c) In the "Interface" window, select "Elecraft K4 Ethernet".
- d) Exit Pegasus Plus.
- e) Restart Pegasus Plus.
- f) Exit the program.
- g) In the k4, use the K4 menu to find the IP Address.
- h) In Pegasus, in the interface settings window, put in the IP Address in the "Radio IP" edit box.
- i) Exit and restart Pegasus Plus again and you should be running.

If your K4 is at a remote location on a different local area network, you will need to set port forwarding in the router the K4 is connected to. You must forward port 9200 to the local IP address displayed in the K4. In Pegasus plus for the radio IP, you use the remote router IP address.

"ANAN Radios"

To configure the program for an ANAN radio type using Thetis:

- a) Start the program.
- b) Select "Settings" at the top of the Radio screen.
- c) In the "Interface" window, from the Kenwood list box, select "ANAN Thetis with or without RX2" depending on your radio type.
Only the Anan 10, 100, and 100B do not have RX2.
- d) In Thetis, in the setup window select "network" and turn on Server Running under TCP/IP. Make sure the IP address in Pegasus is 127.0.0.1.
make sure Thetis shows "127.0.0.1:13013" for IP and port.
- e) Exit and restart Pegasus and you should be connected.

To configure the program for an ANAN radio type not using Thetis:

- a) Start the program.
- b) Select "Settings" at the top of the Radio screen.
- c) In the "Interface" window, select "Flex" or "Flex-5000 & RX2"

- from the Kenwood list box.
- d) Select the correct comport. You need a program virtual comport program to create a virtual comport pair such as VSPManager. Set one of those comports here and the other one in PowerSDR's CAT setting.
 - e) Exit the program.
 - g) Start the program again and you should be running.

All references below to PowerSDR MRX apply equally to Thetis. Thetis has the identical CAT interface as PowerSDR MRX.

The "Flex (not F6000 series)" selection is to select the ANAN-10 or ANAN-100.

If you have the ANAN-100D, 200d, 7000 DLE, or 8000DLE, select the "Flex-5000 & RX2".

You must start the PowerSDR MRX program first before starting the N4PY program.

You must use a virtual comport pair to access powerSDR MRX.

In PowerSDR MRX, you must allow the "AI" command in its CAT settings.

When the program sets a filter in PowerSDR MRX, it uses the "VAR2" filter position for this.

The program is designed for you to control most things from the N4PY program. But most things can be changed from either N4PY or PowerSDR MRX. The program will remember antenna settings by band.

CW mode in the N4PY program uses CWL. Right clicking on the CW button sets CW reverse (CWR) which uses CWU.

"WriteLog Multiple Radio Interface" -

This feature should only be turned on when using WriteLog and running

multiple instances of the N4PY program with each instance controlling

a separate radio. This feature allows WriteLog to log each instance

of each N4PY program to a separate log file in WriteLog. Each instance is associated with the primary comport number the N4PY program is using.

Please note that for the Flex 6000-8000 series, since there are no comports,

this feature is setup differently. Each instance of the N4PY program

needs to have a different value for WL MULTIPLE. Open the Pegasus.ini

configuration settings file and find the line

WL MULTIPLE=0

and change it for each copy to a different number starting with "2".

So if you were doing 4 copies this way, they would be

```
WL MULTIPLE=2      for the first instance
WL MULTIPLE=3      for the second instance
WL MULTIPLE=4      for the third instance
WL MULTIPLE=5      for the fourth instance
```

This is what defines different instances for WriteLog. The key is the WL MULTIPLE value must be greater than 1.

Once this is setup with the Flex 6000-8000 radios, each instance of the N4PY program can have a different slice setup as VFOA by using the "VFOA=A" button.

Yaesu FT-450, FT-950, FTDX-101D, FTDX-101MP, FTDX10, FT-2000 series, FT-5000, and FT-9000 series.

The Yaesu radios all default to 4800 baud. For best operation set both the radio and program baud rate to 38400. When you change the program baud rate, you will have to exit and restart the program for change to take effect.

The main VFO in the radio will follow VFO A in the program. The inactive VFO will follow the program VFO B. Do not confuse the meaning of VFO A and B in the program verses the meaning of VFO A and B in the radio. In the radio always make VFO A be the main VFO. In the program, VFO A is always the main VFO.

The FTDX-101D, FTDX-101MP, FT-2000, 5000, and 9000 sub-receiver will follow VFO B when the DUAL button is on. You must have DUAL turned on for the program to change things on the sub-receiver. You can change filters, mode, and AGC on the sub-receiver by right clicking the program buttons for these operations.

For the FT-450, when adjusting mic gain, the value show on the mic gain slider in the SSB settings window will be low for 0 to 85, normal for 86 to 170, and high for 171 to 255.

It is absolutely essential to set both the Yaesu radio CatRate and N4PY program baud rate to 38400. The program sends a lot of data to the radio and slower baud rates will cause errors.

In the file menu, if you click "Save radio memories to a file" this will allow you to select a "CDF" file to save the Yaesu radio memories in. The memories will be saved in a standard CDF file that

can be used later to import files.

In the file menu, if you click "Restore radio memories from a file" this will allow you to select a "CDF" file

During the Save and Restore memory operations, the current memory will show as the text in the station memory window.

For the FT-1200, FT-3000, FTDX-101D, FTDX-101MP, FTDX10, FT-891 and FT-991 there are AP and CO sliders. The "AP" and "CO" buttons at the top of the sliders turn on these functions. The "AP" slider controls the APF function and the "CO" slider controls the contour function.

"Using Microham Band Decoder" -
Set this checkbox when you are using the Microham band decoder with a Kenwood or Elecraft radio. It causes the "IF" command to be sent to the radio once a second so the band decoder can keep track of settings.

All changes to the above check boxes require a program restart before they go into effect. The list box on this window defines the comport number used as the primary radio port.

Interface2 Window

This window allows you to configure the radio you have connected to your second comport. The choices are check boxes as follows:

Special note for users of the Elecraft K2 when using a Pegasus, Jupiter, RX350, or RX320 as a second receiver with the K2:

Because the K2 does not have general coverage, there is a special feature that causes the second receiver to become VFO A when the program is not in the ham bands. This switch from the K2 to the second receiver occurs automatically as long as Spectrum Sweep is off and DUAL receive is off. During the time that the second receiver is on VFO A, the VB slider will control its volume. Also all access to the settings menu is disabled and DUAL and Sweep are not allowed during this time. Switching back to a ham band will restore all operation back to normal.

"RX320" -
This check box defines the RX320 as the second receiver to be used as a sub-receiver with the Pegasus/Jupiter, K2, or Omni VII.

"Second Pegasus/Jupiter" -
This check box defines a second Pegasus/Jupiter as the second receiver to be used as a sub-receiver with the primary Pegasus/Jupiter, K2, or Omni VII.

"RX350" -

This check box defines the RX350 as the second receiver to be used as a sub-receiver with the Pegasus/Jupiter or K2.

"RX331" -

This check box defines the RX331 to be used as the main receiver and the Pegasus/Jupiter receiver to be used as a sub-receiver.

"RX330" -

This check box defines the RX330 to be used as the main receiver and the Pegasus/Jupiter receiver to be used as a sub-receiver.

"RX340" -

This check box defines the RX340 to be used as the main receiver and the Pegasus/Jupiter receiver to be used as a sub-receiver.

If you are using the Omni VII as your main radio, then select "Omni VII Remote Mode" in the "Interface" window. Turning this setting on will allow the RX340 to be used as sub-receiver with the Omni VII while in the ham bands, and make the RX340 be the main receiver when not in the ham bands. Operation of switching main receivers is done automatically and controlled by the program's front panel button "RS OK". This button means "radio swap is Ok". With this button turned on (highlited), when you change frequencies and go out of the ham bands, the RX340 automatically becomes the main receiver. And when you switch back to the ham bands, the Omni VII will switch back to being the main receiver. With the RX340 as the main receiver, the "DUAL" button is inoperative. If you have the RSOK button turned off, (not highlited), then switching out of the ham band will not make the RX340 the main receiver. Also, there is a slider with a lower case "rf" label. This slider controls the RF gain for the RX340 when the Omni VII is the primary slider.

"Elecraft K2" -

This check box defines the K2 to be used as the sub-receiver, and the Pegasus/Jupiter or primary K2 receiver to be used as the main receiver. When two K2's are used in this setup, the frequency exported to a logging program will be the frequency of the last K2 to transmit if the DUAL button is on. If the last K2 to transmit was the second K2, this frequency will remain valid until the DUAL button is turned off. This is very useful for S02R operation. When the "DUAL" button is on, the second K2 main VFO will follow VFO B in the program. With the "DUAL" button off, the 2nd K2 will not be considered as being used.

"RX331/RX340 BAUD Rate" -

This list box only appears if you are using the RX331/RX340 version.

This list box defines the baud rate to be used to communicate with the RX331/RX340.

All changes to the above check boxes require a program restart before they go into effect. The listbox on this window defines the comport number used as the second radio port.

There is a feature for the Flex 6000-8000 series that allows the RX EQ values to be saved and restored by mode. To set this up you need to turn on a settings.

With the program NOT running, open the pegasus.ini configuration settings file and find the line

F6K RXEQ BY MODE=0

and change it to

F6K RXEQ BY MODE=1

and save the file.

Now when you run the program you have to setup this up one time for CW and one time for SSB. So while in CW mode, set the RX EQ to exactly what you want for CW, and then in the SSB settings window, click "Save RXEQ".

Then go to USB or LSB mode and set RX EQ to exactly what you want. Then in the SSB settings window, again click "Save RXEQ".

That's it. Each time you change modes, you will see RX EQ change to what you previously saved for that mode.

Special Right Click on the Filter Bandwidth Window

If you right click on the right side of the filter bandwidth window, you will go to the next narrower filter. If you right click on the left side of the filter bandwidth window, you will go to the next wider filter. In this way, you can get access to all filters without having to configure them into a filter button. This is useful for SSB reception with heavy QRM to select the optimum filter.

K3/KX3 100 watt amplifier setting

The K3 and KX3 can have the 100 watt amplifier built in. In the "Transmitter" settings window, if you have the 100 watt amplifier, turn on the setting "K3/KX3 100 watt". If you don't have the built in 100 watt amplifier, turn this setting off.

SWR Protection for the Pegasus

There are two edit boxes in the Transmitter window for SWR protection for the Pegasus. The Jupiter has built in over current protection in the final circuitry but the pegasus does not. The two edit boxes are:

"MAX SWR for Full Power" - Set this to the maximum SWR that you expect

to normally have. I set this to 2.5. The trip point is actually derived by computing the reflected power at this SWR with 100 watts forward power.. The trip point is then just when this level of reflected power is reached.

"HI SWR Power Reduction" - Set this to the power you want the pegasus reduced to when the "MAX SWR for full power" value is exceeded. I set this to 50 watts.

If you do not wish to use this, set the "HI SWR Power Reduction" value to 100 watts.

Frequency Event Timer

This option is selected with a check box in "Preferences3". This feature allows you to define frequency events and have the radio go to those frequencies when the time for the event occurs. This is very useful for unattended operation with a receiving radio on the internet. The frequency events are defined in a special file called "events.txt". This file is created the first time you turn this option on with its check box. The file is located in the c:\n4py folder or wherever you have the program installed.

Once you have turned on the option the first time, exit the program, and edit the "events.txt" file to create frequency events. Do not edit the file with the program running. The file is column sensitive. Each time must be 2 numeric characters followed by a colon, followed by 2 numeric characters. There should then be one space followed by a frequency expressed in megahertz.

The events are defined by the day of the week. There can be up to 24 events for each day of the week. The file has a section for each day of the week and 24 events for each day. You should carefully edit the default lines with the values you want. All the default lines have a time of 00:00 and a frequency of 00.000. These times are in the local time of your computer and not in UTC. The times must be in 24 hour time with a range from 00:00 to 23:59. When program finds a match with the day of the week, hour, and minute, the program will change to the indicated frequency and set the corresponding default mode and filter.

If you put in an event with a frequency of 99.000, the program will exit. This is useful if you want the program to exit at a prescribed time.

Internal Tuner

Setting the "Enable Intrnl Tuner" check box in the "Transmitter" window

of the "settings" menu will cause the radio internal tuner controls to appear at the lower left side of the radio panel. There are 5 buttons. They are:

- 1) "Auto Tnr" - Left clicking this button will cause the internal tuner to go into auto tune mode. When the SWR stabilizes or 8 seconds go by, it will automatically stop.
- 2) "Bypass" - Left clicking this button will put the internal tuner into bypass mode, thus removing it from the output circuit.
- 3) "Cap" - Left clicking this button will tweak the capacitor setting of the tuner "down" in value. Right clicking this button will tweak the capacitor setting "up" in value.
- 4) "Ind" - Left clicking this button will tweak the inductor setting of the tuner "down" in value. Right clicking this button will tweak the inductor setting "up" in value.
- 5) "HiZ" - Left clicking this button will cause to internal tuner to go to its "Lo Z" or low impedance setting. Left clicking again will cause the tuner to go to its "Hi Z" or high impedance setting. The descriptor on the button indicates the current impedance setting of the tuner.

There is also a slider in the "transmitter window" of the settings window. This slider is labelled "Tuner Pwr" and controls the amount of power used when the internal tuner is tuning. The range is 10 to 50 watts.

Please note that you must have purchased the radio internal tuner from Ten-Tec for this to work.

Internal Tuner (Omni VII)

Setting the "Enable Intrnl Tuner" check box in the "Transmitter" window of the "settings" menu will cause the Omni VII internal tuner controls to appear at the lower left side of the radio panel. There are 2 buttons. They are:

- 1) "Auto Tnr" - Left clicking this button will cause the internal tuner to go into auto tune mode. When the SWR stabilizes or 12 seconds go by, it will automatically stop. While tuning, the button will remain blue and be inoperative. When tuning completes, it will turn black if the tuning was successful, and red if the tuning failed.
- 2) "Bypass" - Left clicking this button will put the internal tuner into bypass mode, thus removing it from the output circuit. This button cannot be clicked while an "Auto Tnr" is in progress.

Please note that you must have purchased an Omni VII with the internal tuner from Ten-Tec for this to work.

LDG Electronics PT-11 Plus Internal Memory Tuner for the Pegasus

Setting the "Enable Mem Tuner" check box in the "Transmitter" window of the "settings" menu will cause the pegasus internal memory tuner controls to appear at the lower left side of the radio panel.

There are 7 buttons. They are:

- 1) "Auto Tnr" - Left clicking this button will cause the internal memory tuner to go into auto tune mode. When the SWR stabilizes or 8 seconds go by, it will automatically stop. When it completes, the store memory routine will automatically run to save the current settings for the particular memory range you are in.
- 2) "Bypass" - Left clicking this button will put the internal memory tuner into bypass mode, thus removing it from the output circuit.
- 3) "Cap" - Left clicking this button will tweak the capacitor setting of the tuner "down" in value. Right clicking this button will tweak the capacitor setting "up" in value.
- 4) "Ind" - Left clicking this button will tweak the inductor setting of the tuner "down" in value. Right clicking this button will tweak the inductor setting "up" in value.
- 5) "HiZ" - Left clicking this button will cause to internal tuner to go to its "Lo Z" or low impedance setting. Left clicking again will cause the tuner to go to its "Hi Z" or high impedance setting. The descriptor on the button indicates the current impedance setting of the tuner.
- 6) "Sto" - Left clicking this button will cause to internal memory tuner to save its current settings for this frequency to memory. It is only necessary to use this button if the "touch up" cap and ind buttons have been used.
- 7) "Rcl Tnr" - Left clicking this button will cause the internal memory tuner to recall the last settings for this frequency from the tuner's memory. If the SWR is greater than 2.0, the "Auto Tnr" procedure will automatically be started to try and find a better match.

There are memories in the PT-11 plus for saving settings. I use an algorithm based on frequency to determine the frequency range for memory. The frequency range for each memory is the following size according to the band in use:

Band	Memory Width in kHz
160	10
80	20
40	40
30	50
20	50

17	50
15	50
12	50
10	50

This means that the first memory for 14.0 will cover 14.0 to 14.050. So, if your band settings are saved for this range, they will not be saved for 14.050 to 14.100, the second range for this band.

There is also a slider in the "transmitter window" of the settings window. This slider is labelled "Tuner Pwr" and controls the amount of power used when the internal tuner is tuning. The range is 10 to 50 watts.

There is a button called "Setup Tuner Memory". This button allows you to automatically setup all the tuner memories for the band you are currently tuned to. So, for example, if you are currently tuned to 14.230 Mhz and you click this button, it will automatically go through auto tune steps at 14.025, 14.075, 14.125, 14.175, 14.225, 14.275, and 14.325 which is the center frequency of each tuner memory for the 20 meter band. Note that the 10 meter FM band is a separate band for this

purpose and will not be setup when 10 CW or 10 SSB is selected. Also note that the tuner setup function will respect your license class you have defined and only transmit where your license class allows.

Please note that you must have purchased the LDG PT-11 Plus pegasus internal memory tuner from LDG Electronics for this to work.

LDG Electronics AT-200PC Autotuner

Setting the "Enable AT-200PC" check box in the "Transmitter" window of the "settings" menu will cause the memory tuner controls to appear at the lower left side of the radio panel.

You must also set the correct comport for the AT-200PC.

When using the Jupiter with the AT-200PC, you must be in pegasus emulation mode. The Jupiter cannot be keyed from the program while in front panel mode.

The LDG AT-200PC must be at firmware version 1.9 or later for correct operation. See the LDG website for how to upgrade your tuner to this version.

When using this tuner, the program will remember the tuner antenna settings by band. In addition, when changing bands with the program band buttons, the last tuner setting for that band will be recalled automatically without transmitting. If for some reason, it is ever necessary to clear out the EEPROM in the LDG tuner, the "Clear Mem" button in the "Transmitter" section of the settings menu can be used for this purpose. This will clear out all tuner memories. This is necessary if you have changed antennas and want to setup new tuner memories. Also, it is recommended that you perform an "Auto Tnr" on each band you will operate. For bands 7 mhz and up, you should do one "Auto Tnr" in the CW portion and another one in the SSB portion for the band you use. For 80 meters, you should do an "Auto Tnr" for at each 100 khz interval. For 160 meters, you should do one at each 50 khz interval for the portion of the band you intend to use. All these "Auto Tnr" operations must be done with the correct antenna selected. Once these "Auto Tnr" functions have been done, it will not be necessary to do them again unless your antennas change.

There are 8 buttons. They are:

- 1) "Auto Tnr" - Left clicking this button will cause the memory tuner to go into auto tune mode. When the tune completes or 20 seconds go by, it will automatically stop. When it completes, the store memory routine will automatically run to save the current settings for the particular memory range you are in. If the "Auto Tnr" button turns red after the tune operation is over, it indicates the tune operation failed and the tune needs to be done again. Also, if the "Auto Tnr" button remains blue, it indicates the program 20 second timer timed out without getting a response from the tuner. If you click the "Sto" button, the program will accept the settings from the failed tune.
- 2) "Bypass" - Left clicking this button will put the memory tuner into bypass mode, thus removing it from the output circuit. Click the "Rcl Tuner" button to put the tuner back in use.
- 3) "Ant1" - Left clicking this button will toggle between the tuner's antenna 1 and antenna 2 connection.
- 4) "Cap" - Left clicking this button will tweak the capacitor setting of the tuner "down" in value. Right clicking this button will tweak the capacitor setting "up" in value.
- 5) "Ind" - Left clicking this button will tweak the inductor setting of the tuner "down" in value. Right clicking this button will tweak the inductor setting "up" in value.
- 6) "HiZ" - Left clicking this button will cause the tuner to go to its "Lo Z" or low impedance setting. Left clicking again will cause the tuner to go to its "Hi Z" or high impedance setting. The descriptor on the button indicates the current impedance setting of the tuner.
- 7) "Sto" - Left clicking this button will cause the memory tuner to save its current settings for this frequency to memory. It is only necessary to use this button if the "touch up" cap and ind buttons have been used.
- 8) "Rcl Tnr" - Left clicking this button will cause the memory tuner to recall the last settings for this frequency from the tuner's memory. If the SWR is greater than 2.0, the "Auto Tnr" procedure will automatically be started to try and find a better match. If the "Auto Tnr" button turns red after the tune operation is over, it indicates the tune operation failed and the tune needs to be done again. If you click the "Sto" button, the program will accept the settings from the failed tune.

There is a tuning parameter in the pegasus.ini file to set the SWR

threshold. Look for the line that says:

```
LDG SWR THRESH=50
```

To change the SWR threshold, change the value to one of the following:

```
50 = 1.1
51 = 1.3
52 = 1.5
53 = 1.7      This one seems to work the best for me
54 = 2.0
55 = 2.5
56 = 3.0
```

The default is 53 for 1.7 to 1 threshold.

LDG 1000Pro Automatic Tuner

The LDG 1000Pro Auto Tuner setting for antenna 1 or 2 can be controlled if you are using my LDG tuner program version 1.02. This version is available for free on my test page on my website.

To setup the N4PY program for LDG 1000Pro Tuner:

1) With the program NOT running, open the pegasus.ini file and find the line that says:

```
LDG1000=0
```

And change it to

```
LDG1000=1
```

2) Find the lines that say:

```
ANT 1 LOW=0
ANT 1 HIGH=0
ANT 2 LOW=0
ANT 2 HIGH=0
Etc.,
```

and set the ranges for each antenna in mHz. For example if antenna 2 was to cover the 20 meter band, you should put

```
ANT 2 LOW=14.0
ANT 2 HIGH=14.3
```

```
ANT RANGE 1=1
ANT RANGE 2=2
ANT RANGE 3=3
ANT RANGE 4=4
ANT RANGE 5=5
ANT RANGE 6=6
ANT RANGE 7=7
ANT RANGE 8=8
```

These lines assign the same range to the corresponding antenna by default. If for example you wanted both range 3 and range 6 to control antenna 2, you would change

ANT RANGE 3=2
ANT RANGE 6=2

Save the changes to the pegasus.ini file.

The controls for the switch will show up in the "transmitter" window of the settings menu. With "Auto" selected, the frequency ranges above will cause the particular antenna for that range to be selected. If you select any antenna by clicking on its button, the auto function is turned off and that antenna will remain selected even if you change frequencies. Just click the auto button again to restore automatic antenna selection back.

External LDG Model AT-11MP Tuner

Thanks go to Mark Erbaugh, N8ME, for information on this feature.

Please note that some computer's serial port will not work with the DTR line turned off. Turn on the external tuner feature and then exit and restart the program. If the program still communicates properly with the radio, then you can use the external tuner feature.

You can now use the LDG external tuner model AT-11MP by making a simple wiring change to your serial port cable for the radio. If you wire the DTR line (pin 4) of the serial cable to the "Tune" line of the LDG external tuner, automatic tuning is possible. This is done as follows:

You must modify the serial cable for your radio. You will need the extra following parts:

- a female DB9 connector to plug into the tuner
- 2N2222 transistor
- 1000 ohm 1/4 watt resistor
- 5 feet of RG-174 thin coax (RG-58 will work also)

Carefully remove the insulation from the cable to expose the individual wires inside the cable. You need to determine the wire that goes to pin 4. This is the DTR line. You can use a small pin and an ohm meter to determine this. You also need to find the wire that goes to pin 5. This is ground on the serial cable.

Solder the pin 4 wire the 1000 ohm resistor.

Solder the other end of the resistor to the base of the 2N2222 transistor.

Solder the pin 5 wire to the emitter of the transistor.

Now take the RG-174 coax and solder the center lead of the coax to the collector of the transistor.

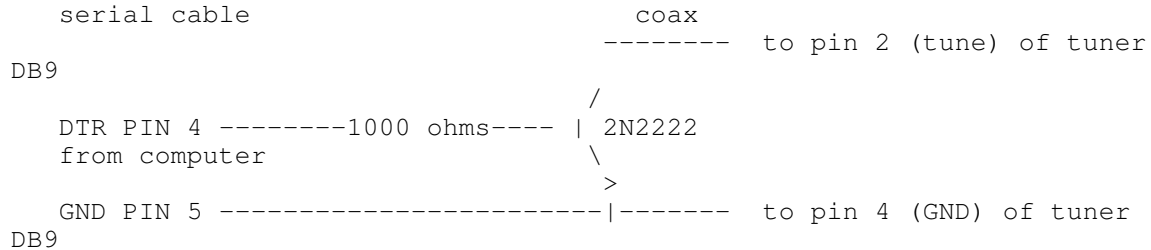
Solder the shield of coax to the emitter of the transistor.

Now, using the DB9 female connector, solder pin 2 (tune) of the DB9

to the other end of the coax.

Solder the shield of the coax to pin 4 of the DB9.

This is shown schematically below.



The above will allow DTR of the serial cable to control the "Tune" function of the tuner.

Program settings:

Setting the "Enable Extrnl Tuner" check box in the "Transmitter" window of the "settings" menu will cause the external tuner control to appear at the lower left side of the radio panel. There is 1 button for this. It is labelled "Auto Tnr". Left clicking this button will cause the external tuner to go into auto tune mode. When the SWR stabilizes or 8 seconds go by, it will automatically stop.

There is also a slider in the "transmitter window" of the settings window. This slider is labelled "Tuner Pwr" and controls the amount of power used when the external tuner is tuning. The range is 10 to 50 watts.

LDG Electronics DTS-4 and DTS-6 Coax Antenna Switch

The LDG DTS-4 and DTS-6 coax antenna switches are supported To setup the program for LDG coax switch:

1) With the program NOT running, open the pegasus.ini file and find the line that says:

LDG COAX COMPORT=

And change it to

LDG COAX COMPORT=COMx where x= the com number from 1 to 99

2) Find the lines that say:

```
ANT 1 LOW=0
ANT 1 HIGH=0
ANT 2 LOW=0
ANT 2 LOW=0
```

Etc.,
and set the ranges for each antenna in mHz. For example if
antenna 3 was to cover the 20 meter band, you should put

```
ANT 3 LOW=14.0  
ANT 3 HIGH=14.3
```

If you have an antenna that needs more than one frequency range such
as using an 80 meter antenna also on 30 meters. you can change the
antenna that is assigned to each range.

Find the series of lines that say:

```
ANT RANGE 1=1  
ANT RANGE 2=2  
ANT RANGE 3=3  
ANT RANGE 4=4  
ANT RANGE 5=5  
ANT RANGE 6=6  
ANT RANGE 7=7  
ANT RANGE 8=8  
ANT RANGE 9=9  
ANT RANGE 10=10
```

These lines assign the same range to the corresponding antenna
by default. But if for example you wanted both range 3 and range 6
to control antenna 3, you would change

```
ANT RANGE 6=3
```

Save the changes to the pegasus.ini file.

The controls for the switch will show up in the "transmitter" window
of the settings menu. With "Auto" selected, the frequency ranges
above will cause the particular antenna for that range to be selected.
If you select any antenna by clicking on its button, the auto
function is turned off and that antenna will remain selected even
if you change frequencies. Just click the auto button again to
restore automatic antenna selection back.

ADR2200 Used as a Coax Antenna Switch

The ADR2200 serial port switch can be used as a software controlled
antenna switch.

To setup the program for the ADR2200 coax switch:

1) With the program NOT running, open the pegasus.ini file and find
the line that says:

```
LDG COAX COMPORT=
```

And change it to

```
LDG COAX COMPORT=COMx  where x= the com number from 1 to 99
```

2) Find the line that says:

```
ADR2200=0
```

and change it to

```
ADR2200=1
```

3) Find the lines that say:

```
ANT 1 LOW=0
ANT 1 HIGH=0
ANT 2 LOW=0
ANT 2 LOW=0
Etc.,
```

and set the ranges for each antenna in mHz. For example if antenna 3 was to cover the 20 meter band, you should put

```
ANT 3 LOW=14.0
ANT 3 HIGH=14.35
```

If you have an antenna that needs more than one frequency range such as using an 80 meter antenna also on 30 meters. you can change the antenna that is assigned to each range.

Find the series of lines that say:

```
ANT RANGE 1=1
ANT RANGE 2=2
ANT RANGE 3=3
ANT RANGE 4=4
ANT RANGE 5=5
ANT RANGE 6=6
ANT RANGE 7=7
ANT RANGE 8=8
ANT RANGE 9=9
ANT RANGE 10=10
```

These lines assign the same range to the corresponding antenna by default. But if for example you wanted both range 3 and range 6 to control antenna 3, you would change

```
ANT RANGE 6=3
```

Save the changes to the pegasus.ini file.

The controls for the switch will show up in the "transmitter" window of the settings menu. With "Auto" selected, the frequency ranges above will cause the particular antenna for that range to be selected. If you select any antenna by clicking on its button, the auto function is turned off and that antenna will remain selected even if you change frequencies. Just click the auto button again to restore automatic antenna selection back.

Additionally, there is a second range for selecting antennas that is controlled with the "A Ant"/"B Ant" button under the user buttons. If this button says "A Ant" then all the ranges as listed above are used to select the antenna position. If the "A Ant" button is clicked it will change to "B Ant" and a second set of ranges will be used. These ranges have names exactly like the above ranges but have a "B" added to them. The names are as follows:

```
ANTB 1 LOW=0
ANTB 1 HIGH=0
```

ANTB 2 LOW=0
ANTB 2 LOW=0
etc.

ANTB RANGE 1=1
ANTB RANGE 2=2
ANTB RANGE 3=3
ANTB RANGE 4=4
ANTB RANGE 5=5
ANTB RANGE 6=6
ANTB RANGE 7=7
ANTB RANGE 8=8
ANTB RANGE 9=9
ANTB RANGE 10=10

Again, this second set of ranges is used if the "A Ant"/"B Ant" button is set to "B Ant". The setting for this button is remembered by band.

ADR2100 Used as a Coax Antenna Switch

The ADR2100 serial port switch can be used as a software controlled antenna switch.

To setup the program for the ADR2100 coax switch:

1) With the program NOT running, open the pegasus.ini file and find the line that says:

LDG COAX COMPORT=

And change it to

LDG COAX COMPORT=COMx where x= the com number from 1 to 99

2) Find the line that says:

ADR2200=0

and change it to

ADR2200=2

3) Find the lines that say:

ANT 1 LOW=0
ANT 1 HIGH=0
ANT 2 LOW=0
ANT 2 LOW=0
Etc.,

and set the ranges for each antenna in mHz. These settings will be for port A on the ADR 2100.

For example if antenna 3 was to cover the 20 meter band, you should put

ANT 3 LOW=14.0
ANT 3 HIGH=14.35

If you have an antenna that needs more than one frequency range such

as using an 80 meter antenna also on 30 meters. you can change the antenna that is assigned to each range.

Find the series of lines that say:

```
ANT RANGE 1=1
ANT RANGE 2=2
ANT RANGE 3=3
ANT RANGE 4=4
ANT RANGE 5=5
ANT RANGE 6=6
ANT RANGE 7=7
ANT RANGE 8=8
ANT RANGE 9=9
ANT RANGE 10=10
```

These lines assign the same range to the corresponding antenna by default. But if for example you wanted both range 3 and range 6 to control antenna 3, you would change

```
ANT RANGE 6=3
```

Save the changes to the pegasus.ini file.

The controls for the switch will show up in the "transmitter" window of the settings menu. With "Auto" selected, the frequency ranges above will cause the particular antenna for that range to be selected. If you select any antenna by clicking on its button, the auto function is turned off and that antenna will remain selected even if you change frequencies. Just click the auto button again to restore automatic antenna selection back.

For port B on the ADR 2100, you will find another set of settings that all end in "PB" for port B. Only port A and port B are currently implemented in this program. The manual antenna controls only change the port A settings. The port B settings are always in automatic mode.

Denkovi USB 8 Relay Board used as a coax Antenna Switch

The Denkovi USB 8 relay board can be used as a software controlled antenna switch.

To setup the program for the Denkovi device:

With the program NOT running, open the pegasus.ini configuration settings file and find the line that says:

1) Find the line that says:

```
DENKOVI=0
```

and change it to

```
DENKOVI=1
```

3) Find the lines that say:

```
ANT 1 LOW=0
ANT 1 HIGH=0
```

ANT 2 LOW=0

ANT 2 LOW=0

Etc.,

and set the ranges for each antenna in mHz.

For example if antenna 3 was to cover the 20 meter band, you should put

ANT 3 LOW=14.0

ANT 3 HIGH=14.35

If you have an antenna that needs more than one frequency range such as using an 80 meter antenna also on 30 meters. you can change the antenna that is assigned to each range.

Find the series of lines that say:

ANT RANGE 1=1

ANT RANGE 2=2

ANT RANGE 3=3

ANT RANGE 4=4

ANT RANGE 5=5

ANT RANGE 6=6

ANT RANGE 7=7

ANT RANGE 8=8

ANT RANGE 9=9

ANT RANGE 10=10

These lines assign the same range to the corresponding antenna by default. But if for example you wanted both range 3 and range 6 to control antenna 3, you would change

ANT RANGE 6=3

Save the changes to the pegasus.ini file.

The controls for the switch will show up in the "transmitter" window of the settings menu. With "Auto" selected, the frequency ranges above will cause the particular antenna for that range to be selected. If you select any antenna by clicking on its button, the auto function is turned off and that antenna will remain selected even if you change frequencies. Just click the auto button again to restore automatic antenna selection back.

403A Antenna Genius

The 403A Antenna Genius can be used as a software controlled antenna switch.

To setup the program for the 403A Antenna Genius:

1) With the program NOT running, open the pegasus.ini file and find the line that says:

403A AG=0

and change it to

403A AG=1

If you are running Antenna Genius Version 3 find the line

```
403A AG VERSION=4
```

and change it to

```
403A AG VERSION=3
```

Also set the following line to the correct port and IP Address

```
403A AG PORT=9007
403A IP AG=192.168.1.250
```

Save the changes to the pegasus.ini file.

In the transmitter setting window, there is also a drop down box for Radio 1 and Radio 2. Use this to select which side of Antenna Genius is connected to a radio.

The N4PY program will send the active band to the Antenna Genius. This requires that the application for Antenna Genius be properly defined so that Antenna Genius knows what antenna to select by band.

Pegasus.ini file Parameters for the [OPERATING STATUS] section

The value for each parameter below is set to the default value. This is the value you get when the parameter is not defined. The text will indicate what other values are legal.

```
RX320 TRANSFER FILE=c:\radio2\pegasus.in
```

To run two radios with the second radio being a sub-receiver of the first

radio, first install the program two times in two different folders. Set

up one copy for the first radio and the other copy up for the second radio.

Let's assume you install the first radio program in c:\radio1 and the second radio program in c:\radio2.

Then in the pegasus.ini file for the first radio, find the line

```
RX320 TRANSFER FILE=
```

and change it to

```
RX320 TRANSFER FILE=c:\radio2\pegasus.in    (not pegasus.ini)
```

Dual operation with the second radio can now be accomplished.

Once the above setting is added, a new button will appear on the radio control panel for the first radio. This button is labelled "DUAL".

Clicking on it will cause the second radio to follow VFO B on the first radio.

```
PTT COMPORT=COM2
```

If you want to use a foot switch for PTT and have an extra comport available, you can use this option. Find the line "PTT COMPORT" in the "Interface" section of the pegasus.ini file. Set this line for the comport you are going to use for PTT. Wire your foot switch between pins 7 and 8 of the comport. Then, with the correct comport set for this option, you can bring up PTT by pressing the foot switch.

PW1 COMPORT=COM2

If you have the Icom IC-PW1 amplifier, you can use this option. Find the line "PW1 COMPORT=NONE" in the pegasus.ini file. Set this line for the comport you are going to use for the IC-PW1. The program will then send frequency and mode information to the PW1 so that it will follow your radio's frequency.

LP100 COMPORT=COM2

If you have the Telepost LP-100A watt meter and want to use it, you can use this option. Find the line "LP100 COMPORT=NONE" in the "Interface" section of the pegasus.ini file. Set this line for the comport you are going to use for the LP-100A watt meter. The program will read this watt meter during transmit and display the results in the S meter window during transmit. If you have the older LP-100, in addition to this comport setting, change LP100=0 to LP100=1.

LP500=1

If you have the Telepost LP-500 or LP-700 watt meter and want to use it, you can use this option. Find the line "LP500=0" in the pegasus.ini file. Set this line to LP500=1 and save the change. The program will read this watt meter during transmit and display the results in the S meter window during transmit.

If you forget to turn on the LP-500 or LP-700 at program start, you can retry the open of the device with the "Retry LP-500" button in the SSB settings window.

POWERMASTER COMPORT=COM2

If you have the PowerMaster watt meter and want to use it, you can use this option. Find the line "POWERMASTER COMPORT=NONE" in the "Interface" section of the pegasus.ini file. Set this line for the comport you are going to use for the PowerMaster watt meter. The program will read this watt meter during transmit and display the results in the S meter window during transmit. Make sure the watt meter is set to 38400 baud.

AUTO PROGRAM START=

AUTO PROGRAM START FOLDER=

These two parameters are used to define a program that you want started each time the program starts. For AUTO PROGRAM START, set this to the full path and file name of the executable you wish to start. Set AUTO PROGRAM START FOLDER to the full path

name of the folder to be the default folder for the program.

Example:

AUTO PROGRAM START=c:\abc\def.exe

AUTO PROGRAM START FOLDER=c:\abc

The above example starts a program called def.exe in the c:\abc folder

K1EL PTT=1

This parameter controls the PTT Enable/Disable setting for the K1EL winkey2 keyer. For the winkey2 keyer, setting this to 1 causes the PTT line to be enabled, and setting this to 0 causes the PTT line to be disabled. For the winkey keyer, setting this to 2 will make pin 5 be a sidetone output at 625 hertz. For the winkey 2 keyer, setting this to 2 will turn on the sidetone.

K1EL THRU=0

This parameter controls the the sending of keyed characters straight through to radio's internal keyer. This is very useful for the radio's like the Elecraft K4 running remotely without a client server setup. For that operation, set K1EL THRU=1 and K1EL PTT=2 to turn on the winkey sidetone.

K1EL F1=1

K1EL F2=2

K1EL F3=3

K1EL F4=4

These 4 entries define the function of the four K1EL winkey 2 buttons. Each of these 4 buttons will call the pod function assigned to corresponding computer function key. For example to make the left most keyer button (K1EL F1) perform the pod function assigned to the computer keyboard F8 key set

K1EL F1=8

This allows 4 functions to be performed even if the N4PY program does not have the keyboard focus.

PEGASUS COMPORT=NONE

This parameter is in the [INTERFACE] section. It can be used to control

a non-tentec radio via a TenTec remote tuning knob connected to a TenTec

Pegasus or Jupiter. This feature is only for people that happen to have

a TenTec Pegasus or Jupiter with remote tuning knob. It allows the TenTec

remote tuning pod to control a non-TenTec radio. To enable this feature,

you only have to specify the comport the Pegasus or Jupiter is connected

to. For example, if you connect the Pegasus or Jupiter to com3 you would change this line to:

PEGASUS COMPORT=COM3

This feature only enables the TenTec Pegasus or Jupiter for remote pod usage. No other functions on the Pegasus or Jupiter are available.

POD RIT DIVISOR=1

This parameter is used to divide the step size by this amount when using the pod to control RIT. Setting this value to 10 works well to desensitize the pod movements for RIT control.

REMOTERIG CW=0

This setting is only used on the client side in a client server setup when using remote rig to send CW with a Winkeyer. Setting this to 1 will block the N4PY client from sending paddle characters to the server side.

PBT FILTER n=5000 where n is 1 to 12

This series of 12 parameters allows you to define a value for PBT to be associated with each filter of the 12 filter buttons. When a filter button is clicked, PBT will also be changed to the value in this parameter. If the value is 5000, then PBT will not be changed. If the value is zero, then PBT will be set to centered or 0. This is useful when you want to use a 1.8 khz filter and also want PBT to be moved when you select this filter for SSB.

CW SCALEX=1.0
CW SCALEY=1.0

These two settings are multipliers for the CW Keyboard window X and Y coordinates. They allow you to make the CW keyboard window larger.

CW FONT=17
This parm sets the font used for the CW Keyboard text window.

CW SMALL FONT=14
This parm sets the font used for the CW Keyboard memory buttons.

SERIAL 101D=0
This parm is only for the Yaesu 101D, 101MP, and FTDX10. If you connect to these radios via the real serial port (not the USB port), Yaesu does not allow the auto information command. This causes the program to not follow the radio frequency if you change frequency directly on the radio.
Setting
SERIAL 101D=1

causes Pegasus Plus to poll the radio for VFOA, VFOB, and mode so that Pegasus will then follow the radio.

S Meter Recording

This feature allows you to capture S meter readings into a file for propagation analysis. To enable this feature, open the pegasus.ini file and find the line

SMETER FILE=

and change it to have the name of the file you want for S meter readings capture.

The file will contain the time in GMT, followed by a comma, followed by a relative logarithmic S meter reading. Each reading will be on its own line and each reading will be done at 1 second intervals.

There is also a check box in Preferences2 to enable or disable S Meter recording while the program is running.

Using the RX-320, RX-340, or RX-350 with the Pegasus or Jupiter

If you wish to run the RX-320, RX-340, or RX-350 as an AUX receiver for the Pegasus or Jupiter, you need to add an AUX receiver output to the Pegasus/Jupiter, and if using the RX-320, a mute circuit for the RX-320.

To modify the Pegasus/Jupiter to have an AUX receiver output at the "spare" jack:

- 1) Remove the Pegasus main cover or the Jupiter top cover.
- 2) On the main receiver board locate the multi-pin jack that has the "rx ant" label on one of the pins.
- 3) With a 12 inch piece of RG-174 coax cable, solder one end of the center conductor to the pin labelled "rx ant".
- 4) Solder the shield to the pin labelled "gnd" on the same connector.
- 5) Locate the "spare" jack on the back of the Pegasus/Jupiter. On the inside of the Pegasus on the same board that has the "spare" jack, locate a 2 pin connector labelled "spare". Solder the opposite end of the center conductor of the 12 inch coax to the top pin of the spare 2 pin connector. Solder the shield of the coax to the bottom pin, which is ground.
- 6) Replace the Pegasus main cover or Jupiter top cover.

The spare jack on the Pegasus/Jupiter is now an AUX receiver output. This can be run to the antenna input of the RX-320. This jack is

fully

protected from high transmit power when transmitting.

Using the RX-320, RX-340, Pegasus, or Jupiter with the Omni VII

If you wish to run the RX-320, RX-340, Jupiter, or Pegasus with the Omni VII, you need to add an AUX receiver output to the Omni VII, and if using the RX-320, a mute circuit for the RX-320.

To modify the Omni VII, first you need to contact Tentec and get the 2 small 12 inch coax TMP jumpers that are made for this purpose. The mod to ask for brings the receiver antenna connection out to the 2 rear spare jacks on the back of the Omni VII. You will also need a Y connector phono cable with 2 male phono plugs on one end and a female phono jack on the other end. This Y connector is available from Radio Shack (part #42-2535).

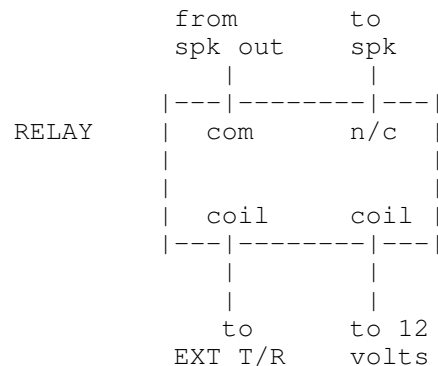
- 1) Remove the Omni VII main cover.
- 2) Viewing from the front of the Omni VII, you will see a large square RF board on the left side. On the right rear of the board you will see 3 female small coax sockets. Two of these have no connection and one does have a connection. Of the 3 sockets, the left one is labelled J15, the center labelled J16, and the right most is labelled "ANT".
- 3) Unplug coax TMP jumper 23 from the "ANT" socket and plug it into J15.
- 4) Plug in one the coax TMP jumpers you got from Tentec into J16.
- 5) Route this cable to the right rear of the Omni VII and plug the other end into socket 30 on the spare jack board.
- 6) Take the second coax TMP jumper you received from Tentec and plug one end into the "ANT" socket that used to have coax TMP jumper 23 plugged into it.
- 7) Route this cable to the right rear of the Omni VII and plug the other end into socket 37 on the spare jack board.
- 8) Now plug each male plug of the Y phono connector into each of 2 spare jacks on the back of the Omni VII. The mod is now complete.
- 9) Replace the Omni VII main cover.

The female jack on the Y connector is now an AUX receiver output. This can be run to the antenna input of your second receiver. This jack is fully protected from high transmit power when transmitting.

Mute circuit for the RX-320

I simply took a 12 volt SPDT relay and put the normally closed and common contacts of the relay in series with the speaker on the RX-320. I put 12 volts to one side of the coil of the relay and ran the other side of the coil of the relay to the "EXT T/R" jack on the back of the Pegasus. I put the relay in an external box and made connections to go 12 volts,

external T/R, audio in, and audio out. I set the external T/R delay control on the Pegasus Control program to the minimum setting. This works pretty well. I used a junk box relay that is pretty quiet. I would suggest the Radio shack relay part number 275-241 as a good choice.



To setup the Pegasus and RX-320 to work together just set the RX320 COMPORT number as explained in the pegasus.ini section.

RX-331, RX-340, RX-400 Bite Level Diagnostics

In the "Prog AGC" settings window, there are 3 buttons to run the 3 levels of Bite tests provided by TenTec. Click on one and then wait about 4 seconds for the diagnostics to finish. You will then get a message box displaying the results.

For Bite Level 1, the result will simply be pass or fail.

For Bite Level 2, the results will be pass or fail followed by the part number of the failing board or boards. This test will most likely be the most useful for you.

For Bite Level 3, the result will be pass or fail followed by a detailed list of all the items that are failing.

For the RX-400, all these tests simply report pass or fail.

Memory File Usage

Memories are saved in files that are "RMY" file types. RMY files are binary files and are not editable with an editor. They save all the significant parameters for the station including "split status" and the

transmit frequency. If you want to edit an RMY file, you must first export the file. See "Importing and Exporting Files" below. The "File"

menu has several entries to control memory file usage. The memory file entries in the "File" menu are as follows:

New - Clicking this entry will allow you to start a brand new memory file. If the current memory file has not been saved to disk, you will be asked if you want to save it before the current memory is

cleared.

Open - Clicking this entry will allow you to open a memory file that has been previously saved. You will be shown all the RMY file types that exist in the program working folder.

Close - Clicking this entry will save the current memory file contents to disk and end usage of this memory file.

Save - Clicking this entry will save the current memory file contents to disk but still keep the memory contents in memory. This is useful to do just after you add a memory and want the disk to be updated with the new entry.

Save As - Clicking this entry will save the current memory file contents to disk but still keep the memory contents in memory. This is useful to do just after you add a memory and want the disk to be updated with the new entry. It also allows you to give the disk file a new file name.

Importing and Exporting Files

On the file menu, there is an Import and Export. These functions allow the ability to import and export files that are text files. This allows you to export the current memory files as a text file and then add more stations to it. You may get these files from any source and simply combine them by following the file format. Later, you may import this file back into memory and assign an RMY file name to it.

The format of the file is straight forward. An entry simply occupies a single line. Each line has ascii text for the station name, station frequency in MHz, station mode, filter in hertz, country, language and optionally split frequency. Each value is separated by a comma with no extra spaces. Inspection of an existing file will show the format clearly.

To export an RMY file, first open the RMY file as follows:

- 1) Click on "File"
- 2) Click on "Open"
- 3) Select the RMY file you wish to open
- 4) Select OK

The above opens and loads the RMY file in memory.

To export the RMY file, proceed as follows:

- 1) Click on "File"
- 2) Click on "Export"
- 3) Type in the name you wish for the CDF file
- 4) Select OK

To import a CDF text file, proceed as follows:

- 1) Click on "File"
- 2) Select "Import"

- 3) You should see the files of type CDF.
- 4) Select the file you wish to import and click OK.

If you then want to create an "RMY" file so that when you run the N4PY program next time you can get this file automatically selected, proceed as follows:

- 1) With the CDF loaded into memory as above, click "File".
- 2) Select "Save As"
- 3) Type in the name such as "NEWFILE.RMY"
- 4) Select OK

This will save the data in the RMY format. You can now make this file name the default memory file as follows:

- 1) Select "File"
- 2) Select "Open"
- 3) You should see "NEWFILE.RMY"
- 4) Select this file as click OK.

If you are a member of the ILG database (www.ilgradio.com), you can download an ascii text version of their data. This is a file called "ilgstext.zip". I have a DOS utility program that can convert this database to a "CDF" file which can then be imported into the Pegasus control program. Send me an email if you would like to have this file converting program.

Antenna Rotor Control

Rotor control is available for all antenna rotors that use the HyGain DCU-1 serial protocol and also the M2 Rotor series. This includes the following rotors:

- Green Heron Engineering RT-20 and RT-21
- HyGain DCU-1
- Idiom Press - RotorCard DXA
- Idiom Press - RotorCard SDX
- Idiom Press - RotorEZ
- MDS RC1 series digital rotor control box
- M2 Rotor series
- 403A Rotator Genius

For the 403A Rotator Genius see the next section "403A Rotator Genius" and disregard the rest of this section.

To turn on rotor control, with the program not running, open the "pegasus.ini" configuration settings file. Find the line that says:

```
ROTOR COMPORT=NONE
```

and change it to

```
ROTOR COMPORT=COMx
```

where COMx is the serial port that is connected to the rotor control box.

If you have the M2 rotor series, find the line that says:

```
M2 ROTOR=0
```

and change it to

M2 ROTOR=1 for the older M2 rotors and M2 ROTOR=2 for the newer ones.

also there are two lines to set software rotor limits. They are

```
ROTOR LOW LIMIT=0
ROTOR HIGH LIMIT=359
```

You can change these lines if you need to have a different range.

There is also a setting for rotor polling. It is

```
ROTOR POLL=1
```

Set this to 0 if rotor polling causes a calibration problem with your rotor.

There is an edit box in the "Call Sign, TopTen" configuration settings window that is labelled "Rotor Bearing". You can key in the value for the rotor bearing that you want here. Once you key this in, the rotor will turn to that location. If your rotor supports bearing feedback, the rotor display box (just to the right of the edit box) will always show the current rotor bearing. The edit box will show the last target bearing you typed in. This value is updated once every 5 seconds.

You can stop the rotor at any time by clicking on the "Stop" check box. This box is located to the right of the Rotor Bearing edit box. The check mark will go out almost immediately when the stop command is sent to the rotor.

For the M2 rotor series, there is also a "Moving" label that will appear to the right of the Rotor Bearing edit box when the rotor is moving.

There is also a parameter for the baud rate for the M2 rotor. The default is 9600 baud.

```
M2 ROTOR BAUD=9600
```

If you also use the N4PYDXSpots program, you can click on the displayed bearing for any country in the DXSpots check window and this will also cause the rotor to move to that bearing.

403A Rotator Genius

The 403A rotator Genius is configured in the Pegasus.ini configuration settings file. Here's the setup.

Find the line that says:

```
403A RG=0
```

and change it to

```
403A RG=1
```

Also set the following line to the correct port and IP Address

```
403A RG PORT=9006
403A IP RG=192.168.1.250
```

Also ROTOR 403A=1 setting can be set to 1 or 2 to control the first or second rotator used by Rotator Genius.

There is an edit box in the "Call Sign, TopTen" configuration settings window that is labelled "Rotor Bearing". You can key in the value for the rotor bearing that you want here. Once you key this in, the rotor will turn to that location. Bearing feedback is shown in the rotor display box (just to the right of the edit box) and will always show the current rotor bearing. The edit box will show the last target bearing you typed in.

There is also a "Moving" label that will appear to the right of the Rotor Bearing edit box when the rotor is moving.

You can stop the rotor at any time by clicking on the "Stop" check box. This box is located to the right of the Rotor Bearing edit box. The check mark will go out almost immediately when the stop command is sent to the rotor.

There are special considerations for setting this up if Client-Server operator is used. See "Special Considerations for 403A Devices" in the CSRemote.pdf documentation file.

Using the Telepost LP-Rotor program with the N4PY program

You can use the little LP-Rotor program and hook it up to the N4PY program as a graphically aide to control your rotor. First you setup the N4PY program normally for rotor control.

Next you must create a virtual comport pair so that LP-Rotor can communicate with N4PY. I recommend using the VSP Manager virtual comport program. It is by far the easiest and most straight forward one to setup. Go to the following link to see how to get it.

http://k5fr.com/ddutilwiki/index.php?title=VSP_Manager

- 1) Install VSP Manager.

Please note VSPManager and MicroHam are not compatible. If you are using MicroHam, see the section "MicroHam and VSPManager".

- 2) Use VSP Manager to define a comport pair. One of these ports must be between COM1 and COM8 because LP-Rotor can only use ports in that range. For example let's say you used VSP Manager and created a virtual comport pair as COM8 and COM12.
- 3) Now start the N4PY program and go to the "Call Sign, Topten" settings window.
- 4) Here on the left side, set the LP-Rotor comport to the new comport value we just created. In our example this would be COM12.

- 5) Next, turn on the checkbox labelled "LP-Rotor Commpport".
- 6) The N4PY program is now ready.
- 7) Start LP-Rotor. In the settings for LP-Rotor, set the comport to the other half of the virtual comport pair we just created. In our example, it would be COM8.

You should now be ready to go. LP-Rotor should now operate with the N4PY program. It is important that you always start LP-Rotor after the N4PY program because if LP-Rotor does not see the rotor immediately, it will hang up. You can still use the N4PY rotor bearing box to change rotor bearings along with LP-Rotor at the same time.

Using Top Ten Devices Antenna Control

There is an automatic antenna selection feature provided to allow users to use the automatic band decoder provided by Top Ten Devices. This unit allows you to have either an external amplifier or external antenna switch automatically follow the radio frequency settings. This program offers full support for the parallel port with all windows versions.

Information on this band decoder can be found at

www.qth.com/topten/bdecoder.htm

Parallel port 1 is used to control the Top Ten device controller. This is enabled in one of two configurations by going to the "Call Sign, TopTen" window of the "settings" menu. Selecting "TopTen Devices Option 1", causes the bands marked on the Top Ten Devices controller to follow the radio frequency precisely.

In option 1, the bands are selected as follows:

Frequency < 2 MHz selects band 1
Frequency >=2 MHz and < 4 MHz selects band 2
Frequency >=4 MHz and < 8 MHz selects band 3
Frequency >=8 MHz and < 12 MHz selects band 4
Frequency >=12 MHz and < 16 MHz selects band 5
Frequency >=16 MHz and < 20 MHz selects band 6
Frequency >=20 MHz and < 24 MHz selects band 7
Frequency >=24 MHz and < 26 MHz selects band 8
Frequency >=26 selects band 9

Selecting "TopTen Devices Option 2" causes a unique setup for controlling the device.

In option 2, the bands are selected as follows:

Frequency < 200 kHz selects band 1
Frequency >=200 kHz and < 30 MHz selects band 2
Frequency >=30 MHz and < 55 MHz selects band 3
Frequency >=55 MHz and < 149 MHz selects band 4
Frequency >=149 MHz selects band 9

When a frequency change is detected, the new band setting is output to the parallel port. The Top Ten Automatic Band Decoder is plugged into this parallel port and responds to the information sent to the

port.

Woodbox Radio Tmate 2

Woodbox radio sells a very nice 3 knob pod with 6 buttons that is now supported in N4PY programs. To configure this pod, go to the "Remote Pod Fkeys" settings window and turn on the check box "Using Woodbox Radio Tmate2". Assuming the Tmate2 is already plugged into a USB port and it's drivers are installed, that's all you have to do.

Once the knob is configured and working, you can now customize the N4PY program to your liking. There are 3 pod setup windows to allow you to define the actions of the FlexControl buttons.

There are 9 buttons on the Tmate2 device. They are F1, F2, F3, F4, F5, F6, and the 3 knobs themselves.

The 3 pod settings windows allow you to select the actions for these buttons. These 3 pod settings windows are named "Knob Settings", "Function Keys", and "Knob Buttons". The main right knob, and the center knob are setup for single function. You define these single functions in their settings list box in the "Knob Settings" settings window. The left hand knob is meant to be a multi use knob. It's initial function is set with the "Left Multi Knob" list box. The current setting for the multi knob is always shown in the upper right hand corner of the black frequency area.

The "Function Keys" settings window contains the settings for the six F1 to F6 keys. Any knob function setting set from an F key will be assigned to the left multi knob only.

The "Knob Buttons" settings window contains the settings for the 3 knob buttons. Any knob function setting set from a knob button will be assigned to the left multi knob only. Please note that I found that the right Main tuning knob is very easy to accidentally push its button. I added a new pod setting called "No Op". Selecting this setting causes no operation to be done. That's what I now use for the Main knob button.

The selections "UP B+1" and "UP B+5" are very nice for split DX pileups.

"UP B+1" and "UP B+5" selections work together to give you a very nice UP frequency function. By setting say "F6" to "UP B+1" and "F5" to "UP B+5" (these are the default settings), when a DX station announces he is listening say "up 3", you can simply press the "F6" button 3 times and VFO B will now be VFO A plus 3 and Split will now be on. Therefore, you can instantly set split operation for an exact amount by how many times you rapidly click "F6".

The exact action for "UP B+1" is if SPLIT is off, perform an A equal B and then add 1 to VFO B. If SPLIT is already on, then just add 1 to VFO B. And the "UP B+5" also does the same thing except it adds 5.

The "Tune Lock" LED on the pod is used as a "Split" indicator. When on "Split" is on. When off, "Split" is off.

There's an option in the "Knob Buttons" settings window to have the Tmate 2 S meter just read Peak readings.

There are also tuning parameters in the Pegasus.ini configuration settings file. They are as follows:

TM2 RED=255	This controls how much red color is in the backlight. The range is 0 to 255.
TM2 GREEN=255	This controls how much green color is in the backlight. The range is 0 to 255.
TM2 BLUE=255	This controls how much green color is in the backlight. The range is 0 to 255.
TM2 CONTRAST=0	This controls how much contrast is on the screen. The range is 0 to 255 with max contrast at 0.
TM2 SPEED 1=1	This controls the speed of the main tuning knob. It should always be set to 1.
TM2 SPEED 2=20	This controls the multiplier when turning the main knob at speed 2.
TM2 SPEED 3=100	This controls the multiplier when turning the main knob at speed 3.
TM2 THRESH 1 2=5	This controls the amount of counts that occur during the evaluation time period to where speed 2 kicks in.
TM2 THRESH 2 3=10	This controls the amount of counts that occur during the evaluation time period to where speed 3 kicks in when already at speed 2.
TM2 EVAL MS=100	This sets the evaluation time in milliseconds to decide on changing the knob speed to speed 2 or speed 3.

FlexControl Knob

Flex Radio sells a very nice knob that can be used to control any N4PY supported radio. This knob has a big advantage over the Griffin and Shuttle Pro knob because it tunes much nicer and does not have the "Focus" problem. That means this knob will still control the radio even when N4PY is running in the background. You can purchase this knob on the Flex radio website. Go to the Online Store and select "Accessories" to find it. N4PY Software has no connection with Flex Radio.

To install this FlexControl Knob Software Driver from the CD -

- 1) Insert the CD that came with the FlexControl device.
- 2) When it asks what you want to install, uncheck all the boxes except "FlexControl". This is the only selection you want to make.
- 3) Run this installer to its completion.

OR

To install this FlexControl Knob Software Driver from the Internet -

- 1) Go to www.flex-radio.com
- 2) Scroll down and find "SmartSDR Installer" any version.
- 3) Download and run this installer.
- 4) When it asks what you want to install, uncheck all the boxes DAX and SmartSDR CAT.
- 5) Run this installer to its completion.

Now plug in the FlexControl USB connection to any USB connector on your computer.

For Windows Vista or 7, the computer should display a message saying "Installing Device Driver." A few moments later a message will appear that says "FlexControl Driver is successfully installed" and "The device is ready for use."

For Windows XP, after plugging in the FlexControl for the first time, (or anytime in the future that a new USB port is used) the "Welcome to the Found New Hardware Wizard" will appear explaining that the "Wizard helps you install software for: FlexControl USB Control Knob".

Check "Install the software automatically." Then press "Next." This will result in a message that the "Wizard has finished installing the software for FlexControl USB Control Knob." Now press "Finish" to close the Wizard.

Once the Wizard completes the install, you must check to make sure there are no comport conflicts. You do this as follows.

- 1) Double click on "My Computer"
- 2) Click "View System Information".
- 3) Click the "Hardware" tab.
- 4) Click the "Device Manager" button.
- 5) Slide down to ports and see what comport was assigned for "FlexControl USB Control Knob".
- 6) If this comport conflicts with anything else you have installed previously, you must change it.
- 7) To change the FlexControl comport,
 - A) Double click on "FlexControl USB Control Knob"
 - B) Click the "Port Settings" tab.
 - C) Click the "Advanced" button.
 - D) Click the down arrow next to "COM Port Number".
 - E) Select an unused comport. A high one is a good one to select.
 - F) Click "Ok" on all opened windows.
 - G) Reboot your computer and all should be well.

Operation of the FlexControl Knob in the N4PY program -

Once the driver and Flex knob are fully installed, start the N4PY program. Go to the settings window and then select "Remote Pod Fkeys".

Check the box "Using FlexControl Knob".

Once you select this box, the N4PY program will search for the FlexControl device. If it finds it, the knob will now control your radio. If you get the error "FlexControl Knob not found"

something is wrong with the software driver setup above.

Once the knob is configured and working, you can now customize the N4PY program to your liking. There are 3 pod setup windows to allow you to define the actions of the FlexControl buttons.

There are 4 buttons on the FlexControl device. They are Aux1, Aux2, Aux3, and the knob itself. Each button can be used with 3 different actions. A single click, a double click (like a mouse), and a long click (greater than a half second).

The 3 pod settings windows allow you to select the actions for these buttons. These 3 pod settings windows are named "Aux Single", "Aux Double, Long", and "Knob Clicks". The default action for the knob itself is a single click will set the knob to control VFO A. A double click will set the knob to control VFO B. A long click will set the knob to control pass band tuning. You can see the action for the knob in the upper right hand corner of the black frequency area.

There are special selections for the Aux Single, Double, and Long selections. These are "UP B+1", "UP B+2", and "UP B+5". The "UP B+1" and "UP B+2" selections work together to give you a very nice UP frequency function. By setting Aux3 Single to "UP B+1" and Aux3 Double to "UP B+2" (these are the default settings), when a DX station announces he is listening say "up 3", you can simply press the Aux3 button 3 times (fast but not so fast as to get a double click) and VFO B will now be VFO A plus 3 and Split will now be on. Therefore, you can instantly set split operation for an exact amount by how many times you rapidly click Aux3.

The exact action for "UP B+1" is if SPLIT is off, perform an A equal B and then add 1 to VFO B. If SPLIT is already on, then just add 1 to VFO B. The "UP B+2" does the same thing except it adds 2 instead of 1. And the "UP B+5" also does the same thing except it adds 5. Once the "UP" operation is complete, the knob action is automatically set to VFO B. A single click of the knob itself get the knob action back to VFO A.

I recommend you use a label maker and label the 3 Aux buttons on the FlexControl device as an aid to remember their settings.

The 3 lights on the FlexControl knob are used to show the status for the single click actions for Aux1, Aux2, and Aux3. They will light only if Split, Dual receive, RIT, or PBT is on for that button. For example, if you have Aux1 Single defined for Split, the light above Aux1 will be on when Split is on and off when Split is off.

Ignore the text on these 3 lights as it is meaningless for this program.

You can also setup a fast tuning increase in step size to allow for very fast tuning.

To set this up, do the following:

- 1) In "Aux Single", make sure "Tuning Knob Desense Step Threshold" is at least 500.
- 2) In "Preferences4", set the "High Speed Tuning Factor" to a

value that you want the step size increased to. If your step size is normally 10, a value of 50 would increase the step size to 500 for very fast tuning.

3) In "Preferences4", set the sensitivity for how fast you move the knob before high speed kicks in. Normally, you will set this to a value between 2 and 20. The higher numbers are lower sensitivity.

Behringer CMD Micro MIDI DJ Controller

Behringer has a very nice DJ controller that is well suited as a ham radio controller. This device has 10 knobs and 20 buttons. To configure this pod, go to the "Remote Pod Fkeys" settings window and turn on the check box "Using MIDI DJ Controller". Assuming the device is already plugged into a USB port, that's all you have to do.

Once the device is working, you can now customize the N4PY program to your liking. All the control setup is done using the cmdmicro.ini configuration settings file. This file is located in the folder where you installed the N4PY program and is not built until you turn on the "Using Behringer" option the first time. This file can be setup with the N4PY program either running or not running. If changes are made to the cmdmicro.ini file while the N4PY program is running, you can click the button "Reload DJ Controller Settings" once the changes have been saved in the file.

You can edit this file with notepad. The sliders are defined as "SLIDER1" being the left most slider and "SLIDER5" being the right most slider. All the other controls use the text as shown on the device itself. You can use a label maker and add labels to the controls as you like. I have provided a picture of an unmodified controller to allow you to see the original names on the controller. It is "picturecmdmicro.jpg" and is in the folder where you installed the N4PY program.

The settings text must be exact from the list below for buttons but upper or lower case can be used freely.

Tuning Selections
Tuning Steps
Reverse Steps
Mode Selections
FAST Tuning
Split Reverse
A/B Toggle
Knob A/B Toggle
Swap A/B Assign
A = B
VFOA
PBT

TX POWER This controls the TX slider for power output
 RIT
 XIT
 NB
 NR Not used for Flex 6000-8000 series, the Kachina uses NB for
 noise reduction
 VOL
 VOLB
 VFOB
 PTT
 VOX
 SPOT
 ZIN
 RF Gain
 RF GainB
 Split Key
 Amp Tune
 TXLOOP
 Band Bottom
 Enable Keyer A
 Keyer Speed
 Up Filter
 Down Filter
 AccInp Xmit
 Mute
 Band Up
 Band Down
 Auto Tuner
 Freq Scan
 Mic Gain
 Side Tone
 NOISE this is for the Flex 6000-8000 series only
 Notch
 Squelch
 Tune
 Attn
 Preamp
 USB
 LSB
 CW
 FM
 AM
 KW NB2
 KW ANT
 KW RANT
 F6K CW Delay
 F6K ANT1
 F6K ANT2
 F6K RXA
 F6K RXB
 F6K MONRXB
 F6K MONANT2
 F6K MONRXA
 F6K MONANT1
 F6K RITBONOFF
 F6K PREAMP UP
 F6K PREAMP DN
 F6K BAND ZOOM
 F6K SEGMENT ZOOM
 F6K PLAY
 F6K RECORD

F6K SLICE A AUDIO
 F6K SLICE B AUDIO
 RITCLEARB only for F6000-8000
 RITCLEAR
 RX EQ Omni VII
 Sweep
 UP B+1
 UP B+5
 No Op
 Lock
 Dual Receive
 STO SP
 RCL SP
 CW MEM1
 CW MEM2
 CW MEM3
 CW MEM4
 CW MEM5
 ESC
 Dump AGC
 K3 User 1
 K3 User 2
 K3 User 3
 K3 User 4
 K3 User 5
 K3 User 6
 K3 User 7
 K3 User 8
 K3 User 9
 K3 User 10

For the large left knob, large right knob, and the browse knob, the settings text is below.

* VFOA
 * PBT
 ALC This controls the TX slider for power output
 * RIT
 * XIT
 VOL
 VOLB
 NOISE For Flex 6000-8000 series this is the noise reduction
 NB For Flex 6000-8000 series this is the wide noise blanker
 KW NB2
 * VFOB
 SPOT
 ZIN
 RF Gain
 RF GainB
 Keyer Speed
 * Filter Tune
 Mic Gain
 Side Tone
 RX EQ Omni VII
 Vox Delay
 * F6K RITB

* Only the large left knob, large right knob, and browse knob can do these functions.

The browse knob is actually used as a multi function knob. If you

define
a button with a knob function setting, the browse button function will change to that function. The browse button current function is shown as small text in the upper right hand corner of the black frequency area.

The 5 sliders, the main level knob, and cue level knob cannot do all the above functions. They cannot do the ones labelled with an asterick above.

Not all functions above are available on all radios.

The selections "UP B+1" and "UP B+5" are very nice for split DX pileups.

"UP B+1" and "UP B+5" selections work together to give you a very nice UP frequency function. By setting say "-" to "UP B+1" and "+" to "UP B+5" (these are the default settings), when a DX station announces he is listening say "up 3", you can simply press the "-" button 3 times

and VFO B will now be VFO A plus 3 and Split will now be on. Therefore,

you can instantly set split operation for an exact amount by how many times you rapidly click "-".

The exact action for "UP B+1" is if SPLIT is off, perform an A equal B and then add 1 to VFO B. If SPLIT is already on, then just add 1 to VFO B. And the "UP B+5" also does the same thing except it adds 5.

Behringer Studio 2A MIDI DJ Controller

Behringer has a very nice DJ controller that is well suited as a ham radio controller. This device has 54 controls consisting of knob and buttons. To configure this pod, go to the "Remote Pod Fkeys" settings window and turn on the check box "Using MIDI DJ Controller". Assuming the device is already plugged into a USB port, that's all you have to do.

Once the device is working, you can now customize the N4PY program to your liking.

All the control setup is done using the studio2a.ini configuration

settings file. This file is located in the folder where you installed the

N4PY program and is not built until you turn on the "Using Behringer" option

the first time. This file can be setup with the N4PY program either running

or not running. If changes are made to the studio2a.ini file while the N4PY

program is running, you can click the button "Reload DJ Controller Settings"

once the changes have been saved in the file.

You can edit this file with notepad. You can use a label maker and add labels to the controls as you like. I have provided a picture of an unmodified controller to allow you to see the original names on the controller. It is "picturestudio2a.jpg" and is in the folder where you installed the N4PY program.

The settings text must be exact from the list below for buttons but upper or lower case can be used freely.

Tuning Selections
Tuning Steps
Reverse Steps
Mode Selections
FAST Tuning
Split Reverse
A/B Toggle
Knob A/B Toggle
Swap A/B Assign
A = B
VFOA
PBT
TX POWER This controls the TX slider for power output
RIT
XIT
NB For Flex 6000-8000 series this is the wide noise blanker
NR Not used for Flex 6000-8000 series, the Kachina uses NB for
noise reduction
VOL
VOLB
VFOB
PTT
VOX
SPOT
ZIN
RF Gain
RF GainB
Split Key
Amp Tune
TXLOOP
Band Bottom
Keyer Speed
Enable Keyer A
Up Filter
Down Filter
AccInp Xmit
Mute
Band Up
Band Down
Auto Tuner
Freq Scan
Mic Gain
Side Tone
Notch
NOISE For Flex 6000-8000 series this is the noise reduction
NB For Flex 6000-8000 series this is the wide noise blanker
Squelch
Tune
Attn
Preamp
USB
LSB
CW
FM
AM
KW NB2

KW ANT
 KW RANT
 F6K CW Delay
 F6K ANT1
 F6K ANT2
 F6K RXA
 F6K RXB
 F6K MONRXB
 F6K MONANT2
 F6K MONRXA
 F6K MONANT1
 F6K RITBONOFF
 F6K PREAMP UP
 F6K PREAMP DN
 F6K BAND ZOOM
 F6K SEGMENT ZOOM
 F6K PLAY
 F6K RECORD
 F6K SLICE A AUDIO
 F6K SLICE B AUDIO
 RITCLEARB only for F6000-8000
 RITCLEAR
 RX EQ Omni VII
 Sweep
 UP B+1
 UP B+5
 No Op
 Lock
 Dual Receive
 STO SP
 RCL SP
 CW MEM1
 CW MEM2
 CW MEM3
 CW MEM4
 CW MEM5
 ESC
 Dump AGC
 K3 User 1
 K3 User 2
 K3 User 3
 K3 User 4
 K3 User 5
 K3 User 6
 K3 User 7
 K3 User 8
 K3 User 9
 K3 User 10

For the large left knob, large right knob, and the two pitch bend knobs, the settings text is below.

* VFOA
 * PBT
 ALC This controls the TX slider for power output
 * RIT
 * XIT
 VOL
 VOLB
 NOISE this is for the Flex 6000-8000 series only for the wide
 noise blanker

- NB
- KW NB2
- * VFOB
- SPOT
- ZIN
- RF Gain
- RF GainB
- Keyer Speed
- * Filter Tune
- Mic Gain
- Side Tone
- RX EQ Omni VII
- Vox Delay
- * F6K RITB

* Only the large left knob, large right knob, and the 2 pitch bend knobs can do these functions.

The left pitch bend knob is actually used as a multi function knob. If you define a button with a knob function setting, this button function will change to that function. The left pitch bend button current function is shown as small text in the upper right hand corner of the black frequency area.

The 3 sliders and the knobs that have limits on how far they can turn cannot do all the above functions. They cannot do the ones labelled with as asterick above.

Not all functions above are available on all radios.

The selections "UP B+1" and "UP B+5" are very nice for split DX pileups.

"UP B+1" and "UP B+5" selections work together to give you a very nice UP frequency function. By setting say pitch bend minus to "UP B+1" and

pitch bend plus" to "UP B+5" (these are the default settings), when a DX

station annouces he is listening say "up 3", you can simply press the "-"

button 3 times and VFO B will now be VFO A plus 3 and Split will now be on.

Therefore, you can instantly set split operation for an exact amount by how

many times you rapidly click "-".

The exact action for "UP B+1" is if SPLIT is off, perform an A equal B and then add 1 to VFO B. If SPLIT is already on, then just add 1 to VFO B. And the "UP B+5" also does the same thing except it adds 5.

Hercules DJ Control MP3 E2 and MP3 LE

Hercules has a very nice DJ controller that is well suited as a ham radio controller. This device has 55 controls consisting of knob and buttons. To configure this pod, go to the "Remote Pod Fkeys" settings window and turn on the check box "Using MIDI DJ Controller".

Assuming the device is already plugged into a USB port, that's all you have to do.

Once the device is working, you can now customize the N4PY program to your liking. All the control setup is done using the hercules.ini configuration settings file. This file is located in the folder where you installed the N4PY program and is not built until you turn on the "Using MIDI" option the first time. This file can be setup with the N4PY program either running or not running. If changes are made to the hercules.ini file while the N4PY program is running, you can click the button "Reload DJ Controller Settings" once the changes have been saved in the file.

You can edit this file with notepad. You can use a label maker and add labels to the controls as you like. I have provided a picture of an unmodified controller to allow you to see the original names on the controller. It is "picturehercules.jpg" and is in the folder where you installed the N4PY program.

The settings text must be exact from the list below for buttons but upper or lower case can be used freely.

Tuning Selections
Tuning Steps
Reverse Steps
Mode Selections
FAST Tuning
Split Reverse
A/B Toggle
Knob A/B Toggle
Swap A/B Assign
A = B
VFOA
PBT
TX POWER This controls the TX slider for power output
RIT
XIT
NB For Flex 6000-8000 series this is the wide noise blanker
NR Not used for Flex 6000-8000 series, the Kachina uses NB for
noise reduction
VOL
VOLB
VFOB
PTT
VOX
SPOT
ZIN
RF Gain
RF GainB
Split Key
Amp Tune
TXLOOP
Band Bottom
Keyer Speed

Enable Keyer A
Up Filter
Down Filter
AccInp Xmit
Mute
Band Up
Band Down
Auto Tuner
Freq Scan
Mic Gain
Side Tone
Notch
NOISE For Flex 6000-8000 series this is the noise reduction
NB For Flex 6000-8000 series this is the wide noise blanker
Squelch
Tune
Attn
Preamp
USB
LSB
CW
FM
AM
KW NB2
KW ANT
KW RANT
F6K CW Delay
F6K ANT1
F6K ANT2
F6K RXA
F6K RXB
F6K MONRXB
F6K MONANT2
F6K MONRXA
F6K MONANT1
F6K RITBONOFF
F6K PREAMP UP
F6K PREAMP DN
F6K BAND ZOOM
F6K SEGMENT ZOOM
F6K PLAY
F6K RECORD
F6K SLICE A AUDIO
F6K SLICE B AUDIO
RITCLEARB only for F6000-8000
RITCLEAR
RX EQ Omni VII
Sweep
UP B+1
UP B+5
No Op
Lock
Dual Receive
STO SP
RCL SP
CW MEM1
CW MEM2
CW MEM3
CW MEM4
CW MEM5
ESC

Dump AGC
K3 User 1
K3 User 2
K3 User 3
K3 User 4
K3 User 5
K3 User 6
K3 User 7
K3 User 8
K3 User 9
K3 User 10

For the large left knob, large right knob, and the two pitch knobs, the settings text is below.

* VFOA
* PBT
ALC This controls the TX slider for power output
* RIT
* XIT
VOL
VOLB
NOISE this is for the Flex 6000-8000 series only for the wide
noise blanker
NB
* VFOB
SPOT
ZIN
RF Gain
RF GainB
Keyer Speed
* Filter Tune
Mic Gain
Side Tone
RX EQ Omni VII
Vox Delay
* F6K RITB

* Only the large left knob, large right knob, and the 2 pitch knobs can do these functions.

The left pitch knob is actually used as a multi function knob. If you define a button with a knob function setting, this button function will change to that function. The left pitch bend button current function is shown as small text in the upper right hand corner of the black frequency area.

The 3 sliders and the knobs that have limits on how far they can turn cannot do all the above functions. They cannot do the ones labelled with an asterisk above.

Not all functions above are available on all radios.

The selections "UP B+1" and "UP B+5" are very nice for split DX pileups.
"UP B+1" and "UP B+5" selections work together to give you a very nice UP frequency function. By setting say pitch bend minus to "UP B+1"

and
pitch bend plus" to "UP B+5" (these are the default settings), when a
DX
station announces he is listening say "up 3", you can simply press the
"-"
button 3 times and VFO B will now be VFO A plus 3 and Split will now
be on.
Therefore, you can instantly set split operation for an exact amount
by how
many times you rapidly click "-".

The exact action for "UP B+1" is if SPLIT is off, perform an
A equal B and then add 1 to VFO B. If SPLIT is already on,
then just add 1 to VFO B. And the "UP B+5" also does
the same thing except it adds 5.

Hercules DJCONTROL MIX

Hercules has a very nice DJ controller that is well suited as a ham
radio controller. This device has 27 controls consisting of knob and
buttons. To configure this pod, go to the "Remote Pod Fkeys" settings
window and turn on the check box "Using MIDI DJ Controller".
Assuming the device is already plugged into a USB port, that's all you
have to do.

Please note that the 2 "HOT CUE" buttons must always be on. If you
press
either "SAMPLER" button it will change the codes on some buttons and
make
those buttons not work.

Once the device is working, you can now customize the N4PY program to
your
liking. All the control setup is done using the hdjmix.ini
configuration
settings file. This file is located in the folder where you installed
the
N4PY program and is not built until you turn on the "Using MIDI"
option
the first time. This file can be setup with the N4PY program either
running
or not running. If changes are made to the hdjmix.ini file while the
N4PY
program is running, you can click the button "Reload DJ Controller
Settings"
once the changes have been saved in the file.

You can edit this file with notepad. You can use a label maker and add
labels to the controls as you like.

The settings text must be exact from the list below for buttons
but upper or lower case can be used freely.

- Tuning Selections
- Tuning Steps
- Reverse Steps
- Mode Selections
- FAST Tuning
- Split Reverse

A/B Toggle
 Knob A/B Toggle
 Swap A/B Assign
 A = B
 VFOA
 PBT
 TX POWER This controls the TX slider for power output
 RIT
 XIT
 NB For Flex 6000-8000 series this is the wide noise blanker
 NR Not used for Flex 6000-8000 series, the Kachina uses NB for
 noise reduction
 VOL
 VOLB
 VFOB
 PTT
 VOX
 SPOT
 ZIN
 RF Gain
 RF GainB
 Split Key
 Amp Tune
 TXLOOP
 Band Bottom
 Keyer Speed
 Enable Keyer A
 Up Filter
 Down Filter
 AccInp Xmit
 Mute
 Band Up
 Band Down
 Auto Tuner
 Freq Scan
 Mic Gain
 Side Tone
 Notch
 NOISE For Flex 6000-8000 series this is the noise reduction
 NB For Flex 6000-8000 series this is the wide noise blanker
 Squelch
 Tune
 Attn
 Preamp
 USB
 LSB
 CW
 FM
 AM
 KW NB2
 KW ANT
 KW RANT
 F6K CW Delay
 F6K ANT1
 F6K ANT2
 F6K RXA
 F6K RXB
 F6K MONRXB
 F6K MONANT2
 F6K MONRXA
 F6K MONANT1

F6K RITBONOFF
 F6K PREAMP UP
 F6K PREAMP DN
 F6K BAND ZOOM
 F6K SEGMENT ZOOM
 F6K PLAY
 F6K RECORD
 F6K SLICE A AUDIO
 F6K SLICE B AUDIO
 RITCLEARB only for F6000-8000
 RITCLEAR
 RX EQ Omni VII
 Sweep
 UP B+1
 UP B+5
 No Op
 Lock
 Dual Receive
 STO SP
 RCL SP
 CW MEM1
 CW MEM2
 CW MEM3
 CW MEM4
 CW MEM5
 ESC
 Dump AGC
 K3 User 1
 K3 User 2
 K3 User 3
 K3 User 4
 K3 User 5
 K3 User 6
 K3 User 7
 K3 User 8
 K3 User 9
 K3 User 10

For the large left knob and large right knob, the settings text is below.

* VFOA
 * PBT
 ALC This controls the TX slider for power output
 * RIT
 * XIT
 VOL
 VOLB
 NOISE this is for the Flex 6000-8000 series only for the wide
 noise blanker
 NB
 * VFOB
 SPOT
 ZIN
 RF Gain
 RF GainB
 Keyer Speed
 * Filter Tune
 Mic Gain
 Side Tone
 RX EQ Omni VII

Vox Delay
* F6K RITB

* Only the large left knob and large right knob can do these functions.

The 3 sliders and the knobs that have limits on how far they can turn cannot do all the above functions. They cannot do the ones labelled with an asterick above.

Not all functions above are available on all radios.

The selections "UP B+1" and "UP B+5" are very nice for split DX pileups.

"UP B+1" and "UP B+5" selections work together to give you a very nice UP frequency function. By setting say pitch bend minus to "UP B+1" and pitch bend plus to "UP B+5" (these are the default settings), when a DX station announces he is listening say "up 3", you can simply press the "-"

button 3 times and VFO B will now be VFO A plus 3 and Split will now be on.

Therefore, you can instantly set split operation for an exact amount by how many times you rapidly click "-".

The exact action for "UP B+1" is if SPLIT is off, perform an A equal B and then add 1 to VFO B. If SPLIT is already on, then just add 1 to VFO B. And the "UP B+5" also does the same thing except it adds 5.

Hercules Compact DJ Controller

Hercules has a very nice compact DJ controller that is well suited as a ham radio controller. This device has 26 controls consisting of knob and buttons. To configure this pod, go to the "Remote Pod Fkeys" settings window and turn on the check box "Using MIDI DJ Controller". Assuming the device is already plugged into a USB port, that's all you have to do.

Once the device is working, you can now customize the N4PY program to your liking. All the control setup is done using the hcompact.ini configuration settings file. This file is located in the folder where you installed the N4PY program and is not built until you turn on the "Using MIDI" option the first time. This file can be setup with the N4PY program either running or not running. If changes are made to the hercules.ini file while the N4PY program is running, you can click the button "Reload DJ Controller Settings" once the changes have been saved in the file.

You can edit this file with notepad. You can use a label maker and add

labels to the controls as you like.

The settings text must be exact from the list below for buttons but upper or lower case can be used freely.

The left 1 to 4 buttons and the right 1 to 4 buttons have 4 modes which are LOOP, FX, SAMPLE, and CUE. There are separate settings by mode for these 8 buttons.

Tuning Selections
Tuning Steps
Reverse Steps
Mode Selections
FAST Tuning
Split Reverse
A/B Toggle
Knob A/B Toggle
Swap A/B Assign
A = B
VFOA
PBT
TX POWER This controls the TX slider for power output
RIT
XIT
NB For Flex 6000-8000 series this is the wide noise blanker
NR Not used for Flex 6000-8000 series, the Kachina uses NB for
noise reduction
VOL
VOLB
VFOB
PTT
VOX
SPOT
ZIN
RF Gain
RF GainB
Split Key
Amp Tune
TXLOOP
Band Bottom
Keyer Speed
Enable Keyer A
Up Filter
Down Filter
AccInp Xmit
Mute
Band Up
Band Down
Auto Tuner
Freq Scan
Mic Gain
Side Tone
Notch
NOISE For Flex 6000-8000 series this is the noise reduction
NB For Flex 6000-8000 series this is the wide noise blanker
Squelch
Tune
Attn
Preamp
USB
LSB

CW
 FM
 AM
 KW NB2
 KW ANT
 KW RANT
 F6K CW Delay
 F6K ANT1
 F6K ANT2
 F6K RXA
 F6K RXB
 F6K MONRXB
 F6K MONANT2
 F6K MONRXA
 F6K MONANT1
 F6K RITBONOFF
 F6K PREAMP UP
 F6K PREAMP DN
 F6K BAND ZOOM
 F6K SEGMENT ZOOM
 F6K PLAY
 F6K RECORD
 F6K SLICE A AUDIO
 F6K SLICE B AUDIO
 RITCLEARB only for F6000-8000
 RITCLEAR
 RX EQ Omni VII
 Sweep
 UP B+1
 UP B+5
 No Op
 Lock
 Dual Receive
 STO SP
 RCL SP
 CW MEM1
 CW MEM2
 CW MEM3
 CW MEM4
 CW MEM5
 ESC
 Dump AGC
 K3 User 1
 K3 User 2
 K3 User 3
 K3 User 4
 K3 User 5
 K3 User 6
 K3 User 7
 K3 User 8
 K3 User 9
 K3 User 10

For the large left knob, large right knob, the settings text is below.

* VFOA
 * PBT
 ALC This controls the TX slider for power output
 * RIT
 * XIT
 VOL

VOLB
 NOISE this is for the Flex 6000-8000 series only for the wide
 noise blanker
 NB
 * VFOB
 SPOT
 ZIN
 RF Gain
 RF GainB
 Keyer Speed
 * Filter Tune
 Mic Gain
 Side Tone
 RX EQ Omni VII
 Vox Delay
 * F6K RITB

* Only the large left knob, large right knob can do these functions.

Not all functions above are available on all radios.

The selections "UP B+1" and "UP B+5" are very nice for split DX pileups.

"UP B+1" and "UP B+5" selections work together to give you a very nice UP frequency function. By setting say "right sync" to "UP B+1" and "right cue" to "UP B+5" (these are the default settings), when a DX station announces he is listening say "up 3", you can simply press the "right sync"

button 3 times and VFO B will now be VFO A plus 3 and Split will now be on.

Therefore, you can instantly set split operation for an exact amount by how many times you rapidly click "right sync".

The exact action for "UP B+1" is if SPLIT is off, perform an A equal B and then add 1 to VFO B. If SPLIT is already on, then just add 1 to VFO B. And the "UP B+5" also does the same thing except it adds 5.

Numark DJ2GO2 DJ Control

Numark has a very nice DJ controller that is well suited as a ham radio controller. This device has 26 controls consisting of knob and buttons. To configure this pod, go to the "Remote Pod Fkeys" settings window and turn on the check box "Using MIDI DJ Controller". Assuming the device is already plugged into a USB port, that's all you have to do.

Once the device is working, you can now customize the N4PY program to your

liking. All the control setup is done using the dj2go2.ini configuration

settings file. This file is located in the folder where you installed the

N4PY program and is not built until you turn on the "Using MIDI" option

the first time. This file can be setup with the N4PY program either running

or not running. If changes are made to the dj2go2.ini file while the

N4PY

program is running, you can click the button "Reload DJ Controller Settings" once the changes have been saved in the file.

One thing to watch out for on this DJ controller is the "PAD MODE" button.

This button can change the key codes sent in by the DJ controller. The

N4PY software has been programmed to only use the key codes from the buttons

when the "PAD MODE" button is in the "CUES" setting. So make sure "PAD MODE" is always set to "CUES".

You can edit this file with notepad. You can use a label maker and add labels to the controls as you like.

The settings text must be exact from the list below for buttons but upper or lower case can be used freely.

Tuning Selections
Tuning Steps
Reverse Steps
Mode Selections
FAST Tuning
Split Reverse
A/B Toggle
Knob A/B Toggle
Swap A/B Assign
A = B
VFOA
PBT
TX POWER This controls the TX slider for power output
RIT
XIT
NB For Flex 6000-8000 series this is the wide noise blanker
NR Not used for Flex 6000-8000 series, the Kachina uses NB for
noise reduction
VOL
VOLB
VFOB
PTT
VOX
SPOT
ZIN
RF Gain
RF GainB
Split Key
Amp Tune
TXLOOP
Band Bottom
Keyer Speed
Enable Keyer A
Up Filter
Down Filter
AccInp Xmit
Mute
Band Up
Band Down

Auto Tuner
Freq Scan
Mic Gain
Side Tone
Notch
NOISE For Flex 6000-8000 series this is the noise reduction
NB For Flex 6000-8000 series this is the wide noise blanker
Squelch
Tune
Attn
Preamp
USB
LSB
CW
FM
AM
KW NB2
KW ANT
KW RANT
F6K CW Delay
F6K ANT1
F6K ANT2
F6K RXA
F6K RXB
F6K MONRXB
F6K MONANT2
F6K MONRXA
F6K MONANT1
F6K RITBONOFF
F6K PREAMP UP
F6K PREAMP DN
F6K BAND ZOOM
F6K SEGMENT ZOOM
F6K PLAY
F6K RECORD
F6K SLICE A AUDIO
F6K SLICE B AUDIO
RITCLEARB only for F6000-8000
RITCLEAR
RX EQ Omni VII
Sweep
UP B+1
UP B+5
No Op
Lock
Dual Receive
STO SP
RCL SP
CW MEM1
CW MEM2
CW MEM3
CW MEM4
CW MEM5
ESC
Dump AGC
K3 User 1
K3 User 2
K3 User 3
K3 User 4
K3 User 5
K3 User 6

K3 User 7
K3 User 8
K3 User 9
K3 User 10

For the large left knob, large right knob, and the Browse knob, the settings text is below.

* VFOA
* PBT
ALC This controls the TX slider for power output
* RIT
* XIT
VOL
VOLB
NOISE this is for the Flex 6000-8000 series only for the wide
noise blanker
NB
KW NB2
* VFOB
SPOT
ZIN
RF Gain
RF GainB
Keyer Speed
* Filter Tune
Mic Gain
Side Tone
RX EQ Omni VII
Vox Delay
* F6K RITB

* Only the large left knob, large right knob, and the Browse knob can do these functions.

The Browse knob is actually used as a multi function knob. If you define a button with a knob function setting, this button function will change to that function. The Browse button current function is shown as small text in the upper right hand corner of the black frequency area.

The 3 sliders and the knobs that have limits on how far they can turn cannot do all the above functions. They cannot do the ones labelled with as asterick above.

Not all functions above are available on all radios.

The selections "UP B+1" and "UP B+5" are very nice for split DX pileups.

"UP B+1" and "UP B+5" selections work together to give you a very nice UP frequency function. By setting say pitch bend minus to "UP B+1" and pitch bend plus" to "UP B+5" (these are the default settings), when a DX station annouces he is listening say "up 3", you can simply press the "-"

button 3 times and VFO B will now be VFO A plus 3 and Split will now be on.

Therefore, you can instantly set split operation for an exact amount by how many times you rapidly click "-".

The exact action for "UP B+1" is if SPLIT is off, perform an A equal B and then add 1 to VFO B. If SPLIT is already on, then just add 1 to VFO B. And the "UP B+5" also does the same thing except it adds 5.

Program Support for the Griffin Technology PowerMate And also the Contour ShuttlePro Multifunction Controller

The Griffin Technology PowerMate and also the Contour ShuttlePro Multifunction Controller can be used for tuning the radio. However, I have found that a mouse with a spinning scroll wheel such as the Logitech MS 620 works better than either of these keyboard simulator controllers.

Either keyboard contrller should be configured as follows:

RotateRight - SendKey with key value of Alt-G
RotateLeft - SendKey with key value of Alt-B
Click - SendKey with key value of Alt-I
LongClick - SendKey with key value of Alt-Y

Example for setting up the Alt-G key in the Griffin Powermate configuration program:

The N4PY program must be active while this is done.
Enter the correct file in the "Setting" window.
This is "bbtrx1.exe".

Then follow the procedure below:
1.User Action=rotate right
2.Computer Action=send key
3.Click "Change Key"
4.Checkmark in "Alt"
5.Type letter "g" (ignore upper/lower case. Ignore "Hint").
Do not put checkmark in "Shift".

Follow exactly this procedure using the letter "B" for "rotate left", the letter "I" for "click", and the letter "Y" for "long click".

Click "Apply Now".
Click "OK"

Close PowerMate program.
Open PowerMate program once again. Set "Sensitivity" at or near "fast. Click "Apply Now". Click "OK".
Your finished.

Note: If, when you are using the knob to change frequency and it tends to "run past" after you've stopped turning the knob, lower the sensitivity slightly until it operates properly.

The numeric keypad on the keyboard becomes the keys that go along with the Powermate. If the keys are not reacting properly, you may have to click on the program radio panel to get the keyboard focus to the radio panel. Once the Powermate is properly setup, you can now configure "Remote Pod 0-3" and "Remote Pod 4-9" to operate from the numeric keypad of the computer keyboard. Pressing the

Powermate knob down quickly will produce a click that the program will interpret as "period" and follow the setting for "period". Likewise, pressing the Powermate knob for a long click will cause an "F10" or "zero" key operation to be performed.

Once properly setup, you can use the Powermate to change frequency, filters, RIT, PBT and many other things. You can still use the numeric keypad for direct frequency entry by clicking on the displayed frequency to start direct entry. It must be ended with the enter key.

You can purchase the Powermate by going to www.griffintechology.com.

WaveNode Watt Meter

The WaveNode watt meter is now supported. If you have a WaveNode watt meter, you can define this for use by opening the pegasus.ini configurtaion settings file. Find the line

```
WAVENODE=0
```

and change it to

```
WAVENODE=1
```

Then save the change.

Before starting the N4PY program, you must first start the wavenode program WN2.EXE, supplied by WaveNode. This is necessary since the wavenode program will send power and SWR messages to N4PY.

In the N4PY program, you can press Alt-Z to get the wavenode window. This window shows the SWR, average power, and peak power from the wavenode sensors. It also allows you to select which sensor will be shown in the S meter window during transmit. And it has a selection for "Use Peak Power". With this box checked, peak power will be shown in the S meter window during transmit. With this box not checked, average power will be shown.

Flex 6600, 6700, 8600 2 Operator 2 Radio Contest Setup

Of the 5 contest bands, you can have 4 panadapters display the operator band on one pan, and the 3 unused bands on the other 3 pans. To set this up open the pegasus.ini configuration setting file. Make sure the program is not running when you do this.

Find the line

```
WRTC=0
```

and change it to

```
WRTC=1
```

Next in order for the program to know what band the partner operator is on,

in each pegasus.ini file find the line

```
WRTC PARTNER N4PY IP=
```

and change it to have the correct IP for the partner radio.

also find thge line

```
PARTNER BAND=0
```

and change it to

```
PARTNER BAND=1
```

Finally go to the Fixed panadapter ranges feature and define a frequency range

for each band you want to use.

Save the changes.

If you want to have s single band spread across two pans, find the line

```
TWO PANS PER BAND=0
```

and change it to

```
TWO PANS PER BAND=1
```

This feature must also be setup with Fixed panadapter ranges feature described

else where in this document.

Diagnostic Tracing

There is a check box in the "Preferences" window labelled "Diagnostic Tracing". This is used to gather trace information for Carl to debug a problem. When changing this setting, you have to exit and restart the program for the new setting to take effect. Turning this on causes tracing information to be written to the 3 trace files "comms.txt", "comms2.txt", and "comms3.txt". Only turn this on when you have been asked to by Carl.

Hot Keys on the keyboard

<Up-Arrow>	Increase step size
<Down-Arrow>	Decrease step size
<Left-Arrow>	Tune Down
<Right-Arrow>	Tune Up
<Shft-Left-Arrow>	Fast Tune Down
<Shft-Right-Arrow>	Fast Tune Up
<Ctl-Left-Arrow>	Decrease Speaker Volume
<Ctl-Right-Arrow>	Increase Speaker Volume
<Alt =>	A=B
<Alt />	A/B
<Alt-A>	AM Mode
<Alt-C>	CW Mode

<Alt-D>	Set Power to 100
<Alt-E>	Speech Proc
<Alt-F>	FM Mode
<Alt-H>	Show Message Box with this Menu
<Alt-J>	Amp Window
<Alt-K>	CW Keyboard Keyer
<Alt-L>	LSB Mode
<Alt-M>	Mute Audio
<Alt-P>	TxLoop
<Alt-Q>	PTT Toggle
<Alt-R>	RTTY Mode
<Alt-S>	Split
<Alt-T>	ATTN
<Alt-U>	USB Mode
<Alt-W>	Calibrate
<Alt-X>	Quit
<Alt-Z>	Wave Node
<Alt-space>	Accessory Input Toggle
<SHFT-F4>	Begin Entering Frequency
F1	CW Keyboard Keyer Memory 1
F2	CW Keyboard Keyer Memory 2
F3	CW Keyboard Keyer Memory 3
F4	CW Keyboard Keyer Memory 4
F5	CW Keyboard Keyer Memory 5
<Shift F1> to <Shift F9>	SSB Band Buttons
<Ctrl F1> to <Ctrl F9>	CW Band Buttons

For comments and suggestions email to
n4py@arrl.net

Carl Moreschi N4PY
 58 Hogwood Rd
 Louisburg, NC 27549

Please do not email or call Ten-Tec regarding this software.

