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WinPix32 — SSTV for *Windows 95/98/NT*

Welcome

Welcome to WinPix32. We feel that it provides the most complete SSTV system for use on Windows 95/98 or Windows NT. If you have a favorite SSTV mode, this program probably supports it. *WinPix32* supports 39 SSTV modes.

The program has been designed to give you the most flexibility to run SSTV the way you want. Because of this flexibility, the program may seem complex at the beginning, but if you spend time using the Help system and experimenting with the features, the complexity will soon disappear.

In addition to all of the SSTV functions, the program provides extensive features for adding text and drawing shapes on images. Image manipulation features allow you to sharpen or soften an image; adjust the brightness, gamma and contrast; repair bad lines; or add special effects.

A closely integrated program called PixLib32 extends the capability of WinPix32 to add a complete thumbnail library system. The library system allows you to save SSTV images the way you prefer while giving you the ability to easily edit the stock of saved images. You are not limited to a single library on screen. Instead you can have one library present that will automatically accept your new SSTV images and other libraries that are being used to recall images for transmission.

You can insert images on top of other images. Add your mug shot in the corner of a picture you are sending. These insertions can even be "see through" if desired.

The program will automatically format a QSL card from any picture or add the typical text used in Contests or with DX contacts.

Create a library of “overlay” images that can be used to frame any image in your collection. Do this by collecting frames or making frames in your favorite “drawing” program and then use *WinPix32* to define the area in the frame that will be “transparent”.

System Requirements

Operating System:

WinPix32 is a *Windows* program and requires *Windows 95/98 or NT* for operation.

Processor and Memory:

The minimum processor is a 486/66 DX with 16 Megs of RAM. This combination will operate properly, but may be rather slow in some image processing tasks. A Pentium 90 or faster is recommended. More memory will provide more flexibility in multi-tasking.

Video Card and Monitor:

SSTV images are received in a 24 BIT mapped format. *Windows* handles 24 BIT (True Color) and 15 BIT (High Color) images in approximately the same manner and will provide a rapid display of the image if the video card is capable of handling either “True Color” or “High Color”. If your video card is limited to 256 colors, *WinPix32* will use a “universal” palette of colors to display the image and a dithering method of your choice. The resulting images will be rather grainy. The dithering will try to fool the eye into seeing the unsupported colors in the image. While a 256-color video card will work, it is not recommended. A “True Color” or “High Color” card is strongly recommended.

With monitors smaller than 15 inches, a *Windows* screen resolution of 640 x 480 is recommended. With larger monitors you may prefer an 800 x 600 resolution or 1024 x 768. Although this requires more memory on the video card, the feeling of more “room” on the screen to sort pictures is an advantage. SSTV modes that transmit 480 lines will display better on an 800 x 600 or larger screen.

Sound Card:

Any 16 BIT *Windows* compatible sound card should accommodate *WinPix32.* The program uses the stereo feature of the sound card to support two-channel operation. "Bugs" in some sound card "drivers" can present a problem and result in picture "loss of synch". Creative Labs "Sound Blaster" systems have been good performers.

General Operation

Program Organization

The program is organized around a multiple image format. This organization allows any number of images to be loaded into the program and displayed at the same time. Each loaded or received image is in its own window and the window is the proper size for the image. In the case of large images, the window becomes scrollable

As an image is received, a window, to hold it, is created by the program. Other images can be loaded into the program and/or edited while the reception is in process. The windows are independent of each other and can be moved about the screen at your convenience.

How you use the program depends on your preference and on the size of your monitor and the display resolution. With a larger monitor, you can increase the screen resolution to 1024 x 768 and have more room to work with pictures. A smaller monitor would leave the small format (320 x240) images too small if the higher resolution was used. Here a screen resolution of 640 x 480 is better. You may prefer to use two instances of the program at the same time to provide more "room".

Additional flexibility is provided through a table of "options" which is accessed through the Options/Other Options menu item. Here you may want to stay with the default settings until you become more familiar with the program.

When working with images, the UNDO command will be your friend. Clicking on this tool bar item or selecting "Undo Changes" from the Edit menu will always allow you to return to the original image.

Many of the dialog boxes (e.g. Receive and Transmit) will initially be placed in the upper left-hand corner of the program window. You can drag them to whichever location you prefer and the program will remember.

Multiple Instance Operation

WinPix32 is designed to facilitate multiple instance operation. However, with a larger monitor running at 1024x768 or higher resolution, you may feel that there is enough room to work within a single instance. The Options/Other Options menu allows you to select an option that will automatically load two instances of WinPix32 at startup.

Clicking on this icon will load a second instance of the program or transfer to the other instance if it is already loaded. You would then typically use one instance for receiving images while the other instance is used to prepare images for transmission. However, complete flexibility still exists. If you want to "replay" a received image, you just bring down the transmit dialog within that instance and transmit.

Anytime you want to move to the other instance, you just click on the toolbar icon.

Tool Bar and Status Bar

The Tool Bar can be moved from its default location at the top of the screen to any other location you prefer. The mouse controls the movement of this "Docking Tool Bar". Put the cursor just to the left of the first icon and press the left mouse button. You can now drag the tool bar to a new location. If you release the mouse button somewhere in mid-screen, the tool bar becomes a movable window. If released at one of the extremes of the *WinPix32* window, the tool bar will be attached to that edge. The process of moving the tool bar requires a little practice.

The Status Bar is unique in one respect. The last panel on the right is both a button and a display. If the button is labeled "Select Save Folder", you can click on it to select the default save location for your images. When a Thumbnail Library is designated as the storage area, the button no longer operates and the label just displays the library's name.

Getting Started

Setting Your Time Zone

Windows 95/98/NT has a "Date/Time" function in the "Settings/Control Panel" that sets the time zone and the daylight savings information. This has probably already been set. If not, you should do this to provide the data needed to compute UTC times.

Connecting the Transceiver

Adapters are available to go from the 1/8 inch stereo phone jacks used on sound cards to RCA type plugs. The "stereo" feature of the sound card allows the program to select one of two channels (Left or Right). This allows you to connect to two transceivers (e.g. HF and VHF) and move between them within the software

The above adapters work well to separate both the two input and the two output channels. Another adapter available is a cable that has a 1/8-inch stereo phone jack at one end and branches into two male RCA plugs at the other.

WinPix32 accesses your sound card's A/D and D/A converters through *Windows*. If you are not sure of compatibility or if you later experience difficulties, make sure your sound card is operating properly under *Windows*. A test for this is to record and play back a "WAV" file using the *Windows* "recorder" software supplied with your sound card. You should be able to record the audio output of your transceiver (any QSO) and play it back.

- Connect from a transceiver output, which is independent of the volume control, to one channel (left or right) of the "Line Input" of the sound card.
- Connect from the same channel of the speaker output (use a splitter adapter to allow the speaker to still be connected) to an input of the transceiver. This can be an "input" such as AFSK or "Phone Patch". Some users prefer an actual switch at the microphone input to change between microphone and SSTV audio.

You may want to add circuitry to activate the transceiver's PTT line. If you have RF pickup or hum an isolation transformer is recommended for the speaker output to transceiver line.

Controlling the Sound Card's Mixer

A standardized sound card mixer is included as a part *of Windows 95/98* or *Windows NT*.

Double click on the "speaker" icon in the lower right corner of the screen!

The first mixer screen that appears controls the OUTPUT of the sound card. This will be the mixer used to set the transmit levels to your transceiver and it is controlled directly by *WinPix32*.

Since you will be using the Line-In for your SSTV signals from the transceiver, you should remove any check mark that is in the section under "Line-In". If this item is "Selected", the output of your transceiver will play through to the line output and speakers during SSTV reception. This will complicate the use of VOX or a PTT circuit.

Gaining access to the mixer that controls the INPUT to the sound card is next.

Click on "Options" and then "Properties". The "Properties" box will show that "Playback" was selected. The "volume controls" checked should include "Volume Control" and "Line-In" as a minimum.

Now select "Recording". Make sure that both the "Recording Control" and "Line-In" is checked.

Click on "OK", and the "Recording Control" mixer will appear.

Make sure that "Line-In" is selected. If you have a computer with a microphone, make sure the "Microphone" is NOT selected or room noise will be superimposed on your SSTV signals resulting in poor pictures. The "Line-In" levels will be used to set the input signal level to the sound card from your transceiver.

While the mixer is present, you can set the levels into the sound card.

Setting Sound Card Levels

• Select the Receive mode of *WinPix32* by clicking on the green "ear" icon, using the Alt-R shortcut key, or selecting Receive from the Action menu. If signals are being sent from the transceiver to the sound card, the "Level" will be indicated just below the SSTV mode family display in the Receive dialog box.

- Get the mixer back by selecting it in the *Windows* task bar.
- Move the mixer control to a location that allows you to view the *WinPix32* Receive dialog box in the background.
- Use the "mixer" to adjust the Level to a value somewhere between 20 and 50 percent. This is not that critical since values as low as 10 percent or as high as 100 percent can work quite well. Low settings can be more sensitive to QSB while a high setting can result in sound card distortion in the presence of QRM. It is best to use a SSTV signal for the adjustment since voice is too inconsistent in level.

Following the setting of the proper level, close the mixer.

Calibrating the Sound Card

The oscillator that controls the sound card's timing is crystal controlled and quite stable but the accuracy of these oscillators will not satisfy the needs of SSTV. *WinPix32* provides an automatic means for measuring the frequency error of the sound card's oscillator. The program then uses this data to calibrate the "sweep times" in the software.

The automated method uses another SSTV station's signal for calibration and the program will not allow you to transmit a picture until after you have performed this calibration at least once.

• From the Action menu select Receive. Alternatively click on the "green ear" icon or use the short cut keyboard option of Alt-R. The Receive Control dialog box will appear.

- At the end of the line that says "Synch Start" is a box that says either "Any", "Prefer", "Family", or "Mode". Set this to "Any" using the up/down spinner.
- Click on "Calibrate" and wait for a picture to start. When a picture is received, the it should come down straight although it may be offset a small amount to the left or right.
- If the picture was received correctly, you can tell the program to save the new correction. The calibration number will appear in the "Signal Processing " dialog box.

If the error is in excess of 200 parts per million, you should probably repeat the calibration to verify accuracy. Receiving a strong station should result in errors that are consistant within 10 parts per million. Errors in excess of 3000 parts per million are very suspect. Here you should reset the value to zero (Signal Processing dialog box) before repeating the calibration.

Some sound cards, fortunately very few, do not hold the same timing for "recording" and "playback". These cards could transmit slanted pictures while receiving perfectly timed pictures. The Signal Processing dialog box has a place to enter "Xmit Error". This would be the difference between the Receive and Transmit timing. Hints on finding this error value are located in "Hints and Reminders".

Signal Processing Options

In the "Options" menu select "Signal Processing".

The resulting dialog box has an item labeled "Present Sound Card Timing", and it will show the stored number.

If you decide to repeat the calibration, but feel that the stored number is probably correct, DO NOT RESET the stored number to zero. If you want to start over, the number can be reset to zero.

While this dialog box is present you may want to select the other items displayed.

- Horizontal Synch. Option
- Image Stack

Setting the Transmit Level

To set modulation level, make sure you are on a “dead” band and that the transceiver is into a dummy load. Then take the following steps:

- Using the File menu, get any image into the program. When the image has been loaded, the Transmit tool bar icon will show red.
- Click on this icon to bring down the Transmit dialog box and select the Scottie 1 mode by simply hitting the S key on the keyboard.
- Select the channel to be used (Left or Right) by clicking on the channel select button.
- Click on Transmit!
- Put your transceiver into the transmit mode and adjust the output volume of the sound card using the “slider control” in the Transmit dialog box to achieve the desired output power (SSB) or deviation (FM).
- Take the transceiver out of the transmit mode and click on “Cancel” in the Transmit dialog box. This will close the dialog box.

WinPix32 will remember this setting.

Some sound cards will not support the “slider control”. In this case you will have to use the mixer “Volume” setting to set the level.

The Menu Summary (details in later pages)

Files

Open	Used to load an image
CQ Image	Used to call the image you select for the “CQ Image”
Mug Shot	Used to call the image you select for the “Mug Shot”
73 Image	Used to call the image you select for the “73 Image”
QSL Image	Used to call the image you select for the “QSL Image”
Select Source	Select a TWAIN image source
Acquire	Acquire an image from a TWAIN source
Close	Close the current image
Save	Save the current image
Save As	Bring up the Save As dialog to save the image
Print	Print the current image
Print Preview	View the image as it will be printed
Print Setup	Set the printer information
Delete	Delete the current image
Rename	Rename the current image

Edit

Undo Changes	Undo the Latest Changes to the Image
Cut	Cut the Image and Place it on the Clipboard
Copy	Place a Copy of the Image to the Clipboard
Paste	Load the contents of the Clipboard
Inset from Clipboard	Inset the contents of the Clipboard into the current Image

View

The View menu allows you to enable or disable the display of the Tool Bar and Status Bar. Because these controls are used extensively it is recommended that both be displayed.

Image

Dithering	Select the preferred dither method for reducing the color count in images.
Reduce Color	Reduce the color content of an image.
Orientation	Rotate or Flip an image
Resize	Resize an image
Crop	Select a portion of an image
Construct Overlay	Convert an image into an Overlay where a portion of the image becomes transparent.
Make 24 BIT	This command simply converts any image to 24 BIT format. It does not add colors.
Set Default Image 1	When clicked, this menu item designates the current image to be Default Image 1 .
Set Default Image 2	When clicked, this menu item designates the current image to be Default Image 2 .

Options

Signal Processing	This brings down a dialog box the sets sound card processing options.
Header Options	The resulting dialog sets the header message and provides for a custom header.
Other Options	The resulting dialog sets the majority of program options.
AutoRestart	Enables the AutoRestart function. This will restart a picture if an acceptable VIS code is found.
Scottie DX Prefer	AVT 188 and Scottie DX have the same VIS code. This item sets the preferred default.

Action

Receive	Brings up the Receive dialog box and starts the receive process
Xmit	Brings up the Transmit dialog box
Get Thumbnails	Loads or Calls the Thumbnail Library Management program (PixLib32)
Get Other WinPix	Loads or Calls another instance of WinPix32
Select Preferred Modes	Brings up a dialog box to be used to select the preferred SSTV mode list

Tools

Add Text	Assigns a Text Tools dialog box to the current image
Get Text List	Assigns a Text List dialog box to the current image.
Draw Tools	Assigns a Draw Tools dialog box to the current image
Image Tools	Assigns an Image Tools dialog box to the current image

Receiving

Starting Image Reception

Alt+R

Clicking on Receive in the Action menu, or the Green Ear icon in the tool bar, or using the short cut key will bring down the Receive dialog box. When this happens, the program will begin processing data from the sound card. The channel select button (just above the spectral display) should be used to select either the Left or Right channel of the sound card's input data. The level of the input signal is displayed just above the channel select button. The "Synch Option" is displayed just above the mode select boxes.

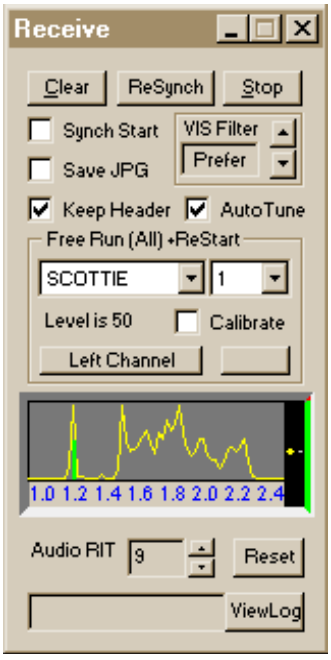
The three buttons in the top row are the primary controls for reception. The second and third button change function and label during the receive process.

- Clear Button This button will interrupt the reception process and close out the window holding a partial picture. The button is used primarily to abort a false start or give up on a picture received under poor conditions.
- Force This button begins with the label "Force". If you miss the VIS code but know the SSTV mode you are hearing, you can set the mode and then force the start of reception. If you have the incorrect mode set, the result will be garbage.
- ReSynch When reception starts, the Force button label is blank for a few seconds while synchronization is in process. Following this the label changes to "ReSynch". If the picture did not synchronize properly, and the Synch. Pulse indicator is registering at least 50%; this button will restore proper synchronization.
- Cancel This button reads "Cancel" while reception is not in process. It will close the Receive dialog box.
- Stop When reception is in process, the label on the third button changes to "Stop". The button will now manually end the picture. This is useful if you started receiving a picture late. When you hear the picture come to an end, click Stop and the partial picture will remain in its window.

Note that the dialog box can be minified using the usual control in its title bar. Reception will continue even though it is minified.

Other Options

Sync Start
VIS Filter
Calibrate
Save
Auto Tune
To Clipboard
Keep Header
Mode Select Boxes
Audio RIT
Spectral Display



Interaction with Image Transmission

The program is designed to manage the sound card without closing the Receive dialog box during transmission. You can bring up the Transmit dialog box at any time. When transmission actually starts, the receive process will be stopped and the transmission will take over the sound card. When the transmit cycle ends, the Receive dialog will again begin taking data from the sound card.

The above process works just as well with two instances of the program. The start of a transmit cycle will be detected in another instance and any receive action will be halted. Again, when the transmit cycle ends, the receive process will be restored. In all cases, the Receive dialog is not closed. Only the data processing is halted.

Other Receive Options

Synch Start

If you miss the VIS code and DO NOT know the SSTV mode you are hearing, the "Synch Start" option can help identify the mode and start receiving the picture.

When you enable "Synch Start", the program looks for the timing between line synchronization pulses and attempts to find a SSTV mode that matches the timing. If it finds a mode it will begin to receive the picture in that mode. The program will only examine those modes allowed by the selected "VIS Filter".

Since the synch. pulses are much shorter than the VIS interval, they are more sensitive to noise. As a result this method of finding the mode is not as reliable as the VIS code. Under good signal conditions it works quite well.

Several SSTV modes have identical times between pulses so the program will select the first one it finds in the search pattern. If M3 is being sent, the program will select M1 since it has the same line timing and occurs first in the search pattern.

Auto Save

This option displays the default image format that will be used by the "File/Save" menu command or the automatic save function. Enabling this function in the Receive dialog will result in each image being saved at completion.

You can turn this option On or Off at any time. Therefore, you may elect to leave it Off until you see a good picture that you want to save. As long as you enable the option before the picture is finished, the automatic save will occur.

If you want to save an image manually, just use the tool bar icon. Both the "Save" and automatic save function will save the image at the location shown in the right pane of the status bar.

Keep Header

If this option is enabled, the window that is created, to hold the incoming picture, will be high enough to contain both the image and the header. The typical small format mode may have an image size of 320x240 with a 16-line header. In this case the window will be 320x256.

If the option is not enabled, the window will only be as large as the image portion. The reception will then start near the BOTTOM of the window. This will display the header. As the picture progresses, it will move to the top of the window and will eventually overwrite the header as it gets to the bottom.

If you start receiving a picture late, you will be using the "Stop" button in the Receive dialog box when you hear the picture end. At this time the program will "roll" the image so the last line received will be at the bottom and any portion of the picture that was there will be "rolled" to the top.

VIS Filter

Because *WinPix32* supports so many modes, the probability of a false start due to QRM or QRN is higher. By controlling the modes that will be recognized by the program, the probability of a false start can be reduced. The VIS filter has four options:

- **Any** --- If this selection is made, the program will respond to any of the supported SSTV modes. With this selection, the probability of a false start is the highest.
- **Prefer** -- This selection will allow the program to respond to any mode that is on YOUR list of preferred modes. You can establish this list based on the modes you regularly use.
- **Family** -- This selection will restrict the recognition to modes that are in the same Family as the default mode. If the default is displayed as Scottie, only the 5 modes in this family will be recognized. This is a useful selection for "nets" where the modes are usually within the same family.
- **Mode** -- The only VIS code that will be recognized here is the current default mode.

Auto Tune

The program uses two forms of automatic tuning.

- For all modes, the start tone and VIS interval are used to measure the tuning error. This sets the "Audio RIT" to a value that then corrects for the tuning error.
- The PD and HQ families have the capability to continuously correct for tuning errors caused by relative drift between the sending and receiving station.

In most cases, the AutoTune should be enabled, but, under poor conditions, the accuracy will also be poor. In this case it should not be enabled.

Calibration

To calibrate the sound card clock against the timing of another station:

- Click on "Calibration"!
- Wait for the start of a SSTV picture. The station you are receiving should have good signal strength and you should have reasonable confidence in his timing calibration.

The picture should come down straight but may be offset a small amount to the right or left. This offset is the result of the program correcting for the error in the sound card clock and is a temporary condition.

When the picture is completed you will get another dialog box which will display the computed sound card error in parts per million.

If the received picture was straight and reasonably free of noise, tell the program to save the new correction.

Most sound cards will have a clock error less than plus or minus 200 parts per million. Some cards, however, can have considerably larger errors. The image quality will not be effected by a large error but, if you get a large number, you should repeat this calibration to make sure it is consistent. The answers should not differ by more than about 10 parts per million from one calibration to another. Numbers as high as 3000 parts per million have been seen but numbers higher than this should be suspect.

You can also use this feature to just measure the relative error between you and another station. If you run a calibration on a station that is having problems with "slanted" pictures, the difference between the New and Old calibration numbers tell the number of parts per million difference between you and the other station. Since this is just to help the other station's calibration, DO NOT SAVE THE NEW VALUE.

Mode Select Boxes

When the dialog box first comes down, you will notice that the mode "Family" is highlighted in the left of the two mode select boxes. Selecting a mode can be done using either the keyboard or the mouse.

- Keyboard ----- Type the first letter of the desired mode family. The family will change to the desired family. If more than one family (P & PD) begin with the same letter, just type the letter a second time. Now hit the TAB key to move the highlight to the right mode selection box. Now type the number/letter of the mode within the family.
- Mouse -- Both of the mode selection boxes are "drop down combo boxes". Click on the down arrow for the left box first and select the family. Then click on the down arrow for the right box and select the family member.

Selecting the default mode in the Receive dialog box is only necessary if you have restricted the VIS Filter to "Family" or "Mode".

To Clipboard

The button to the right of the channel select button controls the automatic transfer of a received image to the clipboard. When the button is clicked the label will be "-->C". If this label is showing, the received image will automatically be placed on the clipboard. Clicking on the button a second time turns off the function and the label will be blank.

This feature is useful if you want to quickly inset the last picture into your next transmitted picture. This is a common procedure for DX contacts. You can also use this to quickly transfer a picture between instances of *WinPix32*.

Keep in mind that this process will overwrite any other picture that is already on the clipboard.

Audio RIT

The program uses the value displayed in the "Audio RIT" to modify the detected SSTV tones and correct for errors in tuning. The AutoTune function sets this value but you can manually change it during reception to center the tuning indicator, which forms a part of the spectral display. Clicking on the Up or Down arrow to the right of the indicator changes the value in increments of 10Hz. The Audio RIT has a range of plus or minus 100Hz.

A reset button is available to quickly set the value to zero.

Spectral Display

The spectral display consists of three parts:

- The primary display shows the spectral distribution of the incoming signal. It is updated every 500 milliseconds . The vertical axis of the display has a range of 30dB. The green line in the display is only to remind the user that this is the location of the 1200Hz synch pulses. When a picture is being received, the background color changes from a light to a dark gray.
- The band just to the right of the primary display is a tuning indicator. When a picture is being received, a yellow dot will display the tuning error based on the current synch pulses. Since the AVT modes do not have synch pulses, the display is not used for these modes. Under good signal conditions, this display can be used to correct for errors using the Audio RIT. Under poor conditions, the indicator will be very erratic. THE USE OF THE AUDIO RIT IS RECOMMENDED ONLY TO CORRECT FOR LARGE OFFSETS.
- At the far right is a band that indicates the "reliability" of the synch pulses. If all 4 out of the last 4 synch pulses were detected, the band will be all green. If only 1 out of the last 4 was detected, the lower fourth of the band will be green and the rest will be red. DO NOT TRY TO USE THE RESYNCH BUTTON UNLESS AT LEAST HALF THE DISPLAY IS GREEN. This result could cause more harm than good.

Saving Pictures

Save Location Rules

 **Ctrl+S**

If a picture is modified, you can use the "Save" command, short cut key, or Tool bar icon to save it. Where will it be saved? This is a common question and the location and format depends on several things.

- If the picture was loaded from storage (hard drive, floppy, ZIP etc.) it will be saved back to its original location. It will also be saved in its original format (extension) it that format is supported.
- If the above format is not supported (read only format), you will be notified that the image will be saved in the "Default" format. The location will remain the same as its original storage location.
- If the picture was loaded from the clipboard or received as a new SSTV picture, it will be saved at either the "Default" location or in a designated Thumbnail Library. The format will be in the "Default" format .

Setting the Default Save Location

When the program saves a picture using either the Automatic Save option in the Receive dialog or in response to a user save command, the location for the "Save" is determined by one of two ways.

- If the far right panel in the program's status bar reads "Default 'Save' Location", you can click on the panel to set the default storage location. A standard dialog box will appear to allow you to select the default folder. Pictures saved while the panel reads "Default 'Save' Location" will then be saved to this new location.
- From within the Thumbnail Library Management program (PixLib32) you can click on the far right panel of that program's status bar. When no library is designated, the button is labeled "Set 'Save' Library". When you click on the button, the name of the currently selected library will appear in the panel and, when you return to WinPix32, the far right panel in its status bar will show the same library name. . Pictures will be saved to the library shown.

Saving pictures to a Thumbnail Library is the recommended approach. It provides an organized method for later review and deletion of unwanted images. For some users, creating an empty library on a floppy disk at the start of an SSTV session may be the answer.

Setting the Default Image Format

Setting the format for images saved by the Automatic Save in the Receive dialog or by the use of the Save command is done in the Options/Other Options dialog box.

Six image formats are available.

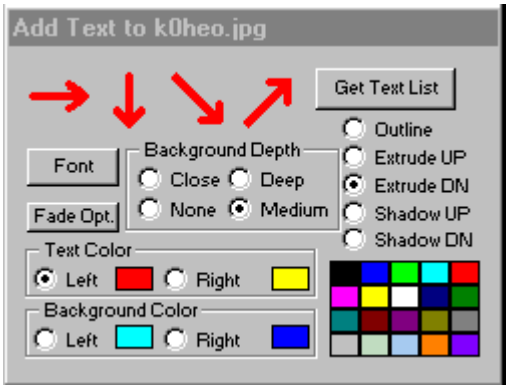
- JPG usually results in the smallest file size and is a good choice for 24-bit images. The form of compression results in some loss of picture detail but the loss is usually not noticeable. It is not a good candidate for high contrast "cartoon" type images. Consider PNG for these or reduce the colors and use GIF or TIF.
- PNG also does a good compression job on 24-bit images but is not quite as compact as JPG
- GIF is a good choice for 256 color images. It does not support 24-bit images.
- TIF is also a good choice for 256 color images. The compression is worthless for 24-bit SSTV images.
- PCX is the default file type for the old *Windows* Paint Program
- BMP is the native *Windows* format. It results in the largest file size but it is useful if you want to later use the picture for "wall paper".

Adding Text

The Text Tool Box

Adding text to a picture begins with deploying the Text dialog box. This is accomplished by selecting "Add Text" from the Tools menu or clicking on the "A" icon in the tool bar.

This dialog box is attached to the picture that was highlighted at the time the dialog box was deployed. That picture's name appears in the title bar of this dialog box. Text entered with this dialog box will ONLY be added to that picture. After adding your text, close the dialog box by clicking a second time on the "A" icon.



The dialog box is rather complex because the program provides many text-related features. (See “Other Text and Drawing Features”)

- Font Selection
- Color Selection
- Color Fade Options
- Background Effects

Text is added to the picture either through typing or by selecting a complete message from a text list.

Typing Text

Text can be typed directly into a picture in one of four directions.

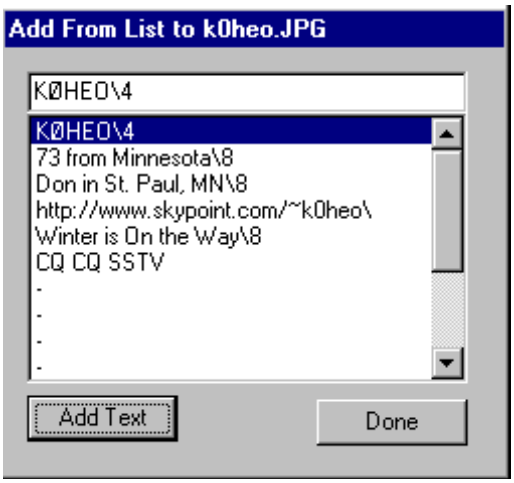
- Left to Right
- Top to Bottom
- 45 degrees Down
- 45 degrees Up

1. Click on one of the direction arrows. The arrow will turn green.
2. Move the cursor to the area of the picture where you want to type.
3. Hold the left mouse button down and position the gray box to the start of the text. The typed text will be the height of the gray box and the starting location will align with the left edge of the box. For VERTICAL text, the left edge of the gray box will mark the CENTER of the first letter.
4. Release the mouse button.
5. Type the text and use the "Enter" key to end the process.

Using the Text List

The text list provides a simple means for adding any of 16 prepared messages to an image. When you click on "Text List" in the text dialog box, the list dialog box appears. You can also access the Text List box directly by using the “TL” tool bar icon or clicking on the “Get Text List” item in the Tools menu.

This box has room for 16 messages and these are entered by simply selecting the line you wish to edit and typing the new text into the edit box at the top of the dialog box. The text will be added to the image in your default font style.



1. After selecting the message you want to use, click on “Add Text”.
2. Text will appear in the image in the proper font and a white color.
3. Move the cursor to the text and, with the left mouse button down, drag the text to the desired location.
4. Release the mouse button and the text message will be added to the image.
5. The “Text List” will remain until the “Done” button is clicked or the “Text Tools” dialog box is closed.

In the above example, note that most of the entries end in a backslash character or a backslash character plus a number. These are automatic scaling commands.

The font size that is selected is one that will not exceed the specified horizontal size. Because some fonts are quite limited with regard to available point size, your text could be noticeably shorter than the specified percentage.

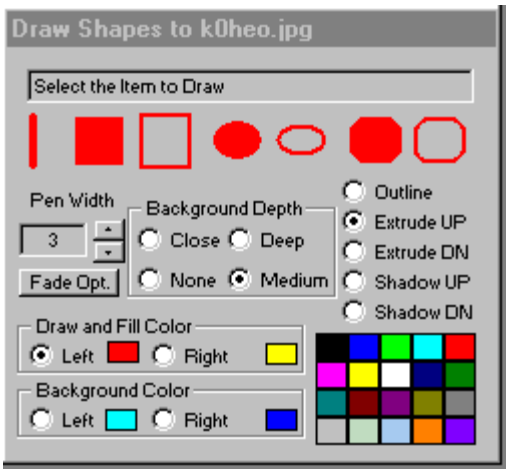
Drawing Tools

The Draw Tool Box

To draw in an image you call the Draw dialog box. This is done from the Tools menu or by clicking on the "Pencil" icon in the tool bar.

This dialog box is attached to the picture that was highlighted at the time the dialog box was deployed. That picture's name appears in the title bar of this dialog box. Drawing done with this dialog box will ONLY be added to that picture. After adding your drawing, close the dialog box by clicking a second time on the "Pencil" icon.

The dialog box is rather complex because the program provides many drawing-related features. (See “Other Text and Drawing Features”)

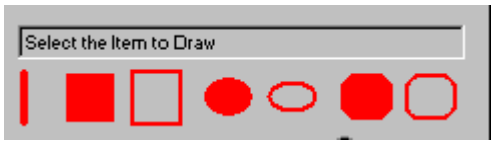


- Pen Width
- Color Selection
- Color Fade Options
- Background Effects

Drawing Shapes or Lines

The drawing process begins by selecting the object to be added to your picture.

When you click on the desired shape, it will change from red to green. All of the shapes act the same way. The line (far left) is just a little different.



1. After selecting a shape, the text in the line above will indicate your selection.
2. Move the cursor to one corner of the shape. The upper left corner is usual but is not required.
3. Hold the left mouse button down and increase the size of the shape.
4. When you release the left mouse button, the shape will be added to the picture.

If you hold down the "Shift" key while drawing the shape, it will draw circles or squares instead of rectangles or ellipses.

A special drawing feature involves the use of the right mouse button. If, after selecting the shape, you click the right mouse button any place within the picture, the shape will fill the entire picture. This is handy for adding frames.

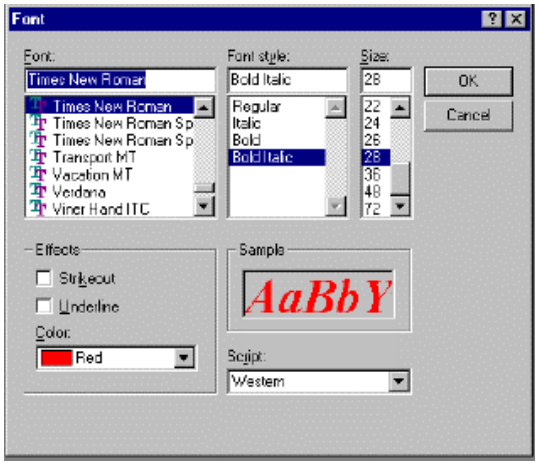
The line tool is similar to the shape tools but does not use color fading. Only the start color is used for both the Draw and Background color. Holding the "Shift" key while drawing a line causes the line to be either horizontal or vertical. The choice depends on which condition most closely approximates your drawing motion. In addition, the line tool does not respond to the right mouse button.

You may want to select "None" for the background effect . Shadow and extrusion effects are not attractive when applied to lines.

Other Text and Drawing Features

Font Selection

The font selection dialog has a standard *Windows* format. The color selection is only the primary color of the font. The detailed color selection is done from the Text dialog box. The font size applies to typed text and text from the "Text List" ONLY if it is not set for automatic size adjustment .



Color Selection

The lower section of the dialog box is used to select the various colors that can be applied. This same selection process applies to both the Text and Drawing Tools.

Four color-assignments are available. They select the colors for the "Foreground" (in this case Text) and the "Background". The background includes shadow, extrusion, and outline colors. Both the foreground and background have two color selections. These are for color fading. This fade option can be assigned as "top to bottom" or "left to right". The labels are set by the selected fade option and, in the above example, they are "top to bottom".

Click first on the selection to be made (Text Color & Top in the example). You then click on the desired color in the color chart at the right. When the assignment is made, the selection will move to the next item (Text Color & Bottom in the example). This allows you to rapidly select all four color options.

Fade Option

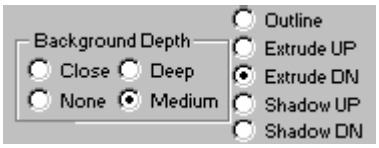
The button labeled "Fade Opt" controls the manner in which the text or drawing colors will be applied. The button toggles through three states.

- Top to Bottom
- Left to Right
- All

The first two are self-explanatory. "All" turns off the fade process and uses the starting color for the entire object. The example below shows the fade options applied to both text and drawing items. The left to right example used text from the "Text List". If the text had been typed, the fade would have been applied to each individual letter.

Background Effects

Text and drawing tools both have the same options for "Background" effects.



At the right, are five options. These control the category of the background effect. The "shadow" effect places a copy of the text or drawing displaced to the "Right and Up" or to the "Right and Down". The "extrude" effect is similar to shadow except the background effect fills in the area between the object and its shadow. The result is a 3D effect. The "outline" effect just surrounds the object with an outline.

The "Background Depth" control sets the thickness of the outline or the distance of the shadow or extrusion. "None" turns off the background effect.

Automatic Text Scaling

For text in the "Text List" category, the font point size is adjusted based on the last characters in the text message.

If no backslash is present, the currently selected font size is used. If a backslash and number (1 to 9) is present, the program will find the nearest point size within your selected font which will span a particular percentage of the picture width.

As an example, if the entry in the "Text List" ends with a backslash and a 4, this specifies a 40 percent width for the text message. An entry ends in \8 will span 80 percent of the image width. If no number is specified after the backslash, the default is 90 percent of the width of the image.

Pen Width

The pen width is increase or decreased using the arrow buttons to the right of the pen width display.

The pen width applies both to line drawing and to the drawing of frames. It is the width of the pen in pixels and is limited to a range from 1 through 20.

Image Tools

The Image Tool Box

To modify an image, call the Image Tool dialog box. This is done from the Tools menu or clicking on the "Split Sun" icon in the tool bar.

This dialog box is attached to the picture that was highlighted at the time the dialog box was deployed. That picture's name appears in the title bar of this dialog box. Image modifications done with this dialog box will ONLY effect that picture. After working with a picture, close the dialog box by clicking a second time on the "Split Sun" icon.

The dialog box is divided into three sections.

1. Overall Adjustments -- This area adjusts the brightness, gamma and contrast of the image.
2. Special Effects -- Six buttons control special effects
3. Progress Display -- The Plug-Ins special effect requires extensive computer processing. The display at the bottom of the dialog box is used only to monitor the progress of a Plug-In computation.

Overall Image Adjustments

If major changes are made in most of the adjustments, they are not reversible without using Undo. To illustrate the problem, consider the following. If you increase brightness, all of the higher brightness values in the image may be set to maximum. If you then reduce brightness, all or these values are reduced but they are still of equal value. The only adjustment that is reversible is Gamma. This is a nonlinear function. It leaves the maximum and minimum values in the image unchanged but, instead, modifies the gradient of the intermediate values. Gamma can be used to change the contrast gradient in either the high or the low brightness areas of the image.

- Brightness -- This adjustment changes the overall intensity of each pixel's color components.
- Gamma -- This adjustment can be used to increase the gradient in brightness near the bright or dark end of the scale. An image, that is dominantly dark but still has some light areas, can be modified to bring more detail to the dark areas without saturating the light areas. In the other direction, a generally bright image with a few dark areas, can be modified to provide more detail in the light areas without causing the dark areas to go to black.
- Contrast -- This adjustment changes the slope of the intensity about a central value that is based on a histogram for the image. The program provides the capability to modify the contrast for each individual color component or all colors at once.

Click on "Apply" after making the adjustment settings.

Special Effects

The six push buttons control various special effects. (See “Special Effects Details”)

Sharpen

Soften

Repair Line

Emboss

Invert

Plug-Ins

The first three will have more usage than the last three. However, "plugins" provide so much variety that they could become one of your favorites.

Special Effects Details

Sharpen

This button results in an increase in the edge gradients in the image. The result is to make the image more "crisp". Repeated clicks continue to add to the sharpness but at the expense of overall image quality.

Soften

This function reduces the edge gradients in an image. It has the reverse effect from the "Sharpen" command.

Repair Line

When this button is clicked, its title changes to "Active". This has turned on the line repair mode. Click the button again to turn the mode off.

Line repair it done as follows:

- With the left mouse button down, move the "cross marker" until the horizontal line is on the line to be repaired. This will require careful mouse movement.
- Release the mouse button.

The program will copy the line above the "cross marker" and replace the defective line. If more than one line in a group has been damaged, you must start repairing the top line first. If the results are not what you want, click on Undo to start again.

When doing major repair, it is a good idea to copy each intermediate good result to the clipboard. This allows you to recover without the danger of returning all the way to the original image via the Undo command.

Emboss

This effect creates a gray scale image but highlights the image in a way that makes it appear three-dimensional. Using the "Sharpen" command will increase the "depth" of the embossed image.

Invert

This button simply reverses the colors in an image. It creates a "negative". If used in conjunction with the "Emboss" command it will reverse the three dimensional effect.

PlugIns

PlugIns were introduced with the release of Adobe's Photoshop 2.5. They have now grown to be available by the thousands. They can be used for simply adding colorful frames around an image. At the other extreme, they can completely restructure a picture into psychedelic art. Only one PlugIn is shipped with the program but you can easily download others from the Internet. The addresses given below are, of course, subject to change.

A typical location to download FREE PlugIns is the Filter Factory site:

http://www.netins.net/showcase/wolf359/plugins.htm

The files downloaded from this site must be "compiled" into files that can be read by *WinPix32.*

The program to accomplish this is also freeware and can be downloaded from:

http://pico.i-us.com/pico/download.htm

Two files are needed. One is 1.8 MB while the other is 917KB.

Because of the number of plugins available, you may want to consider a plugin manager. "Plugin Manager" is a shareware program available from:

http://www.icnet.de/intl/pm2down.html

In addition to the many free plugins, there are commercial plugins available as well.

To use a plugin you must first tell the program where they are located. This is done through the Options/Other Options menu item.

- Clicking on "PlugIns" in the Image Tools dialog box will bring down another dialog that will list the plugins available in the directory you have designated.
- Selecting one of these and clicking on "About" will show the author's name and copyright information.
- Clicking on "Apply" will access the plugin's setup adjustments and will show a preview screen.
- After making the adjustments, click on a "OK" to start the plugin computation. The indicator at the bottom of the dialog box will trace the progress. With slower computers and large pictures this can be slow.

Transmitting

Starting Image Transmission

Alt+X

After you have loaded or selected the image you want to transmit, make sure the image is "highlighted" by clicking on its title bar. Bring down the Transmit dialog box by selecting "Xmit" from the Action menu, clicking on the red "megaphone" icon in the tool bar or using the short cut key.

Because of the many features that are available when transmitting, the dialog may seem complex. Starting with the top two buttons.

- Transmit -- This will start the transmit process in the SSTV mode shown in the mode select boxes. As transmission progresses, a red line on the left edge of the picture will trace the progress.
- Cancel - This closes the dialog box when not transmitting an image.
- Stop - During transmission the Cancel label button changes to Stop. Clicking this button will stop the transmission but will not close the dialog box or restart any Receive data processing.

Other Xmit Options			
	Contest/DX	Station ID	Channel Selection
	Send QSL	Mode Selection	Header Control
	Repeater Tone	Mode Lock	Aspect Control

The slider at the bottom of the dialog box sets the output level of the selected channel (Left or Right). The program remembers the setting for the individual channel.

Interaction with Reception

The Transmit action sends a message to ALL instances of the program to turn off the "Receive" mode during transmission.

When a transmission ends normally, a receive dialog in ANY instance of the program will again start to process incoming data. If the Stop button is used, the the program will not restart any receive data processing.

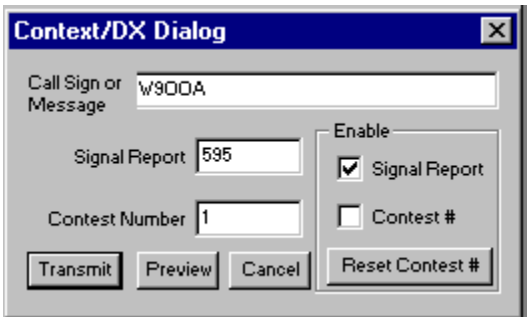
With most sound cards, trying to open a Receive dialog box during transmission will result in an error message telling you the sound card is busy.

Other Xmit Options

Contest and DX

Clicking on this button formats the image for transmission based on the selected SSTV mode. It also brings down a dialog box. This dialog box is used to enter data that will be added to your picture in a format typical of Contest or DX contacts. The font style and color properties will be determined by the selection in the Option/Other Options dialog box.

- Enter the call sign of the station you have contacted (or any other message).
- If you want, you can change the default signal report.
- Enable the Signal Report or Contest Number options.
- If you want, click "Preview" to view the picture before you start to transmit.
- Click on "Transmit" to start transmission.

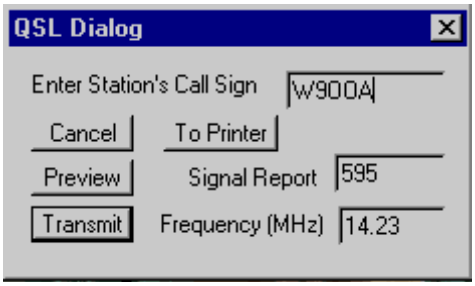


The contest number will automatically increment if "Contest #" was selected. You can reset this to 1 with the "Reset Contest #" button.

QSL Card

Clicking on this button formats the image for transmission based on the selected SSTV mode. It also brings down a dialog box. This dialog box is used to enter data that will be added to your picture to create a QSL card format. The font style and color properties in your call sign will be determined by the selection in the Options/Other Options dialog box.

- Enter the station's call sign
- If desired, modify the default signal report.
- Enter the frequency in kHz. This will become the new default.
- If desired, click on "Preview" to view the picture before you start to transmit.
- Click on "Transmit" to start transmission.



If you just want to print a QSL card, select a SSTV mode such as Robot 72 (it has no header) and then click on “To Printer” in the QSL Dialog after entering the needed information. You must set up the printer for the postcard format.

Repeater Tone

This button will transmit a 1750 Hz tone for approximately 1.5 seconds. This is used to signal SSTV repeaters. If received, the repeater will answer with the CW character "K". You then begin transmitting the picture by clicking on "Transmit".

Station ID

Two forms of automatic station identification are available. The form is selected by clicking on the button that either reads "CW" or "WAVE".

If you elect to have voice identification, you must record a "WAV" file using a *Windows* supplied sound recorder. You can give this "WAV" file any name and can save it in any location. You then must use the button in the Options/Other Options dialog box to designate this file for station identification.

The CW identification is built into the program.

After selecting either "CW" or "WAVE", you can elect to have the identification placed at the beginning or end of your transmission. If you select "None", the ID function will be disabled.

Mode Lock

If you want to add text or drawings to your picture prior to transmission, you should click on "Mode Lock" to format your picture for transmission. If you do not use "Mode Lock", you can still add text or drawings to your picture but, keep in mind, that the size of the total picture may be changed when transmission starts.

Channel Selection

The channel select button (just below "Mode Lock") should be used to select either the Left or Right channel for transmission. This should usually be set the same as you are using for reception. If you want to send a picture on either channel, the program supports this flexibility.

Header Control

When the program formats a picture for transmission, it needs to know a few things about the header. It does not know if the picture already has an "old" header attached or if it is a picture with an "unusual" aspect ratio.

- Normal -- If this is selected, the program assumes that the picture does not have a header. It will therefore add header lines at the top of the picture if the mode definition calls for a header. As an example, a picture for Scottie 1 will be scaled to fit 320x240 and 16 lines will be added at the top. The resulting window for transmission will be 320x256.
- None -- If this is selected, the program will do the following: The picture will be scaled to fit the full size of the mode specification (320x256 for Scottie 1) and your call sign and any message will be written in the top lines of the re-scaled picture.
- Overwrite -- This selection tells the program that an "old" header is present in the picture. It will therefore trim the required top lines from the picture before replacing them with your header. If you always elect to "Keep Header" during the receive process, you will probably use this option when you replay old images.

Before transmitting you should quickly check this setting to make sure you have selected the proper option for the picture you are preparing.

You have the option of selecting a custom header design and adding a message following your call sign.

Aspect Control

Since the program scales the picture to the requirements of the mode, you should tell the program how to handle differences in aspect ratio.

- Fixed -- If this is selected, the aspect ratio of the original picture will remain fixed. This may mean that the picture will not fit exactly into the area required by the SSTV mode specification. If the picture is "short and wide" then gray area will be used at the bottom of the transmit window as "fill". If the picture is "tall and narrow" then gray areas will be placed at the left and right edges to fill in the transmit window.
- Variable -- If this is selected, the program will resize the original picture to fit the mode requirements. This may result in picture distortion.

Most SSTV modes have a 4:3 aspect ratio. If your pictures are at or near this ratio, you can select "Variable". A little bit of distortion is not noticable and is usually preferred to having gray areas as "fill".

Supported SSTV Modes

The following table lists the modes supported by *WinPix32*. Note: The times given are approximate.

Family	Mode	Size	µS/Pixel (approx.)	VIS code
AVT BW	125	640x400	489	80
AVT	24	256x240†*	260	64
AVT	90	256x240†	489	68
AVT	94	320x200†	489	72
AVT	188	320x400†	489	76
FAX	480	512x480	512	tone
HQ	1	320x240	535**	41
HQ	2	320x240	666**	42
Martin	1	320x240	454	44
Martin	2	320x240	214	40
Martin	3	320x240*	454	36
Martin	4	320x240*	214	32
P	3	640x480	208	113
P	5	640x480	312	114
P	7	640x480	416	115
PD	50	320x240	286	93
PD	90	320x240	532	99
PD	120	640x480	190	95
PD	160	512x384	382	98
PD	180	640x480	286	96
PD	240	640x480	382	97
PD	290	800x600	286	94
Robot BW	8	320x240†*	181	2
Robot BW	12	320x240†*	275	6
Robot BW	24	320x240†	275	10
Robot BW	36	320x240†	431	14
Robot	12	320x240†*	183**	0
Robot	24	320x240†*	284**	4
Robot	36	320x240†*	275**	8
Robot	72	320x240†*	431**	12
Scottie	1	320x240	432	60
Scottie	2	320x240	275	56
Scottie	3	320x240*	432	52
Scottie	4	320x240*	275	48
Scottie	DX	320x240	1079	76
Wraase SC2	30	320x240*	368††	51
Wraase SC2	60	320x240	368††	59
Wraase SC2	120	320x240	735††	63
Wraase SC2	180	320x240	735	55

† These modes do NOT transmit header lines. All other modes transmit either 8, 16, or 20 header lines. The "half line" modes use 8 line headers. FAX 480 uses a 20 line header. All the others use 16 line headers.

* These modes only send half the actual lines but the program fills in the remainder to create an image of the size shown.

** The Robot color modes and HQ modes transmit the luminance information in the pixels at the rate shown. Color information is sent at half the time per pixel.

†† Wraase SC2 modes (30, 60, & 120) transmit the Green information in the pixels at the rate shown. The Red and Blue information is sent at half the time per pixel.

About the Modes

Conventional RGB Transmission

The majority of the color modes send the red, green, and blue information in each pixel at the same speed. In general each line consists of three color-blocks where all of the red is sent followed by the green and then the blue. Some mode families have gaps between the color fields while others do not. The order of the colors is also different for the various mode families.

In all of the mode families except AVT, a sync pulse is sent somewhere during each line. All of the mode families except Scottie have the sync pulse at the start of the line. Scottie has the sync pulse located ahead of the red field, which is the last field sent in each line.

Because the three colors are all sent at the same rate, a slight error in the start of a line will result in the picture being shifted to the right or left but the color registration will not suffer.

Robot Color Modes

In the interest of saving transmission time while still retaining resolution, these mode families do several things. First the colors are changed into a luminance field which carries the brightness information of each pixel, as it would be sensed by the human eye. The color information is contained in two other fields. The designation for these fields is generally Y, R-Y, and B-Y. On receiving these fields, the needed math is performed to recreate the RGB information in each pixel.

The Robot72 and Robot 24 modes send the Y information at the pixel rate shown in the table and then send the R-Y and B-Y fields at half the time per pixel.

The Robot 36, and Robot 12 modes go one step farther by sending the Y information for all lines but sending the R-Y and B-Y information on alternate lines.

The philosophy behind this approach is that most of the picture information is carried in the luminance field and that the color information can be sent at lower resolution. . As a result this family is subject to color registration problems if a “phase error” occurs or substantial multi-path reception exists. When this happens, the color registration suffers.

HQ Mode Family

This family codes the luminance and color information in the pixels using the same method as employed by the Robot family. Like the Robot family, the color information is sent at half the time per pixel. As a result this family is subject to the same color registration problems if a “phase error” occurs or substantial multi-path reception exists.

A sync pulse occurs only every other line. Six fields are sent between sync pulses. The first three are Y, R-Y, and B-Y for the odd numbered line. The next three are Y, Y-R, and Y-B for the even number line. The reverse polarity of the color information in the even number line can be used in conjunction with the information in the odd number line to accomplish continuous automatic tuning.

Wraase SC2 Modes

With the exception of the 180-second mode, the Wraase SC2 modes use a philosophy similar to Robot. These modes do not separate the luminance from the color information but, rather, send the green at twice the resolution of the red and blue. The red field is sent at half resolution followed by the green field and then the blue field at half resolution.

Under ideal conditions this approach also works but again timing errors will result in color registration problems. A secondary issue shows up when a white pixel follows a black pixel. Because the red and blue information does not change as quickly, a green "shadow" will occur. This effect is not noticeable in most images.

PD Mode Family

This family codes the luminance and color information in the pixels using the same method as employed by the Robot family. However, it keeps the same timing for the color components as the luminance component. This avoids the color registration problems that occur if a “phase error” occurs in the picture.

The sync pulse is longer than modes such as Scottie. The 20 millisecond sync pulse is used to continuously correct tuning errors during picture reception.

A single sync pulse is sent for each pair of lines. Following the sync pulse the sequence becomes Y, R-Y, B-Y, Y. The first Y is the luminance information in the odd numbered line and the last Y is the luminance information in the next (even numbered) line. The color fields (R-Y & B-Y) are the average of the two lines.

This mode family saves transmission time by sending the color information at a lower resolution in the vertical direction only. By keeping the time interval the same for the color and luminance fields, color registration problems are avoided.

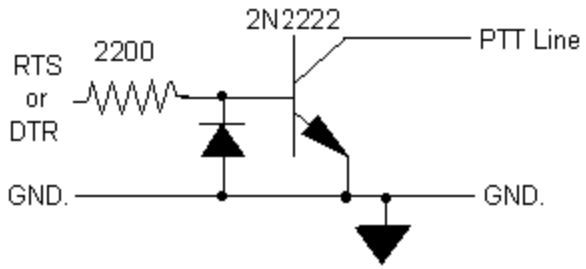
Push to Talk Implementation

Com Port PTT

The COM port can control the PTT line through a simple transistor circuit. This approach has the advantage of simplicity. However, it does occupy a COM port for a very trivial job. If you are using two transceivers and are using the left and right channels of the sound card, connect this circuit to the RTS line for the left channel and, another circuit like it, to the DTR line for the right channel.

An alternative to the circuit shown below is to use the “standard” HamCom interface just for the PTT feature. This is useful if you already have one of the many DOS based programs that use the HamCom interface.

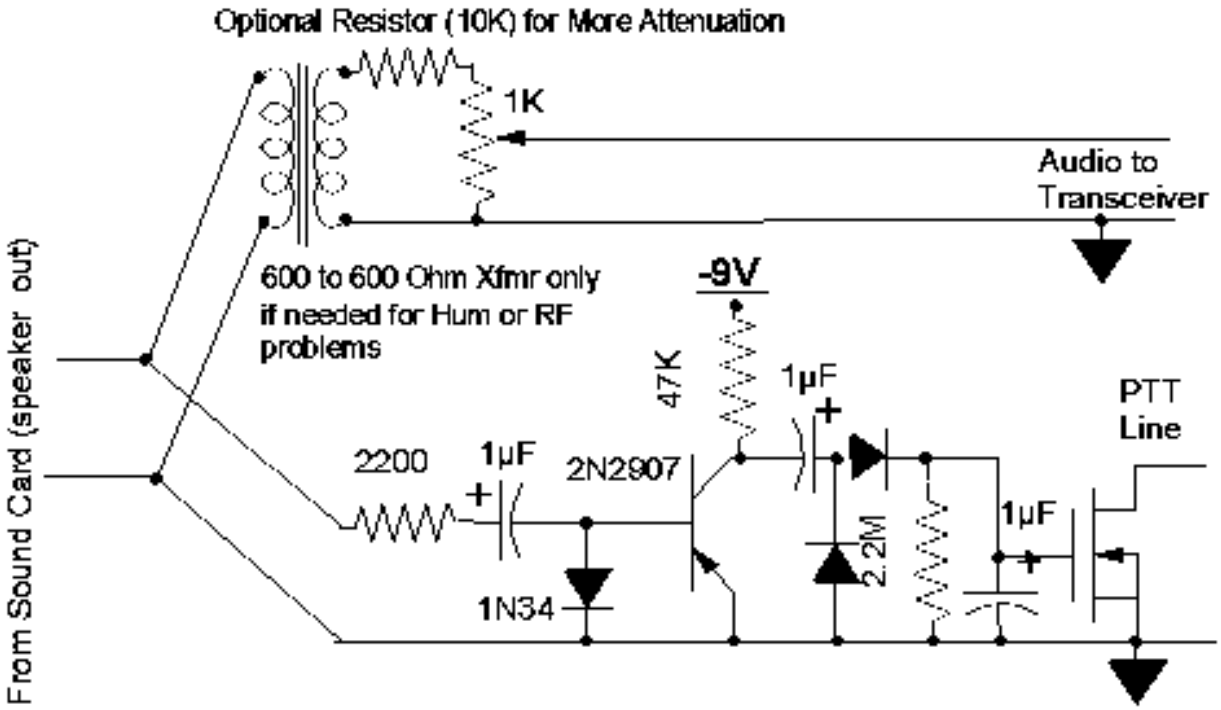
The Options/Other Options menu item allows you to select the number of the Com port to be used.



Detector PTT

Another approach to controlling the PTT line is to use circuitry to detect the SSTV signal at the speaker output and use this to pull down the PTT line.

This circuit requires at least 300 mV to trigger. You should probably have the sound card output set to about 500 mV and then adjust the level needed by the transceiver by setting the 1K potentiometer. It is always a good idea to have the sound card's output at a reasonably high level and then attenuate (close to the transceiver) as needed. This reduces the noise and hum pick up by only having low level signals near the input to the transceiver.



NOTE:

1. All diodes except the 1N34 are general purpose silicon.
2. The output is a power MOSFET with a 4 Volt turn on voltage - Radio Shack # IFR510 or equivalent.
3. A MINUS 9 Volt battery is required but need only be changed once a year.
4. All capacitors are polarized tantalum.

Details of WinPix32 Menu Items

File Menu

Open File

This menu item, tool bar icon, or short cut key will bring up a dialog box to allow you to select the image you want to load. The dialog box is equipped to display the image statistics as well as a thumbnail preview.

Locate the folder, select the image, and then click on "Open".

Open Blank

This menu item is used to create one of three "standard" size blank images. The background color of these images will be "transparent" so this is an easy way to start the construction of an Overlay.

Select Source

If one or more TWAIN drivers are installed on this computer, this menu item will be active. If more than one driver is present, you should use this menu item to select the TWAIN image source.

Acquire

This command will activate the selected TWAIN driver and allow you to load an image from devices such as scanners, video cameras, or digital cameras.

Close Image

This menu item is equivalent to clicking on the X in the title bar.

Save Image

This menu item, tool bar icon, or short cut key will save the image either in its original location and format, the "Default" folder or in a designated Thumbnail Library. The default format is selected in the Options/Other Options dialog. The save process is controlled by the "Save Location Rules ".

Save As

This menu item allows you to save an image in any location and in any supported format. It also allows the image to be given a new name prior to saving it.

Print Current Image

This will print the current image to the default printer with the default setup. If you want to see the format to be printed, use Print Preview.

Print Preview

Print Preview first displays the way the printed picture will look on the page. You can access the Print function directly from the preview display.

Printer Setup

This should be used to set the size and the orientation (Portrait or Landscape) of the printed picture. It will give you full control of the printer through its driver setup dialog box.

Delete Image

If the image has not been saved this acts just like the Close command.

If the image has been saved, the image file will be removed from storage.

This is not the recommended method of deleting an image. The recommended method is to perform the deletion from the image library containing the image. This will restructure the library in addition to deleting the image thereby avoiding future error messages. The method is to RIGHT click on the thumbnail and delete the image from both the library and the folder at the same time.

Rename Image

Use this to rename an image. You may want to add a more descriptive title instead of the Date/Time title that is automatically applied to a received image.

This is not the recommended method of renaming an image. The recommended method is to rename the image using that feature in the Thumbnail Library Management program. This updates the library with the new name and avoids future error messages. The method is to RIGHT click on the thumbnail and rename the image in both the library and the folder at the same time.

Edit Menu

Undo Changes

BackSpace or Ctrl+Z

The menu command, tool bar icon, or short cut key will undo the last change made to the image. There are three layers of "Undo". When the first change is made to an image, a primary backup is created. **This is never overwritten.** As more changes are made, the two most recent images are available in the backup list. When Undo is called. The top most backup is recovered. Multiple calls to Undo will then recover the original image.

Cut Image

Ctrl+X

This command, tool bar icon, or short cut key will remove the current from the screen and place it on the clipboard.

Copy Image

Ctrl+C

This command, tool bar icon, or short cut key places a copy of the current image on the clipboard.

Paste Image

Ctrl+V

This command, tool bar icon, or short cut key will load the contents of the clipboard. The loaded image will be given a title that is a Date/Time stamp.

Inset from Clipboard

This command or tool bar icon will initiate a sequence that will inset the contents of the clipboard into another image. After initiating this command, the tool bar icon will appear as a depressed button. If the left mouse button is pressed while the cursor is on an image, a "rubber band" frame will be created. As the mouse is moved to the right, this frame will expand with the same aspect ratio as the clipboard image. When the left button is released, the clipboard image will fill the frame created. If the right mouse button is clicked while the cursor is on an image, the contents of the clipboard will be expanded to overlay the entire image.

"See Through" insets and overlays can also be created by holding a number key down during the process. If you hold a number key down while performing the above "Inset" actions, the result will be a blend between the main image and the inset from the clipboard. Number keys 1 through 5 result in an inset area that has the color of the clipboard source with a mixture of the clipboard and main image luminance. Number 1 shows most of the main image luminance and only a little of the clipboard contribution. The result is a very transparent appearance. As the numbers increase the transparency effect decreases. By number 5 the clipboard inset is nearly opaque. Using number keys 6 through 0 has a similar effect except the color of the inset area is controlled by the main image colors. The resulting appearance is very different.

Image Menu

Dither Method

If you plan to convert images to 256 colors from 24-bit color, you should select a preferred dither method. When fewer colors are used to display an image, dithering will try to fool the eye by distributing the color error (mismatch) of a pixel among adjacent pixels. The result is a slightly grainy look but usually a more pleasing appearance than if dithering was not used. If you prefer not to use dithering, select "None". Of the other three choices, the "Floyd-Steinberg" is probably the preferred. The results depend on the particular picture so it is good to experiment.

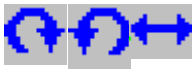
Reduce Colors

All SSTV images are initially received in 24-bit color. BW modes are automatically converted to 256 level gray scale. Some images can actually be improved by reducing the color count. Images that began as cartoons are candidates for color reduction. Do to random noise, pure color fields do not remain pure. Adjacent pixels will vary a small amount from each other. By reducing the colors in this type of image to 256 or even 16 colors and NOT using dithering, the quality of the image can be improved.

The 15-bit and 12-bit options still result in 24-bit pictures but the low order bits are set to zero during the conversion. 24-bit images use 8 bits per pixel. The 15-bit and 12 bit conversion only save the top 5 or 4 bits per pixel and set the others to zero. Why remove this information? It can improve some pictures by removing random noise as well.

The remaining options (256, 16, 2, and 256 gray scale) convert the format of the image to reduce its size as well as reducing the number of colors. The GIF image format will not support 24-bit images and the compression of TIF images is not effective with 24-bit images.

Orientation



Three options are available from the menu as well as the tool bar.

The first two rotate an image either 90 degrees CW or CCW. Rotating an image is useful for transmitting a tall narrow image. SSTV formats are more suited to a 4:3 aspect ratio so, sending a picture sideways, is more efficient.

The third flips the image in the horizontal direction. This is useful for things like pasting a mug shot into another image when you are facing the wrong direction in the original image.

Resize

This menu item provides a number of resizing options.

- **Custom** This brings down a dialog box that allows you to enter the width and height desired. The program remembers these values and will use them as the "Custom Default" in future actions.
- **Standards** Six "standard" sizes are available. If the aspect ratio is not correct you will be asked if the picture should be allowed to distort. If you answer "yes" the picture will distort to fit the selected size. An answer of "no" will result in a "best fit" resize without distorting the picture.
- **x2** Doubles the width and height of the picture.
- **/2** Cuts the width and height in half.

 This tool bar icon will resize the picture to the "Custom Default" .

Crop

The crop options allow you to cut out a portion of an image.

- 3 "standard" sizes are available to creating images with a 4:3 aspect ratio.
- The "Max 4:3" option will create a crop window with a 4:3 aspect ratio that is the maximum size for the selected image. This is particularly useful for trimming headers from old pictures.
- The "Rubber Band" option allows you to select any size portion of the image. This is useful for cropping things like mug shots or other images that will later be inset into another image.

Note that only those items that apply to the selected image will be active when this menu is deployed.

Construct Overlay

When constructing an Overlay image, a color in the original image is selected to become transparent. The three options available result in an intermediate image being constructed with the colors reduced to 256, 16, or 2. From this temporary image you can select the "color" that will become transparent. After the selection, the transparent areas will appear black while the full color will be returned to the non-transparent areas.

NEVER save an "Overlay" image in the JPG format. The transparent area will be lost. The TIF and PNG formats are good candidates for saving an Overlay. When saving an Overlay image it is a good idea to save it in a library dedicated to this form of image.

Make 24 Bit

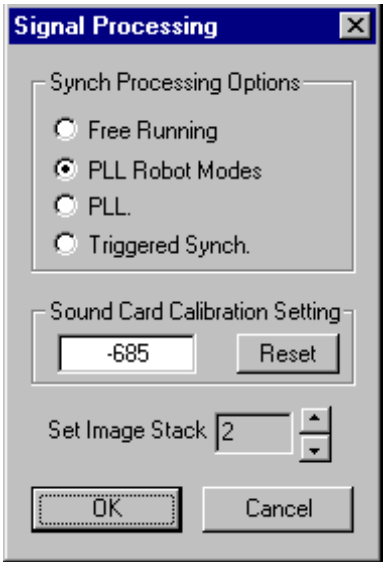
This simply converts the current image to a 24-BIT format in memory. It does not change the color content of the image, only the format in which it is stored.

Set Default Images (CQ, Mug Shot, 73, & QSL)

Four categories of default images are listed in the Files menu. These are just suggestions. Designating an image for one of these categories is done in the Image menu. After selecting the image, simply click on the category in the image menu. Once an image has been designated for a particular category, that category will become adtive in the Files menu for automatically loading the image.

Options Menu

Signal Processing Dialog



The signal processing dialog box sets:

- Synch Processing Options - PLL Robot Modes recommended
- Sound Card Clock Correction - This is automatically set by “Calibrate” in the Receive Dialog
- Image Stack - Can be set from 1 through 9. A high number uses more memory and makes the screen more crowded This sets the number of received images that will remain on the screen. As the stack number is exceeded, the oldest image will be removed from the screen. If not already saved, this image will be lost.

Synch. Processing Option Details

Four Horizontal Synch. Options are available.

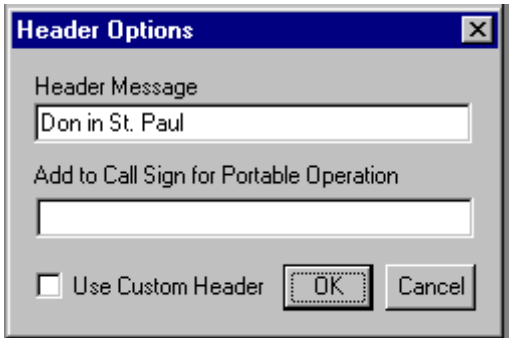
- **Free Running** -- All modes ignore horizontal synchronization pulses after the SSTV picture starts.
- **PLL Robot Modes** -- This is the same as "Free Running" except the Robot mode family uses a phase locked loop. THIS IS PROBABLY THE PREFERRED OPTION.
- **PLL** -- All modes that have horizontal synchronization pulses use these pulses in a phase locked loop.
- **Triggered Synch**. -- This mode is only useful for signal sources such as cassette tape. It is too noise sensitive for "On the Air" operation

Header Options

This dialog sets the message that will be added to the header following your call sign.

This dialog also lets you enter an addition to your registered call sign if you are operating “Portable”. The “/” character will automatically be inserted between your registered call and the text added here. **You must restart the program for this entry to become effective.**

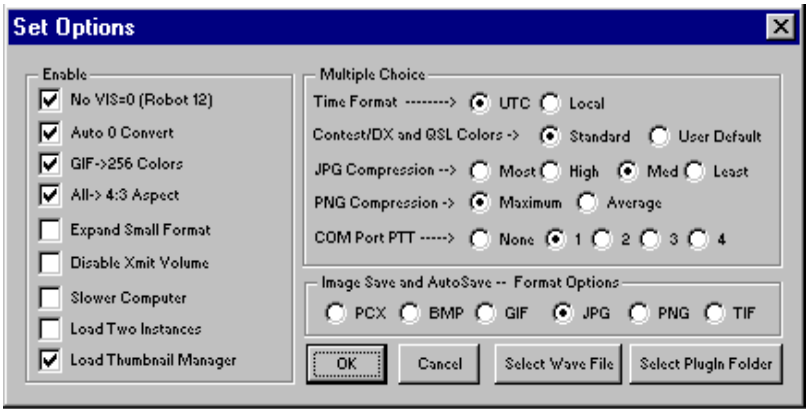
You can also elect to use a "Custom" header. This header is stored in a file called "Custom.BMP" located in the WinPix32 root directory. A simple header is shipped with the program. You can modify this to make your own custom header. The size should remain at 320 x 16.



Other Options

The Other Options dialog box is used to set most of the program options.

- **No VIS=0 (Robot 12)** If not checked, you will be able to receive Robot 12 but false starts will greatly increase. QRM can easily be sensed as a VIS of zero.
- **Auto 0 Convert** Most languages support the ASCII character that displays the numeral zero with a slash. If this option is enabled the numeral zero will be converted to add a slash. In languages that do not support this character, do not enable the conversion
- **GIF->256 Colors** GIF does not support 24-bit images. If this is enabled, the conversion will be done automatically. If not you will be asked to OK the conversion each time an image is saved in this format.
- **All-> 4:3 Aspect** Most SSTV modes use a 4:3 aspect ratio. AVT modes and FAX480 do not. If this is option is enabled all modes will be RECEIVED in a window having the number of lines in the mode specification. The width will be adjusted to result in a 4:3 aspect ratio.
- **Expand Small Format** With higher screen resolutions, you may prefer to expand the small format (e.g. 320 x 240) pictures to double the number of lines and double the width. The picture does not get better only bigger. Modes that only transmit half the number of lines (M3, M4, S3,S4 etc) will not be expanded. Robot 36 will also remain at 320 x 240 because the time per pixel is too small to support expansion.
- **Disable Xmit Volume** Some sound cards can not be controlled using the "slider" in the Transmit Dialog. If you have one of these cards, check this option and use the Mixer to set the modulation level.
- **Slower Computer** The slower computers such as the 486DX/66 can lose picture synchronization at the start of reception. Enable this option to provide more time to the slower computer.
- **Load Two Instances** If this is enabled, two instances of the program will be loaded at startup.
- **Load Thumbnail Manager** If this is enabled, the Thumbnail Library Manager will automatically load at startup.
- **Time Format** Select your preference to use either Local or UTC time in the titling of images and in the Status bar display
- **Contest/DX/QSL Colors** Selecting "Standard" will cause the large text to be written with a standard font. The color will be white with a red outline. If "User Default is selected, these text items will use the setting last used in the text dialog box.
- **JPG Compression** Medium or High are probably the best choice. If Most is selected, you will notice more degradation in image quality.
- **PHG Compression** Maximum is probably a good choice, but Average will result in a slightly better quality image.
- **COM Port PTT** If you want to use a Com port to control the transceiver PTT line , you select the Com port number here.
- **Image Save…Format..** Select the format you want the program to use for Save and Auto Save actions .
- **Select Wave File (BUTTON)** When clicked, this button brings down a standard dialog box that is used to select any "WAV" file. You can then elect to play this file before or after your picture. If you record a "WAV" file with your station identification , this is the file that should be selected.
- **Select PlugIn Folder(BUTTON)** This button will bring up a dialog box to select the folder containing plugin files. These files have the extension 8bf. If you have many plugins on your system, you may have them in several folders. This is to select the current default.



AutoRestart

If a picture starts and is then aborted by the sender, AutoRestart can be used to automatically correct the problem. Clicking on AutoRestart in the Options menu toggles the function ON and OFF. When ON, a check mark will appear in the menu and the text "+ReStart" will be added after the Horizontal Synch. information that is shown above the mode selection boxes in the Receive dialog.

While this function can be useful, it can also be troublesome. If you are receiving a weak signal, a strong signal can trigger a restart when you don't want one.

AutoRestart looks at any VIS code detected during the reception of a picture and determines two things. First it evaluates if the new picture size is the same as the existing window. This is necessary because the new picture will simply overwrite the old in the existing window. The second thing that is tested is the VIS Filter requirement . If both are acceptable, the receive process will restart.

Scottie DX Prefer

Scottie DX and AVT 188 have the same VIS code. If this menu item is enabled, the default will be Scottie DX. If not, the default will be AVT 188. **If you are using either of these modes it is important that you set this menu item.**

Thumbnail Library Manager

General Operation

Library Organization

Alt+T

The Thumbnail Library Manager (*PixLib32)* is a separate program that is tightly linked to *WinPix32*. It is called from within *WinPix32* by clicking on the "Thumb" icon in the tool bar, selecting "Get Thumbnails" from the Action menu or using the short cut key.

The program is organized around a multiple library format. This organization allows any number of libraries to be open and displayed at the same time.

If multiple instances of *WinPix32* have been loaded, remember that the instance that last called the Thumbnail Library Manager is the instance that will receive the pictures selected in the library.

If you want to send pictures to a specific instance of *WinPix32,* you should avoid using the *Windows* Task bar to transfer back to the Thumbnail Library Manager. Instead use the "Thumb" icon since this will tell the Thumbnail Library Manager where to send the pictures.

The size of a library is automatically adjusted to accommodate all of the supported images in the library's folder. If the folder does not contain any images when the library is created, an empty library with room for 15 images is created.

As images are saved to the library and stored in the library's folder, the library expands to accommodate them. The size limit on any one library is 500 images. Large libraries are not very useful. Instead you should create folders with different categories of images. These could be organized by subject matter or by time of creation.

Library Status Bar

The Status Bar of the Thumbnail Library Manager displays the following information once a library has been loaded into the program.

As the cursor is moved over a thumbnail image in a library the following is displayed:

1. The date when the picture was last modified. This is the date it was created if it has not been modified and resaved since that time. It will also show the number of images in the library.
2. The title of the picture is displayed in the second panel.
3. The third panel is the size of the picture.

The raised panel at the far right is also a push button and will initially be labeled “Set Save Library”. When clicked, it will display the name of the currently selected library and tell *WinPix32* to save images to this library. Clicking on this button again with the same library selected, will return the label to “Set Save Library” If you close a library that is designated to receive saved images, the status bar panel will again be labeled “Set Save Library” and *WinPix32* will save images to its "Default" location.

Sending Images to WinPix32

The most common method of sending an image to *WinPix32* is simply clicking on the thumbnail of the desired image.

If you are dealing with an "Overlay" library, you may want to send the image directly to the clipboard since this will be used in *WinPix32* to add the overlay to the picture. If you click on the title bar item (square) that is normally used to expand a window, the title bar will get the added message "To Clipboard". Now if you click on a thumbnail, a copy of the image will be sent to the clipboard. If you click on the "square" the second time the library will return to "normal" operation.

Editing an Individual Library Image

Right clicking on any thumbnail will bring up a dialog box to allow you to Rename or Delete the image. If you want to rename the image, first type the new name and then click on “Rename”. You do not need to enter the image format (extension) since this will not be changed. The dialog box also displays the location of the folder containing the library images.

Library Menu Summary

Library

The Library menu has the following selections:

- New Library --- Create a new library
- Open Library -- Open an existing library
- Close Library -- Close an open library. This is the same as clicking on the "X" in the title bar.
- Rename Library
- Delete Library

Edit

The Edit menu contains four selections to be used for library maintenance :

- **Sort/Refresh** -- Sorts the library according to the selected sort criteria. The sort order is selected in the Options menu. This function also removes images that are no longer in the folder. If also adds any new images that were put into the folder but not recorded in the folder's library.
- **Multi Delete** -- Allows you to delete multiple images from the library. The process consists of clicking on each image you want to delete. The selected image will appear as a pressed button. If you change your mind, click again to remove that image from the delete list. When all images have been selected, click on the title bar and the delete process will be completed.
- **Multi Move** -- Allows you to move multiple images from this library to another designated library. The designated library is same as the "Save" library listed in the right panel of the status bar. The process consists of clicking on each image you want to move. The selected image will appear as a pressed button. If you change your mind, click again to remove that image from the list. When all images have been selected, click on the title bar and the move process will be completed.
- **Multi Copy** -- This is similar to the Multi Move discussed above. The only difference is that duplicate images will be created in the new library while the source library remains unchanged.

Options

The Options menu contains two selections.

“Sort Order” sets the order in which your library will be sorted. If you select "Name" the library will be sorted alphabetically by name. If "New->Old" is selected, the most recent images will be first in the library while the oldest will be last. If “Old->New” is selected, the oldest images will be first in the library and the most recent images will be last. When you use "Sort/Refresh" in the Edit menu, the sort process will follow this selected option.

“Set as Startup Library” will designate the currently highlighted library as the one to be loaded when the program starts.

Thumbnail Library Manager Menu Details

New Library

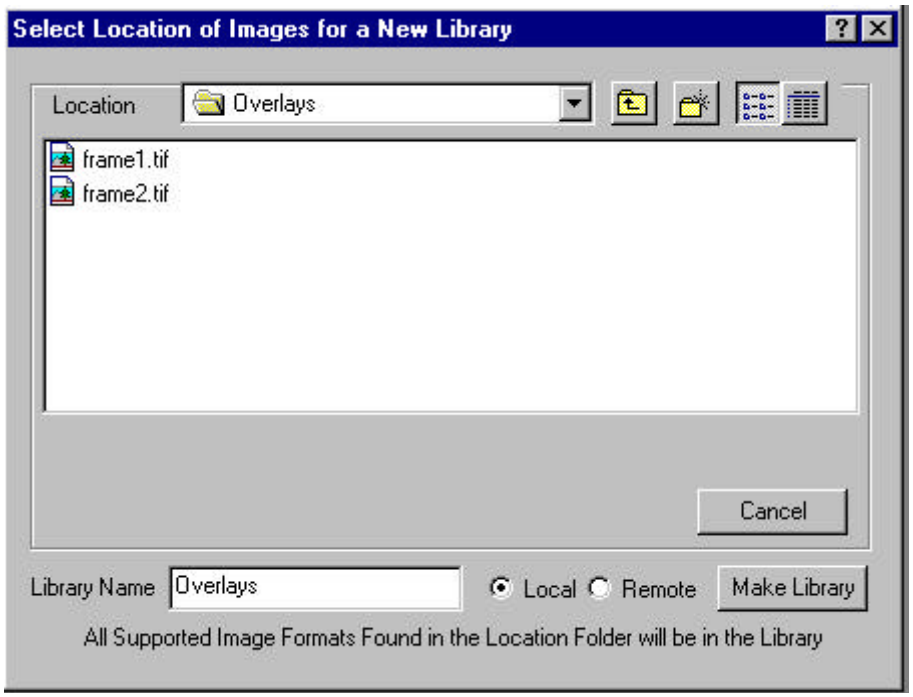
When you select "New Library" from the Library menu, a dialog box will appear that allows you to select the folder that contains (or will contain) the library images. It also allows you to select the type of library and the library's name.

Select the library type as either “Local” or “Remote”. This designation determines where the library data will be stored. A “Local” library stores **its data** in a folder called “Lib” which is a sub-folder under your installed WinPix32 folder. A “Remote” type stores its data in the remote folder that contains the library’s images.

If the image location for a library is on a removable media (floppy, ZIP, etc.) you should use a “Remote” type for the library. CD-ROMs that are “read only” can not be used for “Remote” type libraries.

If the image location is on a hard drive or a "read only" CD-ROM, use the “Local” type. This type has the advantage that all library data is in a common location and easy to find.

If you try to access the images on a CD-ROM that is not present, an error message will tell you that the image could not be found.

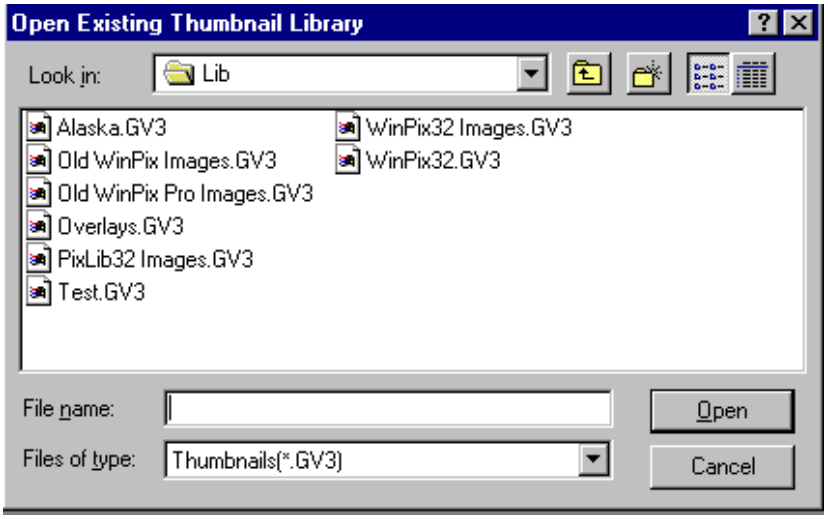


The total number of images in any library is limited to 500. **If you have large folders for your images you may want to reorganize to use smaller folders.**

All of the supported images in the selected folder will become part of the library. If no supported images were in the folder, an empty library will be created. The size of this empty library will be set to 15 images but the size will automatically expand when needed.

Open Library

Selecting "Open Library" from the Library menu will bring down a dialog box. The default folder will be Lib, which is the location for all "Local" libraries. The file type will be set to "GV3" which is the library extension used by *PixLib32.* You can change the folder location to locate any remote libraries.

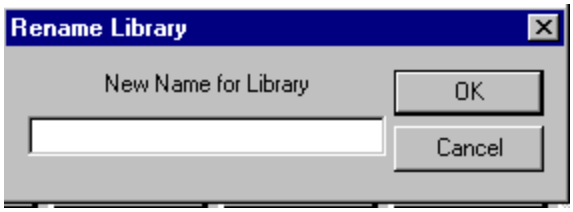


If you have "Remote" style libraries that were created with *WinPix Pro*, these will have the extension "GVA". You can find and load these by clicking on the down arrow next to the file type and selecting "GVA". When one of these libraries is opened, a "GV3" database will be created and saved. In the future you can then access the "GV3" format.

You will not be able to open any "GVA" libraries that were created as Local type and are not located in the Lib directory of *WinPix32.*

Rename Library

You can rename any library by clicking on the "Rename Library" item in the Library menu. A simple dialog appears. Enter the new name and click on OK.



Hints and Reminders

Attached Dialog Boxes

When working with images, remember that the three dialog boxes that allow you to modify an image; add text to an image; and draw shapes on an image are all **attached to a specific image.** If you load or highlight another image, these dialog boxes will not be active for the new image. You will notice that the tool bar items are no longer shown as "pressed" buttons. If you activate these buttons for the new image a new set of dialog boxes will be created.

If you do not close the dialog boxes as you are done working with a specific image, it is easy to be confused even though the title on each of the dialog boxes includes the name of the image.

The suggestion is:

When you are done modifying an image, CLOSE THE DIALOG BOXES ASSOCIATED WITH THAT IMAGE.

Drag and Drop Loading

If you use "My Computer" or "Windows Explorer" to locate an image, you can move that image directly into *WinPix32* by dragging the image onto the *WinPix32* window. This is done by holding the left mouse button down while you move the cursor from the image listing to any place on the *WinPix32* window. When you release the mouse button, the picture will load into the program.

Use of the Clipboard for Temporary Storage

The clipboard is very useful for temporary storage but you must remember that it is easy to overwrite something you want to have on the clipboard. Typical uses of the clipboard are:

- Saving the last image that was received to facilitate transferring that image to another instance of WinPix32 or another image processing program.
- Saving an image that you want to later insert into another image.
- Holding an "overlay" image.
- Temporary storage of an image you have modified for transmission it you think you may want to send it again.
- Temporary storage of intermediate steps of a complex series of image modification. This will prevent accidental loss of the modifications due to "undo" use.

All of the above uses have value providing you remember what is currently on the clipboard.

Auto-Save and Save Options

The AutoSave function in the Receive dialog can be turned on and off at any time. If you are operating unattended, you will probably want this function on. However, if you are watching the images arrive, you can simply turn this function on only when a “good” picture is coming in. As soon as this picture is saved you can turn the function off until the next “keeper” arrives.

The "Save" tool bar item may be preferred over the AutoSave function under certain conditions. When AutoSave is used, the program must wait until the save process is complete before it can begin to receive a new image. Under certain DX conditions this may be too much delay.

You can use the "Save" tool bar item at any time while the received image remains on the screen. This will not interfere with the reception of a new image. You can therefore manually save an image after the next reception has started.

Floppy and ZIP Drives for Image Storage

Floppy Disks

The capacity of floppy disks is quite limiting for SSTV image storage, but if you use the JPG format a single disk will likely handle 40 small format images. This suggests a creating a blank thumbnail library (remote type) on a new disk each week and then, following each SSTV session, using “Multi-Delete” to delete those images you do not want to save. By doing this on a daily basis, you can reduce the build up of “junk” and the disk should easily hold a week’s supply of images including the thumbnail library data.

ZIP Drives

ZIP drives and similar high capacity removable storage systems are ideal for image storage. In this case you can create a new directory each week with its own blank thumbnail library (remote type). Once a week you can use “Multi-Delete” to delete those images you do not want to save. You could name each weekly directory and library with a name that gives its date of creation. A single ZIP disk could easily handle a year’s worth of “keepers”.

Right Mouse Button

The right mouse button has uses in addition to the usual *Windows* functions:

- When using the "Inset" function , clicking on the right mouse button will expand the inset image from the clipboard to overlay the entire image. This is useful for "overlay" images where a significant portion of the image is transparent.
- When drawing on an image you can use the right mouse button to make a "frame rectangle" fill the image. This provides an easy method for creating a simple frame. Another use is to create a background pattern (other than transparent) on a blank image. Here a simple filled rectangle with shaded colors can be made to fill the blank image.
- A standard, though less known, *Windows* function is the "What's This?" access to the help file. When a dialog box is present, you can move the cursor to an element of the dialog box and click using the right mouse button. This will result in a small box appearing labeled "What's This?". A click on this box will bring up a short explanation or that dialog box item.

Transparent Insets

If you hold a number key down when using the "Inset" function , you can make the inset semi-transparent. Holding numbers 1 through 5 will increase the "density" of the inset image. The color of the semi-transparent result will be the same color as the clipboard image being inserted. Holding numbers 6 through 0 will also increase the "density" of the inset image but now the color of the semi-transparent result will follow the colors of the original image while taking on the luminance of the clipboard image being inserted.

The "best" effect will depend on the individual images involved so some experimentation is necessary.

Printing QSL Cards

You can use your color printer to make QSL cards from SSTV images. This is best done by first selecting a SSTV mode such as Robot 72 (no header). The image will then become 320x240. The superimposed QSL information can then be previewed before sending the result to your printer. The printer, of course, must have been set up for post card printing.

Maintaining Thumbnail Libraries

The Multi-Delete, Multi-Move and Multi-Copy functions in the Thumbnail Library Manager's Edit menu are the tools for maintaining your libraries.

For moving and copying images between libraries, you may want to maximize (expand) the Thumbnail Library Manager's window. You can then move the individual libraries to be more visible.

One approach to image management is to use a single image library to collect "off the air" pictures. If you then create various libraries that are organized by subject, you can spend a little time after "signing off" to delete those images you do not want to save and move other images to the proper subject library. A good location for subject libraries would be on a ZIP drive or similar high capacity removable media.

If you have problems selecting images within a library it is possible that images in the folder were deleted using another program. Try the "Sort/Refresh" command in the edit menu. This rebuilds the library using the current contents of the library folder.

Finding a Transmit Timing Error

If you have one of those rare sound cards that do not keep the same timing for Transmitting as Receiving, one of the following three methods will allow you to find the proper "Xmit Error" value without relying on a trial and error approach.

The following steps assume that you have already calibrated the receive timing and are receiving straight pictures using a "Free Run" synch option.

1. If you have a VCR, you can use it to record the **(AUDIO channel)** output of your sound card when transmitting. You can then play the sound back into the line input of your sound card and receive the picture. While receiving, you should enable the "Calibrate" function just as you did when calibrating the Receive timing. At the end of the picture, the difference between the Old and New settings will be the correction needed. Watch out for minus numbers but as an example, if the new value is (-29) and the old value was (-47), then the value to be entered into the "Xmit Error" box would be minus 18 [(-47) - (-29) = (-18)]. **Of course you want to click on "Keep Old" since the Receive is already properly calibrated.**

2. If you do not have access to a VCR, you can do this same process with some other WinPix Pro or WinPix32 user. If this person runs "Calibrate" and provides you with the Old and New calibration numbers, you can compute the proper value for the "Xmit Error" entry.

3. If your sound card supports Full Duplex, you can just connect the sound card output to the its line input and send a picture to yourself. Use the "Calibrate" function and the calculations described in number 1 above to comput the "Xmit Error".

Once the error value is computed, you can enter it into the "Xmit Error" box in the Signal Processing dialog box.

DO NOT TRY TO USE AN AUDIOCASSETTE RECORDER. THEY ARE NOT ACCURATE ENOUGH.

Printing Two Pictures per Page

After selecting a "conventional" 4:3 aspect ratio SSTV image, set the printer for the "Portrait" orientation. Now look at the Print Preview. You will see that the picture is positioned at the top of the page and it occupies about half of the page. If you print the picture this way, you will have room for a second picture on the page. Just turn the sheet over and reprint with another picture.

If the aspect ratio of the picture is substantially larger than that of the printer sheet, the program will scale for two pictures per sheet. For all other cases, the program scales the picture to fit the printer page and centers it on the printer sheet. Therefore to print one picture per sheet you should select "Landscape" for the printer orientation.

What's New in Versions 3.1 & 3.2

Cropping an Image with an Ellipse or a Rounded Rectangle

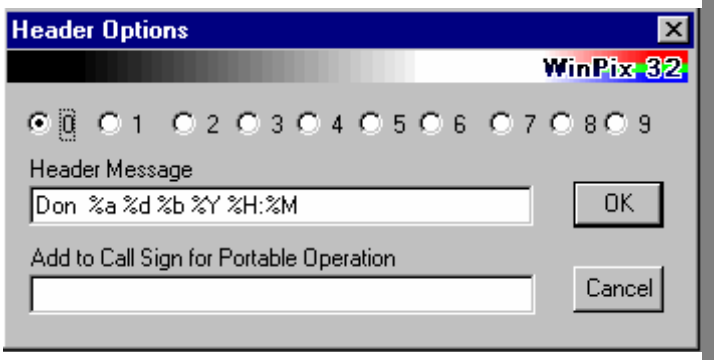
The Image/Crop/Rubber Band menu item now has four selections. The first is "Rectangle" and this operates the same as the rubber band crop option in version 3.0. The second is "Ellipse" and the third is "Rounded Rectangle". These are used in a similar manner but, as the mouse is moved to designate the crop area, the shape is either an ellipse or rounded rectangle. When the left mouse button is released, the picture will still be a rectangle but the area outside of the ellipse or rounded rectangle will be "black". This area is transparent when the image is used as an overlay. **If you want to save the image, it is important that the image be saved only in BMP, TIF or PNG format. As is the case with all "overlay" images, saving in JPG will cause the loss of the transparent feature.** BMP is the largest size file so TIF or PNG are the recommended formats.

Cropping an Image with an Irregular Area

The fourth selection in the Image/Crop/Rubber Band menu item is "Draw". Place the cursor at any desired start point and hold the left mouse button down as you trace around the area you want to crop. When the left mouse button is released, the program will "close" the drawn area and crop the image to this irregular shape. Again, the image will still be a rectangle but the area outside the irregular area will be transparent. (SEE PARAGRAPH ABOVE)

Header Options have been expanded

The first addition to the header options is the ability to select from one of ten header formats. The first of these (number 0) is the default WinPix32 header. The remaining nine are located in the "headers" folder under WinPix32. They are named image1.bmp, image2.bmp, etc. and they can be edited to create your own custom headers. The size of the edited headers should remain as 320 x 16 pixels. **The program saves a separate header message for each of the 10 headers.**



You can have the program automatically enter time and date information into the header by using standard *Windows* programming codes. Note that the % character prefixes each of the code letters. If the program detects a percent character in the message it will also add either "UTC" or "Local" to your time message. **You should experiment with this coding to make sure of the header message format as well as keeping the message a reasonable length.**

%a Abbreviated weekday name
%A Full weekday name
%b Abbreviated month name
%B Full month name
%c Date and time representation appropriate for your locale
%d Day of month as decimal number (01 – 31)
%H Hour in 24-hour format (00 – 23)
%I Hour in 12-hour format (01 – 12)
%j Day of year as decimal number (001 – 366)
%m Month as decimal number (01 – 12)
%M Minute as decimal number (00 – 59)
%p Current locale's A.M./P.M. indicator for 12-hour clock
%S Second as decimal number (00 – 59)
%U Week of year as decimal number, with Sunday as first day of week (00 – 51)
%w Weekday as decimal number (0 – 6; Sunday is 0)
%W Week of year as decimal number, with Monday as first day of week (00 – 51)

%x Date representation for current locale

%X Time representation for current locale

%y Year without century, as decimal number (00 – 99)

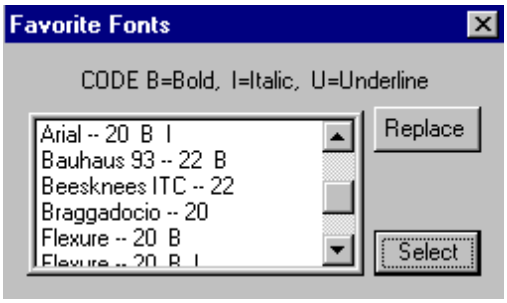
%Y Year with century, as decimal number

%z, %Z Time-zone name or abbreviation; no characters if time zone is unknown

Favorite Fonts Selection

This feature has been added to make font selection faster. Most computers have an extensive list of available fonts and looking for a particular font is time consuming. Now, when you click on "Font" in the "Annotate" dialog box, another dialog will appear that is called "Favorite Fonts".

This dialog has room for 12 of your favorite fonts. **When you first use this feature, all of the listed fonts will be the same. You will need to "Replace" this default list with your own favorites.** To replace a particular font in the list, first highlight it by a single click of the mouse. Then click on "Replace". The familiar font dialog will appear. Select the font you want plus the point size and any features such as bold, italic, or underline. When you click on OK the font will be replaced in the list of favorites. **Each of the fonts in the list contains information on its size and such characteristics as "Bold", "Italic" and/or "Underline". You can therefore have several fonts with the same name and just vary the size or other charcteristics.**



If you highlight a font in the list and click on "Select", this font will be used by the program. You can accomplish the same thing by double clicking on the desired font name.

Adding Transparent Text and Shapes

A "Transparent" option has been added to the dialog boxes that are seen when either typing text or drawing shapes on an image.

When this option is selected for text, the added text will use the "Outline" background option but only the outline colors will appear. The interior of the text will be transparent so the original image will show through.

When this option is selected for drawing shapes or lines, the function operates a little differently. Again the "Outline" option will control the backgroud effect but, in most cases, you will likely select "None" to eliminate the background effect. The shape or line that is drawn will be "transparent" black. Then, if this image is used to overlay another image, that image will show through the transparent areas.

Typing Multiple Lines of Text

When typing text into a picture, **a change has been made for the "Enter" key.** Now when the "Enter" key is used a new line of text is started with the first character aligned under the start of the previous line. To end the typing task, **you must hit the "Enter" key TWICE.**

For vertical text, the next "line" will begin to the right of the starting character of the previous line.

Synch Start Revisions

The Synch Start option status will be remembered by the program. If Synch Start is checked, it will reappear when waiting for the next picture and the program will respond to Synch pulses as well as a VIS code. As with any method that increases the ability to start a picture, a continuously used Synch Start will also result in more false starts. If QRM is light this is a good option but, if QRM is heavy, Synch Start should be turned off.

If you miss the VIS code and DO NOT know the SSTV mode you are hearing, the "Synch Start" option can help identify the mode and start receiving the picture.

When you enable "Synch Start", the program looks for the timing between line synchronization pulses and attempts to find a SSTV mode that matches the timing. If it finds a mode it will begin to receive the picture in that mode. The program will only examine those modes allowed by the selected "VIS Filter".

Since the synch. pulses are much shorter than the VIS interval; they are more sensitive to noise. As a result this method of finding the mode is not as reliable as the VIS code. Under good signal conditions it works quite well.

Several SSTV modes have identical times between pulses so the program will select the first one it finds in the search pattern. If M3 is being sent, the program will select M1 since it has the same line timing and occurs first in the search pattern.

Tone Calibration using "Standard" Station

In addition to calibrating the sound card timing using another SSTV station, you can also use the signal from a "Standards" station such as WWV.

Clicking on the "Tone Calibration" item in the Action menu will bring down a dialog box that controls the calibration process.

WWV Calibration:

WWV transmits on several frequencies (2.5, 5.0, 10.0, & 15.0 MHz) and propagation will determine the best frequency to use. The station transmits using AM and must be received in that mode for this calibration function to work. At the start of each minute, a marker tone is transmitted. Following this tone, a second tone is sent combined with one-second "ticks" and other sub-tones. **At certain times during each hour, this tone is not transmitted and, instead, just the one-second "ticks" or voice announcements are transmitted. These intervals are of no use for calibration purposes.**

Following the marker tone that is sent at the start of each minute, click on either "New" or "Update". "New" is capable of performing a first-time calibration and can handle rather large sound card clock errors. However, it is also more critical to QRN or QSB. Since you probably have already calibrated your system against another SSTV station, you can select "Update" to increase the accuracy of that calibration.

When started, the system will sample 20 seconds of the WWV tone and then use this data to compute the sound card's clock error. The bar at the bottom of the dialog box shows the progress of both the data gathering and the processing functions. When the process is completed, the two lower "buttons" in the dialog box will become active and will allow you to either "Save New" or "Keep Old" calibration data. If a significant difference is seen between the Old Correction and the New Correction, you may want to repeat the calibration process to verify the result. Noise or Fading on the WWV signal can cause errors in the calibration.

Under good signal conditions, you can expect the calibration results to vary less than 5 parts per million. For small format (320x240) pictures, this error would result in about plus or minus 0.2 pixels of slant. For larger format pictures (640x480) the variation would be plus or minus 0.8 pixels. The intent of this calibration system is to reduce the slant problem to less than one pixel.

Automatic Sort/Refresh of Thumbnail Library

When a thumbnail library is opened, the program determines if the contents of the library's folder agree with the recorded contents of the library. If not, the program performs an automatic Sort/Refresh function to bring the library into agreement with the contents of the folder. This automatic Sort/Refresh will only occur if pictures have been deleted or added to the folder by "external" means. If new pictures are saved to the library using WinPix32 or are deleted from the library using the Thumbnail Manager, the automatic Sort/Refresh will not be needed.

Digital Call Identification (CID)

The CID system is a method of displaying the sending station's call sign. One digital system was developed by KA1LPA and is now in use in several of his programs. This CID code is sent just prior to the normal start tone and VIS code. Programs that do not support this feature will just ignore this code.

WinPix32 supports the transmission of your call sign as well as a one line message. The message can be entered in the field at the bottom of the Transmit Dialog box. The message is limited to 25 characters, however, because the transmission speed is slow, you should keep any message length to a minimum. Because the code uses only a 7 BITs, the message can not contain "special" characters. If you try to enter one of these an error message will occur.

A second CID system is used by ChromaPix and it sends a grayscale code that replaces the first line of the header/picture.

WinPix32 supports both of these CID systems both during transmission and reception.

The Receive Dialog box will display the sender's call sign in the title of the dialog box. Any message will be displayed in the field at the bottom of the dialog box.

If the Synch Start function is used, the program will be looking for any synch pulse and will bypass the CID function if one is detected. Under noisy conditions this is quite common.

If the "AutoRestart" function acts to restart a picture, any CID code that was sent prior to the VIS code will be ignored. In this case only the ChromaPix approach will be decoded.

Since your call sign is being sent via the CID system the program will not add your call sign to the picture if you elect to transmit without a header.

If the first line of the picture contains the CID code you can determine who sent the picture at any time by placing the cursor on the picture and holding down the right mouse button. The title of the picture will change to tell who sent it.

Mini-Log System

The Mini-Log function is NOT intended to be an official log. It is a convenient way of keeping track of stations sending SSTV pictures. If the sending station has the CID function, the detected call will automatically be entered into the Mini-Log at the conclusion of the picture. The log can be viewed by clicking on the button labeled "ViewLog" in the Receive Dialog box.

You can also manually add entries to the log as well as delete entries. The log is limited to 1000 entries. If this is exceeded, the oldest entry is deleted to make room for the new entry.

The log entries automatically contain the date in LOCAL time. If a message was a part of the CID code it is shown. If the entry was made manually, this is noted in the message area.

Short Cut Keys

Additional short cut keys have been added to assist during reception and transmission.

Transmit:

The T or t key will start transmission.

The S or s key will stop transmission.

Receive:

The C or c key will clear the picture being painted.

The S or s key will stop reception of this picture.

IMPORTANT:

Key strokes are sent from a picture window back to its dialog box. If you have selected another picture it will not be attached to a dialog box and the short cut keys will not work.

Multiple Line entries into Text List

The text list now supports multiple lines. To enter text that will span more than one line just put a simple backslash character to separate the lines. As an example:

Don\St.Paul\Minnesota\4

Will display as:

Don
St.Paul
Minnesota

The last backslash still sets the font scaling and in this case the font selected will keep the LONGEST line in the text less than 40% of the picture width. CAUTION — If the line had ended with more than a single character after the last backslash, this would have printed as a new line and not as a scaling command.

Full Duplex Sound - Xmit while Receive

Some sound cards can create sound at the same time as recording. This full duplex operation allows the program to transmit and receive at the same time. This can be done even within the SAME instance of the program.

The Options/Other Options dialog box has a selection called "Xmit while Receive". If this is checked, the program will attempt to transmit while leaving any receive function active. If the sound card does not support full duplex, you will get an error message stating that the "Sound Card is Busy" when you attempt to transmit. If this happens, just turn off the "Xmit while Receive" option.

Transmitting while receiving has very few uses but it does provide a means of self calibrating sound cards that have separate crystals for these functions (see page 39). Another, though very limited, use could be sending pictures on VHF while monitoring HF.

Additions to Options/Other Options Menu

- **Xmit while Receive** If your sound card supports full duplex this allows you to receive a picture at the same time as you are transmitting. The most common use for this is to calibrate a separate sound card crystal by sending a picture to yourself.
- **Clear Kills Synch Start** When this is checked (default) the Clear button will turn off Synch Start. Your preference here!

Version 3.6 Additions

Addition to Edit Menu

You can now clear the contents of the clipboard with the Edit Menu item “Clear Clipboard”.

Clearing the contents of the MINI-LOG

A button has been added to the MINI-LOG dialog box to allow you to delete all of the entries in the log. When this button is clicked, the program will display a “warning” dialog to verify that you indeed want to remove all of the entries.

Prefix and Suffix Additions to your Call for Portable Operation

Since requirements vary for indicating operation in another country or call district, the program now allows you to add a prefix or suffix to your registered call sign for portable operation. The call displayed in the header and send by CW will include any prefix or suffix. The CID that is imbedded in the picture will only be the registered call sign.

Version 3.7 & 3.8 Additions

Manual Sort function in Thumbnail Manager

The Manual Sort function is used to change the order of pictures within a library independent of picture name or date. This facilitates the creation of a slide show presentation based on picture content.

When "Manual Sort" is clicked, the library goes into a manual sort mode. The library will stay in this mode until the title bar is clicked. The cursor will be the "standard" arrow.

1. Place the cursor on the picture to be moved and left click.
2. Move the cursor to the "move to" location. The cursor will be a "four pointed arrow".
3. Left click on the picture at the "move to" location.
4. The picture will be moved to the location at the LEFT of the above picture.

After the picture is moved, the library will remain in the "manual sort" mode so another picture can be moved if desired. REMEMBER TO CLICK ON THE TITLE BAR to turn off the "manual sort" mode.

Slide Show function in Thumbnail Manager

The Slide Show function allows you to view the contents of an image library in "full screen" format. Using "Slide Show" is very simple.

Version 3.7

Clicking on the RIGHT mouse button advances to the next image in the library. Clicking the LEFT mouse button moves to the prior image. DOUBLE CLICKING the LEFT mouse button stops the slide show.

Version 3.8

Clicking on the RIGHT mouse button advances to the next image in the library. Clicking the RIGHT mouse button while holding the SHIFT key moves to the prior image. DOUBLE CLICKING the RIGHT mouse button stops the slide show. The LEFT mouse button is used to insert the image being viewed into WinPix32.

Version 3.7 & 3.8

- Starting Slide:The options menu allows you to select your preferred starting point for the slide show. The first image can be either the first image ("From Beginning" checked) in the library's current sort order or it can be the last image sent from the library to WinPix32. This is the image that is shown "indented".
- Viewing Order: Each use of the right mouse button advances through the library in the current sort order. When the last image is reached, the next image to be displayed will be the first image in the library. Similarly, using the left mouse button cycles through the library in reverse order.
- Picture Size: Three selections are available. The selected option will be displayed with a check mark ahead of the selection. If "No Expansion" was selected, all images smaller than your full screen display will be shown in actual size. Images larger than your full screen display will be reduced to fit the screen. If "Max 2 X" was selected, the maximum expansion of any image will be a factor of two. A 320 x 240 image will become 640 x 480 rather than becoming a very large and ugly image on a high resolution screen. If "Full Screen (best fit)" was selected, all images will be altered to fit the full screen display. If you have a large number of images that are much smaller than the full screen, you will probably not want this selection. A 320x240 image, expanded to fit a 1024x768 screen, just looks ugly.
- Picture Title: If "Picture Title" is checked, the title of each image will appear in the upper left corner of the picture.

Many image sources, such as the higher resolution digital cameras, create images that are too large to be viewed within WinPix32 without making them smaller. The Slide Show function allows you to view your "holiday" photographs at the maximum resolution that your computer will support.

Putting a Picture Title into the Header

Version 3.8

The Options/Header Options dialog box has an additional entry. If the check box under the word “Title” is checked, the Header Message will display “>> Picture Title <<“. If you then transmit the picture, the header message will be the title of the picture being sent.