

VoiceKeyDeluxe

User Manual for Version 2.0.2

VoiceKeyDeluxe (VKD) turns your PC's sound card into a powerful and versatile digital voice keyer. VKD was developed from changes applied to the popular VoiceKeyDeluxe (VKD) software and is 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, VKD is sound card independent. If your PC has a Windows compatible sound card, VKD 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 VKD to your existing PC to radio cables
- ***Message recorder included*** - or configure VKD 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 VKD automatically handle the MS timing chores

VoiceKeyDeluxe is professionally developed PC shareware. You should try it before you decide to buy it. If you intend to continue using VKD for more than the evaluation period, you are asked to register your copy for a small \$20 fee.

VoiceKeyDeluxe 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.

VKD is written in Visual Basic 6.0 , Service Pack 6 update. It is a 32 bit software application, designed for computers running the Microsoft Windows '95, 98, 2000, XP, Vista, and Windows7 operating systems. It will not work on PCs running Windows 3.x.

VKD uses standard wave (.wav) files. These can be produced using one of the many different wave file recording/editing applications, including that supplied with Windows.

You can also use the built-in record feature of VKD. VKD relies on the standard sound card mixer panel to select the record source and set the audio level.

VKD operates in two modes, Normal and Sked Timing. Contest operators (and those using VKD for casual QSOs) would use the Normal mode while those working a scheduled meteor scatter QSO would use the Sked Timing mode. For operators who intend to use VKD 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.

VKD 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.

Many thanks go to Lance Collister, W7GJ, for his assistance in beta testing VoiceKeyDeluxe.

System Requirements and Setup

VoiceKeyDeluxe was developed on a IBM Thinkpad R40 laptop running the Windows XP operating system. During development, it was also tested on an Asus 1000HE netbook running Windows7 as well as a Lenovo Thinkpad T61 running Windows7, both with good results. The PC must have a Windows compatible sound card installed. There are no special video card or memory requirements. If your PC performs well running other 32 bit applications, it should likewise do well with VKD.

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

VoiceKeyDeluxe uses an initialization file that holds user and PC specific values. This file can be edited manually or via VKD itself. Updates to the file are also done using the Preferences menu item. The failure to provide correct data will yield unsatisfactory results. The name of this file is VOICEKEY.INI. It is located in the application data path for VKD. The app data path varies from one Microsoft operating system to another. You can find the app data path by checking the tab on the Preferences screen. Please note that the Windows7 operating system (and perhaps Vista too) does not allow the application to write to the program files folder. This is part of the security policy that prevents file IO to the Programs folder.

Until VKD is registered, the message file configuration will not be saved during program shutdown. The unregistered version of VKD will run for 10 minutes and then shut down.

Below is a sample copy of the voicekey.ini file (built by VKD once the application has been registered).

```
[Preference]
PTT Delay=200
UTCDiff=7
CommPort=1
PTT Key=DTR
PTT Int=CTS
Recorder=C:\WINDOWS\system32\SNDREC32.EXE
FTLink=100
NAMSTiming=1
IDInterval=10
PlaybackCardDeviceNum=0
RecordCardDeviceNum=0
PlaybackCardDeviceName=SoundMAX Digital Audio
RecordCardDeviceName=SoundMAX Digital Audio
```

```
[MSG Config]
Delay1=50
Loop1=False
Delay2=45
Loop2=False
Delay3=40
Loop3=False
Delay4=35
Loop4=False
Delay5=30
Loop5=False
Delay6=25
Loop6=False
Delay7=20
Loop7=False
Delay8=15
Loop8=True
Delay9=10
Loop9=False
Delay10=5
Loop10=False
MSG1=C:\temp\59inDM33.wav
MSG2=C:\temp\CQContest.wav
```

If you wish, you can use Microsoft NotePad, or a similar text editor, to 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 Reday) 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.

CommPort: This is the serial port number that will be used to allow VKD 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 applicaiton. Although VKD 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, VKD will record using its internal recorder.

FTLink: The delay, in milliseconds, that helps ensure that TRX Manager (and FTLink) and VKD stay in sync with each other when sharing the same PTT line to the radio. If you are not using TRX Manager and the FTLink interface, this value should be blank.

NAMSTiming: This value holds the Sked Timing default value (1 to 4). A value of 1=15 seconds, 2=30 seconds, 3 = 1 minute, and 4=2 minutes.

IDInterval: The value, in minutes, for the ID timer. If you use the ID timer, the timer will always start its count down from this value.

PlaybackCardDeviceNum: The device number of the selected playback sound card. VKD allows the user to select from more than one sound card. This number is assigned by the Windows OS when the user selects the playback sound card in the Preferences section.

PlaybackCardDeviceName: This name is assigned by the Windows OS when the user selects the sound card in the Preferences section.

RecordCardDeviceNum: The device number of the selected recording sound card. VKD allows the user to select from more than one sound card. This number is assigned by the Windows OS when the user selects the record sound card in the Preferences section.

RecordCardDeviceName: This name is assigned by the Windows OS when the user selects the sound card in the Preferences section.

VKD 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 with a group of three items that repeat themselves (with a slight variation) throughout the file:

```
[MSG Config]
Delay1=50
Loop1=False
Delay2=0
Loop2=False
Delay3=0
Loop3=False
Delay4=0
Loop4=False
Delay5=0
Loop5=False
Delay6=0
Loop6=False
Delay7=0
Loop7=False
Delay8=0
Loop8=False
Delay9=0
Loop9=False
Delay10=0
Loop10=False
```

```
MSG1=C:\temp\59inDM33.wav
MSG2=C:\temp\CQContest.wav
```

Note that there is a wave filename, delay value, and a loop value for each of the ten 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

VoiceKeyDeluxe 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, VKD allows either the DTR or RTS comm port lines to be used for transmitter keying. VKD 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. This diagram is shown only as a possible example of how you may wish to interface your radio.

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.

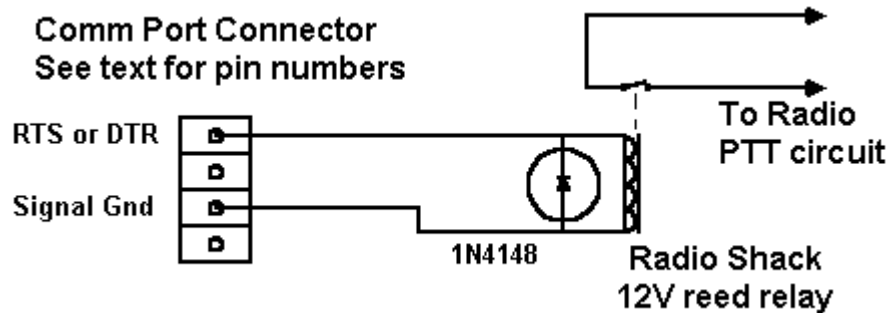


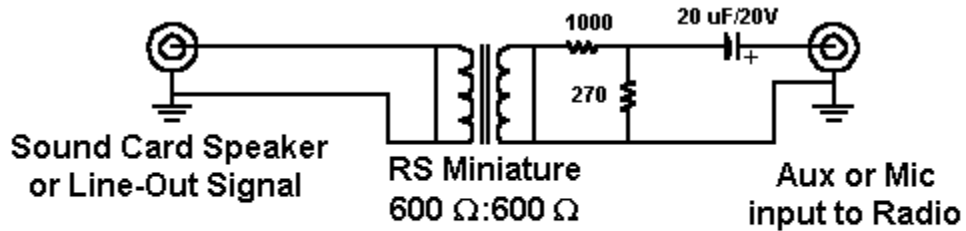
Figure 1

VKD 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. VKD can monitor either the DSR or CTS comm port lines for this purpose. VKD 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 by using a station monitor.



- ◆ Use shielded cable everywhere
- ◆ Locate transformer as close to the radio as possible

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.

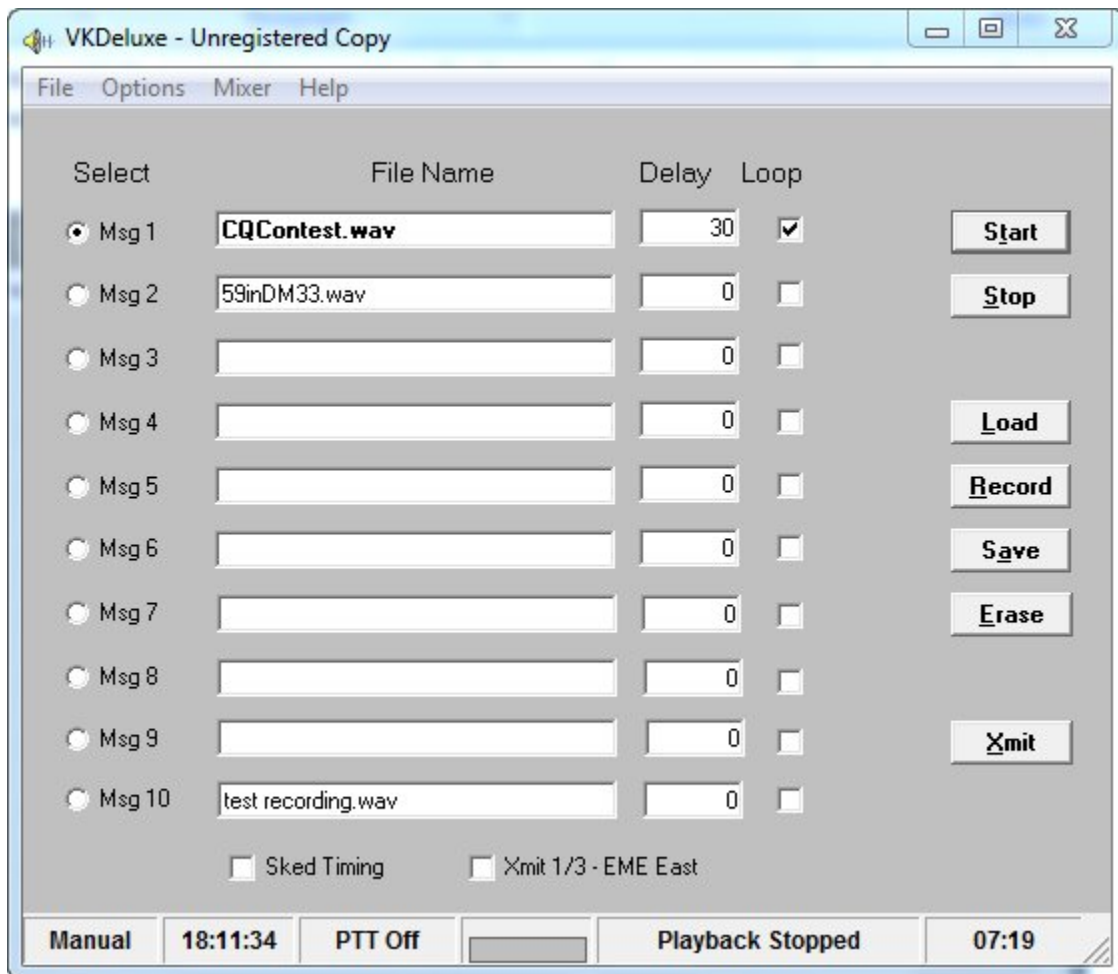


Figure 3

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

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

Msg1....Msg10

This grouping of option boxes allows the user to select one of ten 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. Hovering over the message text box will show the complete path & filename of the wave file currently assigned to the message box.

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 applicaiton 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.

Sked Timing

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

Xmit 1/3 – EME East

When checked, the 1st, 3rd, (odd) etc. intervals will be used for transmitting. When unchecked, the PTT interface will key the transmitter on the 2nd, 4th, (even) etc. intervals. If the "Sked Timing" control is not checked, this control is ignored.

Start

When pressed, the active message will be sent using either Sked timing or Manual mode. If the currently selected message has no assigned filename, a status bar message 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 sked timing 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 VKD 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 VKD'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 VKD subdirectory.

Erase

When pressed, it clears the contents of the active message buffer. No confirmation is offered.

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 Manual or Sked timing 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 VKD 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 10 message buffers are written to a configuration file (.vkc). The VKD subdirectory is presented as the default path.

File|Preferences

When selected, the Preferences form is displayed. The Preferences form provides an easy method by which you can change various VKD parameters, such as PTT Delay, Comm Port number, or the Audio Recorder executable filename as well as the selecting the audio sound card (multiple audio cards are supported).

File|Exit

When selected, the program exits. An exit confirmation is presented.

Options|Keep on Top

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

Options|Sked Timing

When selected, it allows you to select from several different timing schedules intervals. The interval shown is the period by which VKD will be either in the xmit or receive interval. For North American MS operations, you would select the 15 second interval.

Schedules that support meteor scatter operations in Europe and for EME schedules are also included.

Options|PTT Enable

When selected (default), the PTT logic allows the radio to be keyed. When unchecked, VKD 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, VKD 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 Sked 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 Sked Timing check box is checked, panel #1 will display either "XMIT" or "RECV". The displayed text reflects the setting of the "Xmit 1/3 – EME East" check box, and the minutes/seconds of the system clock. As long as the application is running in Sked timing mode, "XMIT" and "RECV" will toggle back and forth to reflect which interval is active, even if the Start button has not been pressed. This is done so that if you manually wish to take control, you can determine when the XMIT segment is active for your timing interval.

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.

Keyboard Function Keys:

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

F1...F10

Selects the applicable message buffer (1 to 10) and begins playing it.

F12, KeyPad +
START button

ESC
STOP button