

# VoiceKeyExpress

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*Turns your PC's sound card into a powerful and versatile digital voice keyer*

## VoiceKeyExpress Download Page

Go to the [VoiceKeyExpress Download Page](#) to find the latest VKE files.

## VoiceKeyExpress - FAQPage

To better help describe the features, functions, and use of VoiceKeyExpress, a [VoiceKeyExpress - FAQ Page](#) is available. It was started on Nov. 28, 1998. Check back occasionally to see what new topics have been added.

A copy of the VoiceKeyExpress User Manual is displayed below. You are welcome to review it. If you have any questions, please feel free to e-mail me at [n7qjp@earthlink.net](mailto:n7qjp@earthlink.net)

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# VoiceKeyExpress User Manual

**Manual Version 1.3.5**

**Updated: 5-Mar-1999**

VoiceKeyExpress (VKE) turns your PC's sound card into a powerful and versatile digital voice keyer. VKE was designed with both the *meteor scatter* and *contest operator* in mind. It provides a variety of easy to use features that will run equally well on your laptop or desktop PCs. While so many other audio card applications will only work with specific brands of sound cards, VKE is sound card independent. If your PC has a Windows compatible sound card, VKE can turn it into a first class voice keyer. Some of the versatile features include:

- *Message Configuration files* - Organize voice messages in advance for skeds and contests.
- *Software selectable hardware interface* - Configure VKE to your existing PC to radio cables
- *North American and European MS timing* - now with 15 second and 1 minute transmit intervals

- *Message recorder included* - or configure VKE with *your* favorite audio recorder.
- *Sound card independent* - works with all brands
- *PTT audio delay* - user configurable
- *Receive window during MS xmit interval* - user configurable time for each message
- *Keyboard shortcuts and function key macros* - forget the mouse when the pace is high!
- *Message auto-repeat* - user configurable for each message
- *Full PTT external break-in* - take manual control with your mic's PTT button
- *CW MS keyer* - record your CW keyer's sidetone and let VKE automatically handle the MS timing chores
- *Interface with TRX-Manager CAT software* - use your existing TRX-Manager serial interface for PTT control (see FT-Manger notes at the end of this manual)
- *Station ID Timer* - helpful reminder to ID during those long QSOs

VoiceKeyExpress is professionally developed PC shareware. You should try it before you decide to buy it. If you intend to continue using VKE for more than the two week evaluation period, you are asked to register your copy for a small \$10 fee.

VoiceKeyExpress is the programming effort of Stu Olson, N7QJP. All rights to the software are retained by him. Commercial use or distribution of this software through methods other than what is accepted as conventional shareware media requires written consent. VKE is provided on an as is basis. The developer is not responsible for its use nor are any claims as to its fitness for use made or implied.

VKE is written in Visual Basic Professional Edition 5.0 , Service Pack 3 update. It is a 32 bit software application, designed for computers running the Microsoft Windows '95, 98, or NT 4.0 operating systems. It will not work on PCs running Windows 3.x.

VKE uses standard wave (.wav) files. These can be produced using one of the many different wave file recording/editing applications, including those supplied with Windows. You can also use the built-in record feature of VKE. VKE relies on the standard sound card mixer panel to select the record source and set the audio level.

VKE operates in two modes, Normal and Meteor Scatter. Contest operators (and those using VKE for casual QSOs) would use the Normal mode while those working a scheduled meteor scatter QSO would use the Meteor Scatter mode. For operators who intend to use VKE in both modes, the same on screen controls are used. This common user interface allows the user to comfortably switch back and forth without having to "relearn" the program's operation.

VKE provides pre-defined macro keys to simplify operation for when "the pace gets frantic". These keys combine several discrete keystrokes (or mouse clicks) into a single key press. See the Keyboard Function Keys section for details.

VKE is now compatible with the TRX-Manager CAT software for Yaesu radios. This means that TRX-Manager users can run VKE without any additional PC interface cables or hardware. VKE uses the TRX-Manager's OLE feature to support both programs via a common serial port.

Many thanks go to Doug Freestone, VE5UF, for his graphics and assistance in beta testing. His quick response to my questions and endless hours of testing helped bring this program to completion much faster than if I had attempted to do these things by myself. You really can meet the nicest people via the Internet (and ham radio too!)

Also, many thanks to Laurent Labourie, F6DEX, who is the developer of the TRX-Manager CAT program for various radios. Laurent helped me interface VKE to his TRX-Manager software.

## **System Requirements and Setup**

VoiceKeyExpress was developed on a Pentium Pro 150Mhz PC running Win'98. It has been tested on other Pentiums running Win'95 and also a 486 DX-100, with good results. The PC must have a Windows compatible sound card installed. There are not special video card or memory requirements. If your PC performs well running other 32 bit applications, it should likewise do well with VKE.

VoiceKeyExpress installs using a standard Microsoft setup application. All of the necessary system and .ocx support files are installed while running the setup application.

VoiceKeyExpress uses an initialization file that holds user and PC specific values. This file must be edited with the proper values so that VKE will start and function properly. Failure to do so will yield unsatisfactory results. The name of this file is VOICEKEY.INI. It is located in the directory in which you installed VKE.

Below is a copy of the VoiceKey.ini file.

```
[Preference]
PTT Delay= 75
PTT Key=DTR
PTT Int=DSR
UTCDiff=7
CommPort=2
Recorder=C:\WINDOWS\SNDREC32.EXE
FTLink=100
NAMSTiming=True
IDInterval=10
```

When exiting VKE, the message buffer contents/options are stored in the .ini

file. These settings are restored the next time VKE is ran. The .ini file entries for storing the message buffer information is the same as that used in the VoiceKeyConfiguration files (see .vkc file explanation below).

Using Microsoft NotePad, or a similar text editor, edit the file for the following values:

**PTT Delay:** The delay, in milliseconds, between activation of the PTT interface and when the wave file is started. In the sample above, a delay of 75 milliseconds will be introduced into the timing circuits between activation of the PTT line and when the message buffer logic actually starts.

**PTT Key:** This is the serial port line that is used to activate the PTT circuit to the radio. There are two values that can be assigned; DTR (Data Terminal Ready) and RTS (Request To Send).

**PTT Int:** This is the serial port line that is monitored for an external interrupt. There are two values that can be assigned; DSR (Data Set Ready) and CTS (Clear To Send). Note that the assignment of PTT Int is not required for proper program operation. If not assigned, the interrupt logic will simply ignore both serial port pins.

**UTCDiff:** This is the offset between your time zone and good 'ol WWV time. This is the value, in hours, that GMT (do they still use that notation?) leads your time zone. If your PC clock is already adjusted for this difference, enter 0 for the value. In the example above, the value of 7 reflects the difference between Mountain Standard Time and UTC. If you are located in a 1/2 hour time zone, enter the value as a decimal. An example of this is Darwin, Northern Territory, Australia, which is -9.5 hours from GMT.

**CommPort:** This is the serial port number that will be used to allow VKE and your radio to communicate. Enter any valid serial port number that your PC is configured for. Be sure the interface cable is also attached to this same serial port (and your radio).

**Recorder:** This is the name of the optional audio recorder application. Although VKE has its own internal recorder, many users like to record with a favorite (familiar) program. Edit this line with the appropriate path and filename of the audio recorder you desire. If no filename is supplied, VKE will record using its internal recorder.

**FTLink:** This is the delay (in milliseconds) that is used for polling TRX-Manager's PTT status after VKE switches from transmit to receive. VKE will wait this period of time before checking the PTT status. If it finds it still in transmit, it will wait this amount again and recheck it again, etc.

**NAMSTiming:** This value indicates if the meteor scatter timing requirements follow North American or European standards. If the value is "TRUE", the North American timing interval of 15 seconds xmit, 15 seconds receive is used. If the value is "FALSE", then the European timing standard of 1 minute xmit, 1 minute receive is used.

**IDInterval:** This is the value (in minutes) for the station ID QSO timer. When the QSO timer is enabled, the timer counts down from this value.

VKE also uses VoiceKeyConfiguration files (.vkc). These files are created and maintained by the application and normally require no user editing. However, you may find it faster to copy and edit your own files. The following example shows the detail of the file. Note that although there are a number of entries (18), there is a group of three items that repeat themselves (with a slight variation) throughout the file:

```
[MSG Config]
MSG1=CQContest.wav
Delay1=40
Loop1=True
MSG2=KD7GZ.wav
Delay2=0
Loop2=False
MSG3=SignalandGrid.wav
Delay3=0
Loop3=False
MSG4=GoodLuckContest.wav
Delay4=0
Loop4=False
MSG5=RepeatGrid.wav
Delay5=0
Loop5=False
MSG6=NegativeCopy.wav
Delay6=0
Loop6=False
```

Note that there is a wave filename, delay value, and a loop value for each of the six message buffers. Each of these are described in more detail in the remainder of this document. "MSGx" is the filename of the desired wave file. "Delayx" is the value, in .1 sec increments (hundreds of milliseconds), to pause for prior to repeating the message. "Loopx" is true if the message is to be automatically repeated and false if it should not.

## **System Cabling and Wiring**

VoiceKeyExpress is strictly a software product. It provides control and polling of several RS-232 lines, into and out of, the selected serial communications port. It is your responsibility to configure the control wiring so that the radio and PC control lines are working as required.

To provide the highest degree of compatibility with other PC/radio interface configurations, VKE allows either the DTR or RTS comm port lines to be used for transmitter keying. VKE reads the .ini file (PTT Key) to obtain this value and configures its PTT logic to actuate the proper serial port pin. Figure 1 shows a method of interfacing the PC comm port to the radio's PTT circuitry. By using this type of method, you provide complete electrical isolation between the PC and the radio. There are no grounds, and hence, no ground loops. The current draw of the Radio Shack SPST reed relay (275-233) is small enough to be sourced by the comm port. This eliminates any need for external power and keeps the interface simple and compact.

On a DB25 serial port connector, pin 20 is DTR, pin 4 is RTS, and Signal Gnd is pin 7.

On a DB9 serial port connector, pin 4 is DTR, pin 7 is RTS, and Signal Gnd is pin 5.

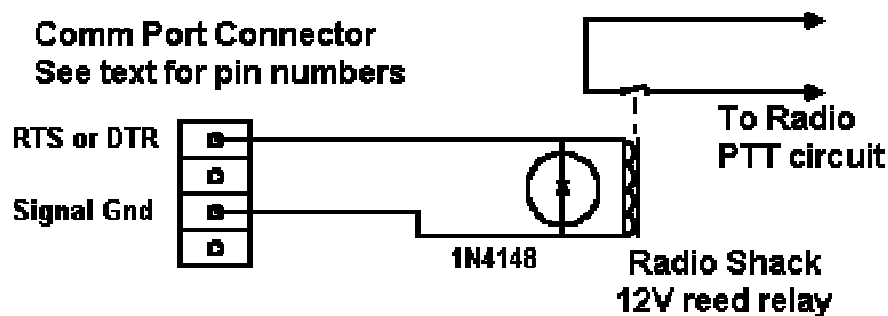


Figure 1

VKE can also be configured to monitor for an external input. This input is usually generated by keying the transmitter with the station microphone. This will interrupt the playback of the active message buffer. VKE can monitor either the DSR or CTS comm port lines for this purpose. VKE reads the .ini file (PTT Int) to obtain this value and configures its interrupt logic check for the appropriate serial port pin. Note that the assignment of "PTT Int" is not required for proper operation. If not assigned, the interrupt logic will simply ignore both serial port pins.

On a DB25 serial port connector, pin 6 is DSR, pin 5 is CTS.

On a DB9 serial port connector, pin 6 is DSR, pin 8 is CTS.

The sound card inputs/outputs and the radio microphone input is left to your homebrew initiative. The sound card output (preferably the line outputs) would be connected to the radio microphone or radio aux input connector. It is possible that you may have to attenuate the signal level to the appropriate level in order to prevent distortion in your transmitter. This can be easily checked (on the air) with the help of another radio amateur or a station monitor. Figure 3 shows a method of connecting the sound card audio to the transmitter.

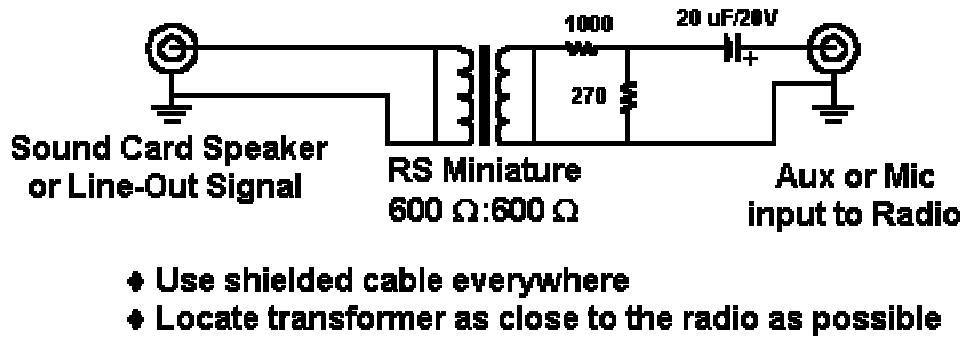


Figure 2

To record your messages, an inexpensive PC microphone, connected directly to the sound card's mic input, is often times easier to connect than is the microphone from your station rig. However, I have found that my HEIL headset/boom mic provides a good recording signal and will plug directly into the mic jack on the audio card. Some rigs offer a monitor function which can supply transmit audio for recording purposes. Consult your radio manual for details.

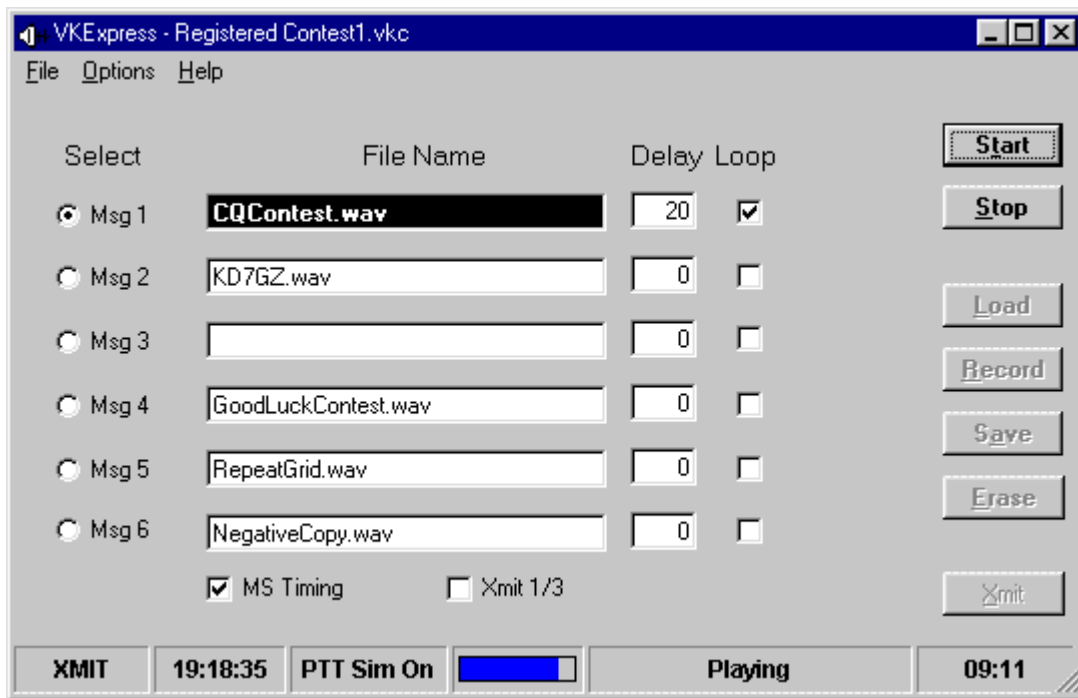


Figure 3

Figure 3 is a picture of VKE's main screen.

The following paragraphs detail the features and functions of the main screen controls, menus, and displays

### **Msg1....Msg6**

This grouping of option boxes allows the user to select one of six messages, thereby making it the active message buffer. When the message is selected, the wave file name is bolded. When the application is in xmit mode, the active message window is displayed in inverse video.

### **FileName**

Displays the filename of the .wav file currently loaded in the applicable message buffer.

### **Loop**

When checked, the message will continue to repeat itself during any xmit period. When in Manual mode, the message will repeat until the STOP button is depressed, or the check box is unchecked. When in MS mode, the message will repeat for the duration of the 15 second xmit segment. Note that if your message is longer than 15 seconds, there will not be enough time to finish the playback of your message.

Note: If a message is currently playing, the control can be selected (checked or unchecked) and the application will follow the action indicated. If the message has already stopped when the selection is made, it will have no effect until the application is once again in a transmit period.

### **Delay**

If the message is set for repeating (see Loop above), the application will pause for the specified number of .1 second increments (1/10th second). During this time, the PTT interface will unkey the radio and allow the user to monitor the received signal. After the specified delay, the PTT interface will key the radio and again send the active message. This feature is available in both MS and Manual modes.

### **MS Timing**

When checked, the Master Sequence Timer (MST) is enabled. The MST is used for synchronizing the transmit and receive MS segments with the desired 15 second xmit interval. This provides for hands free MS operation. When unchecked, the MST is disabled and Normal operation is resumed. The Normal mode is used for casual and contest voice keyer applications.

### **Xmit 1/3**

When the MS timing preference is 15 seconds, the 1st and 3rd 15 second intervals will be used for transmitting. When unchecked, the PTT interface will key the transmitter on the 2nd and 4th 15 second intervals. When the timing preference is 1 minute, minutes ending in an odd number will be used for transmitting. When unchecked, the PTT interface will key the transmitter on all even minutes. If the "MS Timing" control is not checked, this control is ignored.

### **Start**

When pressed, the active message will be sent using either MS timing or Normal mode. If the

currently selected message has no assigned filename, a status bar reminds the user that no file has been loaded into the active message buffer. The user should load a file or switch to another message buffer that has a file loaded.

### **Stop**

When pressed, playback of the active message stops. If transmitting in Manual mode, or the application is in the xmit segment during MS operation, the playback message is stopped and the PTT circuit is unkeyed.

### **Load**

When pressed, a File Open dialogue box is displayed for loading wave (.wav) files. The default subdirectory for loading a wave file is the VKE subdirectory. The selected wave file will be loaded into the active message buffer. If the active buffer has been previously loaded, a confirmation for overwriting the message buffer is presented.

### **Record**

The function of this control depends on the contents of the .ini file (see System Requirements and Setup above). If no "Record" entry exists in the .ini file, a wave file is recorded into the active message buffer using VKE's internal audio recorder. If an entry exists in the .ini file, that application will be launched and used for recording. In either case, the audio source and level can be controlled via the sound card's audio mixer panel.

### **Save**

When pressed, a File Save dialogue box is displayed for saving the wave (.wav) file. The default subdirectory for saving a wave file is the VKE subdirectory. If you intend to use the Load Configuration menu option at a later time, you must save the recording in the VKE subdirectory (default path). If you do not intend to load the message buffers via the Load Configuration menu, the wave (.wav) files can be saved to any valid location.

### **Erase**

When pressed, it erases the contents of the active message buffer. No confirmation is provided.

### **Xmit**

When pressed, it toggles the PTT interface between keyed and unkeyed. This is most commonly used to verify proper PTT interface cabling between the PC and the radio. It is not used during Normal or MS modes. If "PTT Disable" is unchecked (see "Options|PTT Enable" below), the PTT keying will be simulated.

## **Items on the Menu Bar:**

### **File|Load Configuration**

When selected, a File Open dialogue box is displayed for loading the desired message buffer

configuration. Any previously saved configuration file can be selected for loading. The VKE subdirectory is presented as the default path.

### **File|Save Configuration**

When selected, a File Save dialogue box is displayed for saving the current message buffer configuration. The filenames, delay, and loop values for up to 6 message buffers are written to a configuration file (.vkc). The VKE subdirectory is presented as the default path.

### **File|Exit**

When selected, the program exits. An exit confirmation is presented. The message buffer information is saved (in the VoiceKey.ini file) and is restored the next time VKE is ran.

### **Options|Keep on Top**

When selected, this feature will keep VKE on top of all other open windows on your desktop. Select it again to turn this feature off (default).

### **Options|MS Timing**

This menu item provides the user with the ability to easily switch between a 1 minute or 15 second transmit segment for meteor scatter operations. The value entered in the VoiceKey.ini file will show as the default on this menu.

### **Options|PTT Enable**

When selected (default), the PTT logic allows the radio to be keyed. When unchecked, VKE operates as before, except that the transmitter will not be keyed. This feature provides for a "practice" mode, allowing normal program operation with the exception of keying the transmitter.

### **Options|Ignore PTT Int**

When selected, VKE will ignore the .ini values for "PTT Int".

## **Displayed info on the Status Bar:**

The status bar, located at the bottom of the application's screen, shows several different operating parameters and the status of various processes while they are running. The status bar is comprised of 5 display panels. Starting with the left most panel (#1):

### **Panel #1 - Mode Display**

Displays the mode of the MST. The displayed text changes based on the state of the MS Timing check box. When not checked, "Manual" is displayed. This means that timing and sequencing of the active message is left up to the user. When the MS Timing check box is checked, panel #1 will display either "XMIT" or "RECV". The displayed text reflects the setting of the "Xmit 1/3" check box, and the seconds of the system clock. As long as the application is running in MS

mode, "XMIT" and "RECV" will toggle back and forth every 15 seconds.

### **Panel #2 - Time Display**

Displays the application clock with the UTC offset.

### **Panel #3 - PTT Display**

Displays the status of the PTT interface logic. When Options|PTT Enable is unchecked, the PTT status will include the text "Sim". This indicates that the PTT interface logic is simulating an actuation of the PTT circuits.

### **Panel #4 - Progress Display**

Displays the completion progress of the active message buffer during playback.

### **Panel #5 - Status Display**

Displays process messages, media control interface status, and other various information.

### **Panel #6 - Station ID Timer**

Displays the remaining time until the QSO timer indicates "ID". The value for this is set in the VoiceKey.ini file. Clicking anywhere on the status bar will start, stop, or reset this timer as applicable.

### **Keyboard Function Keys:**

The keys, when pressed, executes the following interface controls:

#### **F1...F6**

STOP button, MSGx button, START button where x is the desired active message buffer

#### **F12**

START button

#### **KeyPad +**

START button

#### **ESC**

STOP button

## **TRX-Manager Notes:**

Note: TRX-Manager was previously called FT-Manager. VKE will work with either version of the software.

To use VKE with TRX-Manager, TRX-Manager must have its OLE turned on. This is done by selecting the Parameters option from the Setup Menu. Ensure that the "OLE enabled" box is checked. If OLE was not checked, you will have to restart TRX-Manager after changing the setting.

Laurent told me that you must be running version 1.7.0+ of FTLink in order to support the OLE interface to VKE. I checked my ftlink.zip file and it has a date of June 18, 1998 on it, so if yours is that date or newer, you should be OK.

To use VKE with TRX-Manager, you must start TRX-Manager first. To optimize performance, and to ensure the accuracy of VKE's timing routines, you must run TRX-Manager maximized. (When VKE starts, it will not recognize that TRX-Manager is running unless TRX-Manager is running maximized.) Minimizing TRX-Manager after starting VKE will most likely provide unsatisfactory performance, and could result in unexpected timing and synchronization errors.

After TRX-Manager is running with the Monitor window opened, start VKE. If VKE detects the Monitor window in TRX-Manager, it will present you with the option of using TRX-Manager's control interface. At that time, select "Yes" to use the TRX-Manager interface or "No" to use the normal serial port interface that is specified in the VoiceKey.ini file.

The "Ignore PTT Int" menu option will also work when using TRX-Manager. If you press the microphone PTT button while VKE is in a receive window, VKE will still detect the PTT coming from the radio and being statused as keyed by TRX-Manager. It may be necessary to vary the "FTLink" value slightly if you encounter problems detecting the PTT from your microphone.