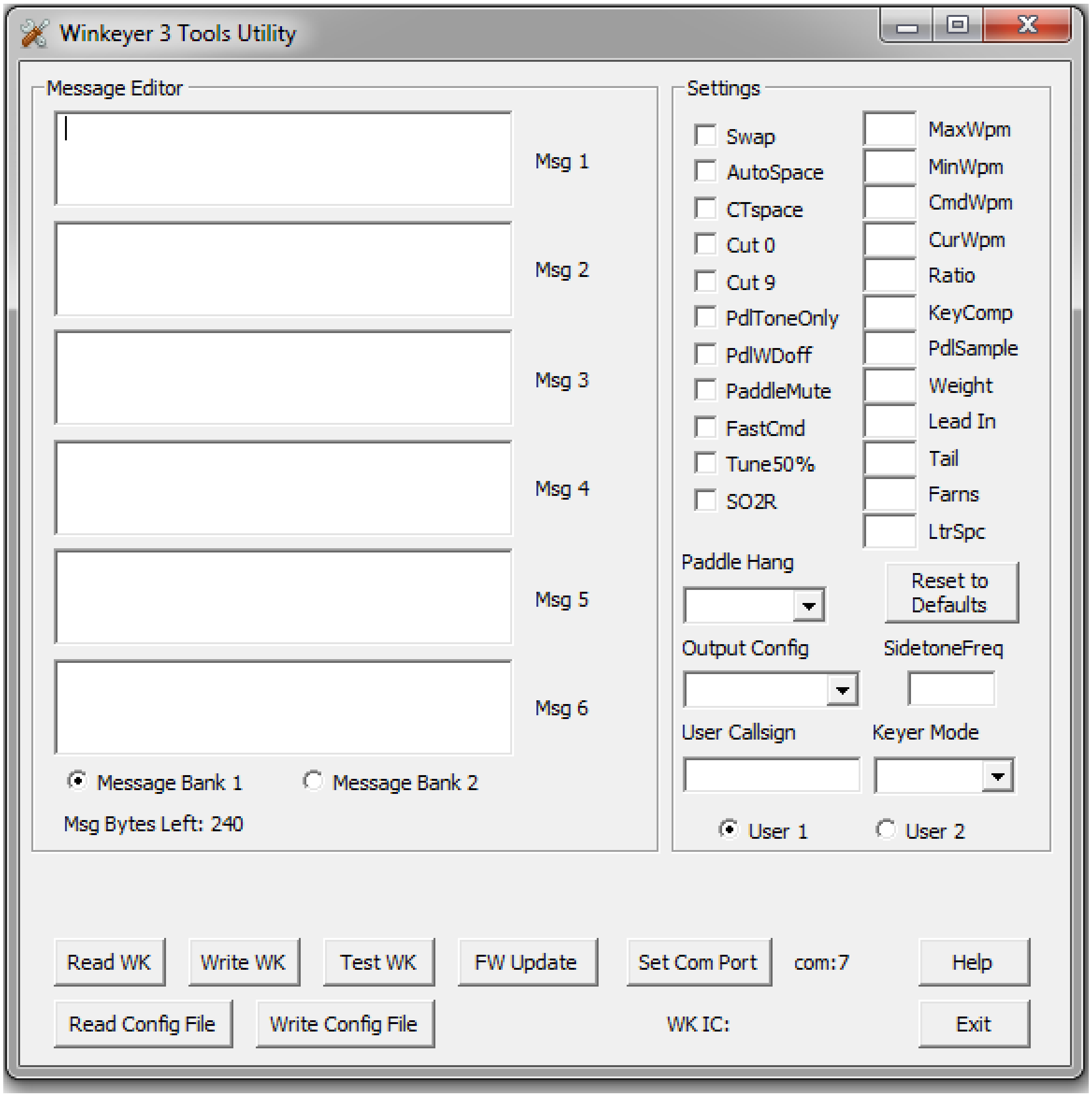
Start Application

Click on the WK3tools icon to start the application. When the app starts you will be shown an empty dialog box. It is empty because you haven’t read WKUSB’s settings yet. Before we can do this we have to tell WK3tools what com port WKUSB is attached to.



Winkeyer 3 Tools Utility

Message Editor

Msg 1

Msg 2

Msg 3

Msg 4

Msg 5

Msg 6

● Message Bank 1 ○ Message Bank 2

Msg Bytes Left: 240

Settings

□ Swap
□ AutoSpace
□ CTspace
□ Cut 0
□ Cut 9
□ PdlToneOnly
□ PdlWDoff
□ PaddleMute
□ FastCmd
□ Tune50%
□ SO2R

MaxWpm
MinWpm
CmdWpm
CurWpm
Ratio
KeyComp
PdlSample
Weight
Lead In
Tail
Farns
LtrSpc

Paddle Hang

Output Config

SidetoneFreq

User Callsign

Keyer Mode

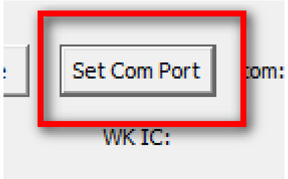
● User 1 ○ User 2

com:7

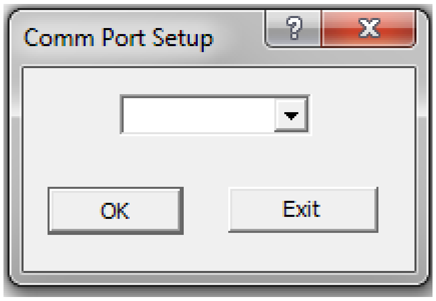
WK IC:

Setting Com Port

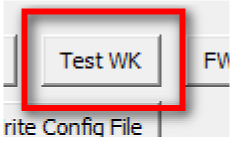
If you haven't already done so, attach WKUSB to the desired USB port and click Set Com Port:



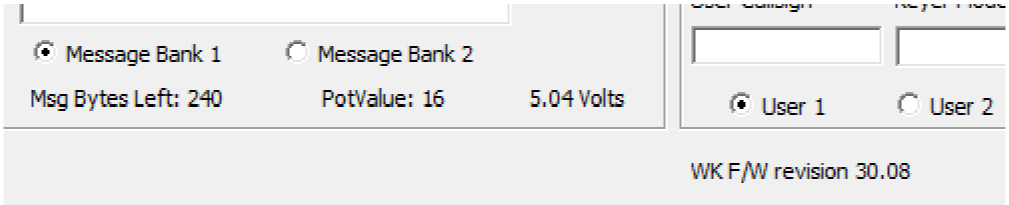
This brings up the Com Port Setup dialog box. Click on the down arrow and a list of valid com ports will be displayed. Only the currently valid com ports are shown making the selection fairly easy. If you are not sure about which com port to pick, Click Exit and unplug WKUSB. Then click Set Com Port again and you will see that one of the com ports is no longer in the list. That is the com port WKUSB is assigned to. Replug WKUSB back in, that com port will reappear, and you can then select it.



Testing the Connection to WKUSB



Clicking on Test WK will tell WK3TOOLS to look for WKUSB on the specified com port and report on whether it connected successfully. On a successful connection the following status is displayed:



● Message Bank 1 ○ Message Bank 2

Msg Bytes Left: 240 PotValue: 16 5.04 Volts

● User 1 ○ User 2

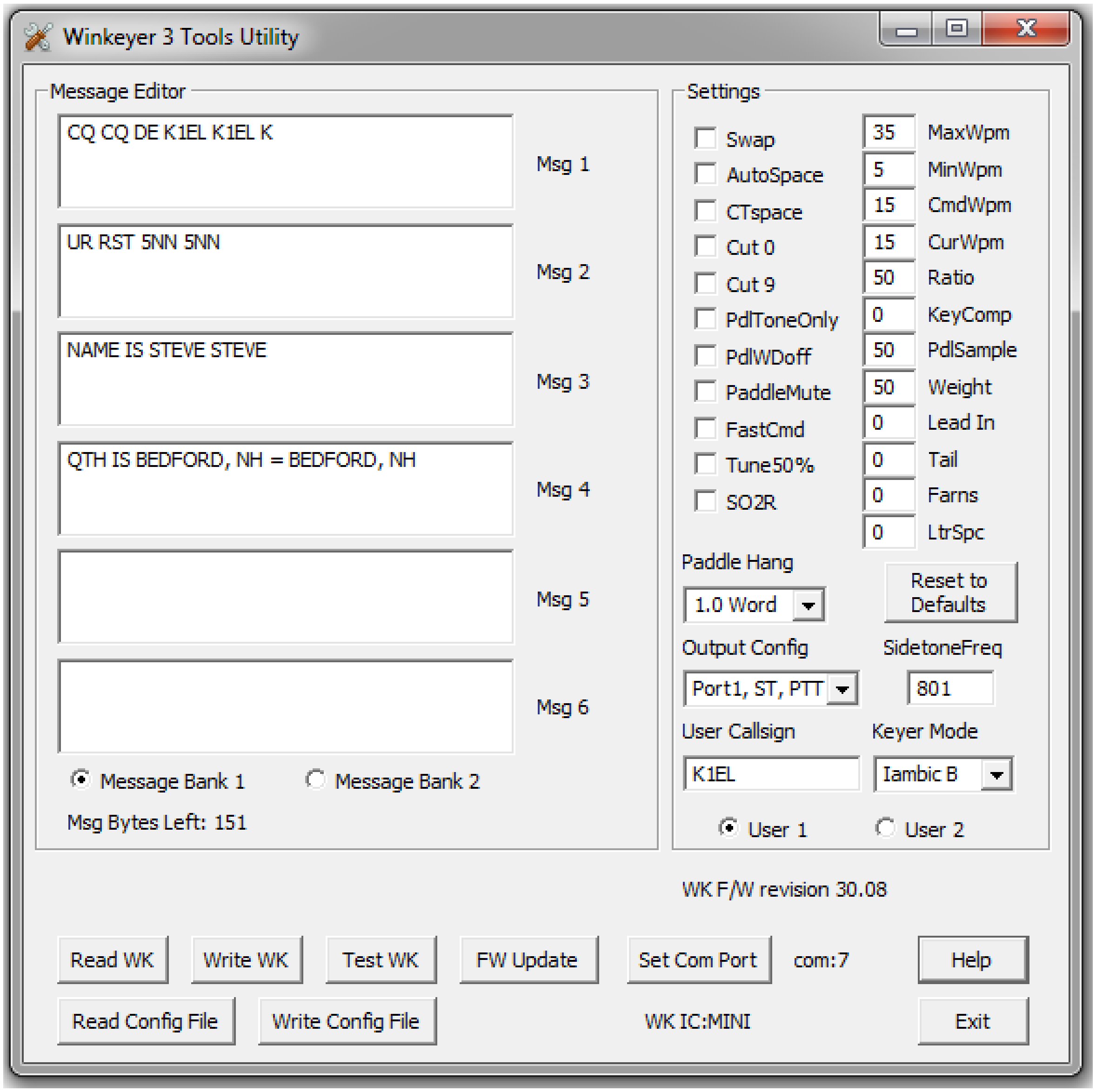
WK F/W revision 30.08

The remaining message storage, Speed control setting, WK3 IC power supply voltage, and WK3 firmware revision are displayed. If the connection failed, WK Fail:no response will be displayed. This usually means the wrong com port is selected. It can also mean that there is a problem with the WUSB hardware.

Even though you can connect to WK devices using a WK1 or WK2 controller you will not be allowed to read settings or messages since this app only works with devices that use a WK3.

Reading WKUSB Standalone Settings into WK3TOOLS

Click on Read WK to read the current configuration block from WKUSB into the WK3TOOLS application. It takes a few seconds for this to happen. When complete, the dialog box will be updated with current settings and messages. Shown below is a typical dialog box with values loaded:



Msg 1	CQ CQ DE K1EL K1EL K
Msg 2	UR RST 5NN 5NN
Msg 3	NAME IS STEVE STEVE
Msg 4	QTH IS BEDFORD, NH = BEDFORD, NH
Msg 5	
Msg 6	

● Message Bank 1 ○ Message Bank 2

Msg Bytes Left: 151

□ Swap
□ AutoSpace
□ CTspace
□ Cut 0
□ Cut 9
□ PdlToneOnly
□ PdlWDoff
□ PaddleMute
□ FastCmd
□ Tune50%
□ SO2R

35	MaxWpm
5	MinWpm
15	CmdWpm
15	CurWpm
50	Ratio
0	KeyComp
50	PdlSample
50	Weight
0	Lead In
0	Tail
0	Farns
0	LtrSpc

Paddle Hang: 1.0 Word

Output Config: Port1, ST, PTT

SidetoneFreq: 801

User Callsign: K1EL

Keyer Mode: Iambic B

● User 1 ○ User 2

WK F/W revision 30.08

com:7

WK IC:MINI

Modifying Settings

All of the standalone configurations are available for modification. Simply change values as you see fit. If you enter an illegal value it will be flagged when you try to write the configuration block back.

Here is a brief description of the setting options, more detailed descriptions can be found in the WK3 IC Datasheet.

Swap – Exchange left and right paddles

Autospace – WK can be set to automatically insert proper interletter space between letters. It does this by forcing a letterspace interval when a user pauses too long between letters.

CTspace – Reduces inter word space to 7 dits from the standard of 8 dits

Cut 0 – Substitute T for zero in messages

Cut 9 – Substitute N for 9 in messages

PdlToneOnly – Sidetone is enabled for paddle entry only, not for messages

PdlWDoff – Disable the automatic paddle watchdog which disables output after 128 consectutive dits or dahs, note that sidetone still operates to let operator know that paddle is stuck

PaddleMute – This disables paddle input, messages can still be sent via pushbutton press

FastCmd – Reduce the time for response to command pushbutton press

Tune 50% - Sets default tune to be a 50% duty cycle. Note that tune type can be changed by pressing dit or dah paddle during tune

SO2R – Enables Single Operator 2 Radio Mode. Please refer to the WK3 manual

MaxWPM – Specifies the upper limit of speed control in words per minute

MinWPM – Specifies the lower limit of speed control in words per minute

CmdWPM – Specifies the speed of the command interface. The default speed is 15 WPM

CurWPM – Specifies the fixed speed when speed control is turned completely counterclockwise.

Ratio – Specifies the dit/dah ratio. A value of 50 sets 1:3. Minimum ratio is 33 which sets 1:2 and the maximum is 66 which sets 1:4

KeyComp – Specifies a fixed amount of time to be added to the length of all dits and dahs (0-31mSec)

PdlSample – Sets paddle switchpoint in percent. Values from 1 to 99 are accepted. A value of 0 disables dit and dah memory. See manual for further details

Weight – adjustable in percentage from 25% to 75%. When set to 50 % the dit time is equal to the inter-element time, which is normal. Values less than 50 reduce weighting while values greater than 50 increase weighting.

Lead In – Sets initial PTT delay in msec. Adjustable in 10 mSec steps from zero to 255

Tail – Sets trailing PTT in mSec. Adjustable in 10 mSec steps from zero to 255

Farns – This is a used primarily for code practice. Letters are sent at the Farnsworth speed while maintaining the default code speed by adding space between letters. To disable, set Farns to zero.

LtrSpc – a value 0 to 31, specifying an additional letterspace to be applied between letters. Multiply value by two to arrive at the actual adjustment percentage. For example a value of 7 applies 14% additional letterspace between letters. The maximum adjustment is 62%

Paddle Hang – Sets a PTT tail delay that is proportional to sending speed. The delay begins after paddle sending stops. You can select one of four delays:

HangTime = 0: wait 1 wordspace + 1 dit before ending PTT
HangTime = 1: wait 1 wordspace + 2 dits before ending PTT
HangTime = 2: wait 1 wordspace + 4 dits before ending PTT
HangTime = 3: wait 1 wordspace + 8 dits before ending PTT

Output Config – Selects the active keying port and whether PTT and Sidetone are enabled

Sidetone Freq – This sets the sidetone frequency. It may not be possible to hit the exact frequency but the closest one will be selected.

User Callsign – Sets the user calling which is sent with the /M message command

Keyer Mode – Selects the keyer emulation style: Iambic A/B, Ultimatic, ect.

User1/User2 – There are two banks of settings this selects which is active

Message Bank 1/ Message Bank 2 – There are two message banks this selects which is active

Reset to Defaults – This loads the configuration block with default values as set when WK is new.

Editing Messages

You can enter or edit messages in any of the twelve slots by just putting the cursor into the desired slot window and entering text. Only six message slots in one bank are displayed at a time, click on either Message Bank 1 or Message Bank 2 to select the bank you want. All edit functions of a normal edit window are supported. Avoid using enter to end a line, instead keep typing and allow automatic word wrap to end the line. Buffered commands are entered just as they are described in the Winkeyer3 manual. A command is denoted by a / in front of it. For example /S25 is a speed pot change to 25 WPM. A tally of the remaining message memory is shown below the bottom message slot. When the tally reaches zero, memory is full.

Full List of Buffered Commands

/Bnn Set a beacon cycle time of nn seconds (nn=00 to 99). Put this at the beginning of a message to set the beacon period.
/Cn Call message in slot n (1-6), return and resume current message.
/D Decrement serial number.
/E Toggle message banks
/Hn Set HSCW speed. See table below for determining n.
/Inn Increase letterspacing within a message, nn is a value from 0 to 31 percent times 2.
/Knn Key transmitter for nn seconds. (nn=00 to 99)
/M Play user callsign.

/N Play Serial Number with auto post increment.
/On Select key output port; 1 for port 1 or 2 for port 2.
/P Pause and wait for paddle entry and then continue after one word space time.

The pause is ended in one of three ways
1) paddle entry
2) Press a msg PB (2-6) or
3) Press the cmd PB to cancel.

/Q Set QRSS speed. See table below for determining n.
/Snn Set a speed change within a message. (nn=WPM, 5 to 99)
/Un Turn PTT on or off. PTT is turned on when n = 1 and off when n=0.
/V Send the current supply voltage in Morse, useful for beacons.
/Wnn Wait for nn seconds. (nn=00 to 99)
/Xn Cancel speed override, for example cancel HSCW, QRSS, or /Snn speed.
/Yn Force a relative speed change up. Add n to the current WPM. n=(0-9)
/Zn Force a relative speed change down. Subtract n from the current WPM. n=(0-9)
/1 Jump to message 1 **/2** Jump to message 2
/3 Jump to message 3 **/4** Jump to message 4
/5 Jump to message 5 **/6** Jump to message 6
| Insert ½ letterspace pad (DI-DI-DAH-DAH-DIT)

n	**HSCW Rate**	**QRSS Rate**
0	1000 lpm (200 wpm)	3 sec dit
1	1500 lpm (300 wpm)	6 sec dit
2	2000 lpm (400 wpm)	10 sec dit
3	3000 lpm (600 wpm)	12 sec dit
4	4000 lpm (800 wpm)	30 sec dit
5	6000 lpm (1200 wpm)	60 sec dit

Rate Table for /Hn or /Qn commands

Abbreviation Mappings

"	is mapped to	RR	+	is mapped to	AR
#	is not mapped		-	is mapped to	DU
$	is mapped to	SX	/	is mapped to	DN
%	is not mapped		:	is mapped to	KN
&	is not mapped		;	is mapped to	AA
'	is mapped to	WG	<	is mapped to	AR
(	is mapped to	KN	=	is mapped to	BT
)	is mapped to	KK	>	is mapped to	SK
*	is not mapped		@	is mapped to	AC

Saving WK3 State

When you are satisfied with your settings, you can write them back into WKUSB by clicking on the Write WK button. This transfers the updated configuration block back to WKUSB and takes a few seconds. If there any parameter value errors, they will be flagged at this time. The values must be corrected before a write will be allowed.

File Operations

Settings can be saved on disk, there are two file access options; Write Config File and Read Config File. This gives you the ability to save several different keyer setups and load them in depending on your operating requirements.

Write Config File will write the current state visible in the WK3TOOLS dialog box to disk. You can enter any name you like, it's recommended to leave the extension as .eep. Note that both user settings and both message banks are stored.

Read Config File reads a previously saved configuration off disk and loads in into WK3MGR. All current settings are overwritten.

Restoring Factory Settings

The “Reset to Defaults” pushbutton is provided to let you restore WKUSB back to original default settings. All of the control settings are re-initialized and messages are erased. Don't forget that you need to write this block back to WKUSB for it to take effect.

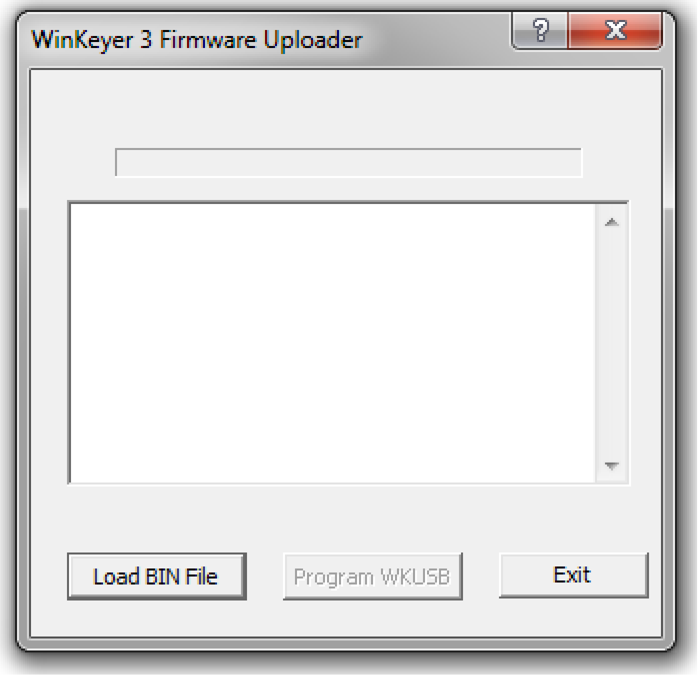
Upgrading WK3 Firmware
WK3TOOLS is used to upgrade WKUSB firmware in the field. There are two different WK IC versions currently in use, a DIP version and an SMT version. These versions use different upgrade files. The SMT versions have a file revision between 00 and 49. DIP revisions are between 50 and 99.

A typical SMT filename looks like this: Winkeyer3_Rel_3.10.bin (10 is the revision)
A typical DIP filename looks like this: Winkeyer3_Rel_3.60.bin (60 is the revision)

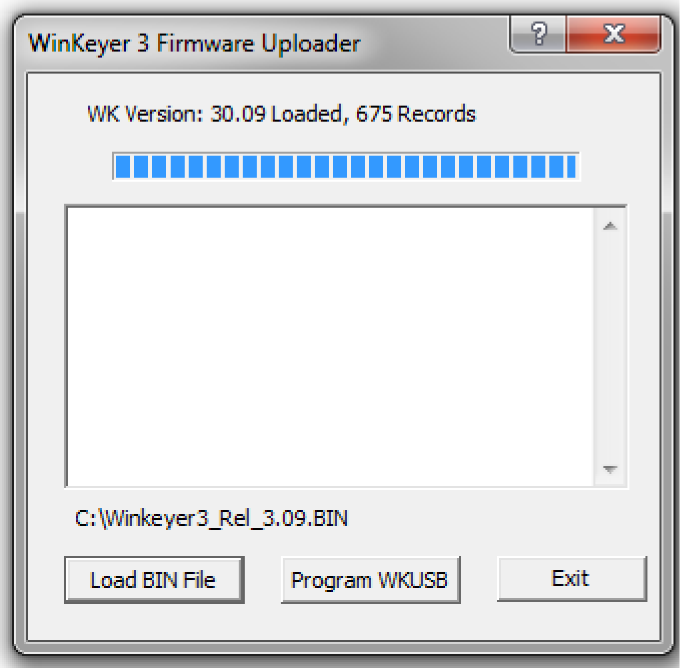
WKtools will report the IC version when you run WKtest. It will be displayed just below the Set Com Port pushbutton after you click Test WK. Make sure you load the correct file for your particular WK IC type. Don't worry, WKtools always checks to be sure the file type matches your device before allowing programming and will report an error.

Here are the steps to upgrade your WK IC.

1) First obtain the latest firmware file from K1EL. They will email you a zip file that contains two files, one for DIP and one for SMT.
2) Start WKtools, set the comport , and click WKtest to make sure the connection is working.
3) Note the IC type, this will determine which upgrade file you will be using.
4) Click on the F/W Update pushbutton and the following dialog box will be displayed:



5) Click Load BIN file and a file open dialog box will be displayed. Navigate to the desired BIN file and click OK. The file will be loaded and you will now see something like this:


WinKeyer 3 Firmware Uploader
WK Version: 30.09 Loaded, 675 Records
C:\Winkeyer3_Rel_3.09.BIN
Load BIN File
Program WKUSB
Exit

6) The file's revision will be displayed along with the file size.
7) Click on Program WKUSB to transfer the BIN file to WKUSB. DO NOT PLAY WITH THE USB CABLE OR MOVE THE UNIT AROUND DURING UPGRADE ! A progress bar will be displayed, when the load is complete, a reset command will be given to WKUSB. After restarting, WKUSB will send a C in sidetone. Now click Exit and the Uploader dialog box will close. WKtools will automatically send a Test WK command and the new version number will now be displayed.

What can go wrong ?

1) If you selected the wrong file type, a error message will be displayed when you click Program WKUSB. The upgrade will abort and you can then pick a different file name.
2) If you did not select the correct com port, and you skipped clicking WKtest, you will be allowed to click FW Upgrade, select a filename, and try to program WKUSB. The process will fail and eventually it will abort. Nothing bad will happen to WKUSB despite the error.
3) If you unplug WKUSB while programming is underway, or you lose power, or some other act of Murphy occurs, upgrade will abort and WKUSB will go into recovery mode. It will not do anything in recovery mode except allow you to retry the upgrade. You will know it is in recovery mode when it answers 'WK Fail No O/S' in response to clicking Test WK. All you need to do is click FW Update and repeat the upgrade process. As long as the connection remains good, the upgrade will now complete and you will be up and running again.
4) You bricked WKUSB. It's very unlikely that this could happen. But users are very clever and if there's a will there's a way. First thing to do is unplug WKUSB, remove batteries, and replug it back into your PC. Hopefully now it will be in recovery mode and you can follow the procedure in item 3 above. If that didn't work check the unit for loose connectors or other issues. If it's still stuck you have two options: if it's a DIP version, return the WK IC to K1EL for reprogramming or if it's an SMT version, the whole unit will have to be returned. As mentioned, if you follow the procedure as described, it's VERY, VERY unlikely that you will ever encounter this.