

# **User Manual**



**VocalLink Pro Software  
VocalLink Basic Software**

**071-0824-01**

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## Preface

This manual contains information about the VocalLink™ software package for use with compatible Tektronix oscilloscopes. There are two versions of software:

- VocalLink Basic
- VocalLink Pro

The instruments supported by VocalLink software are listed in the CD Rom booklet that came with your software.

This manual supports VocalLink Pro and Basic software packages on Windows 95, 98, 2000, or NT 4.0 (Service Pack 3 or greater).

## Manual Convention

This manual applies to both VocalLink Basic and VocalLink Pro software, unless stated otherwise.

The paths for menu choices are shown in this format: File > Dialog. This means select the File menu and then select Dialog.

The following table lists the documents provided and the purpose of each document.

**Documentation Set**

<b>Document</b>	<b>Purpose and description</b>
User manual	The user manual describes the application, procedures, contacting Tektronix, and many other aspects of the product. Use this manual together with the online help.
Software license Agreement envelope	The envelope contains the CD-ROM and software key. The Tektronix Software License Agreement is printed on this envelope. Breaking the envelope seal means that you agree with the terms outlined in the agreement.
Software keycode sticker	Printed on this label is a 19-character software installation keycode that you are required to enter when you install this software. The software keycode label is located on the CD case. You will be asked to enter this keycode each time you install this software. You will not be able to install the software without it. Do not lose this label.
CD-ROM jewel case insert	The CD-ROM case contains product overview and installation information for each product on the CD-ROM.
Business reply card	This card must be completed and returned to register your product.



## Contacting Tektronix

<b>Phone</b>	1-800-833-9200*
<b>Address</b>	Tektronix, Inc. Department or name (if known) 14200 SW Karl Braun Drive P.O. Box 500 Beaverton, OR 97077 USA
<b>Web site</b>	<a href="http://www.tektronix.com">www.tektronix.com</a>
<b>Sales support</b>	1-800-833-9200, select option 1*
<b>Service support</b>	1-800-833-9200, select option 2*
<b>Technical support</b>	Email: <a href="mailto:techsupport@tektronix.com">techsupport@tektronix.com</a> 1-800-833-9200, select option 3* 6:00 a.m. - 5:00 p.m. Pacific time

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\* **This phone number is toll free in North America. After office hours, please leave a voice mail message. Outside North America, contact a Tektronix sales office or distributor; see the Tektronix web site for a list of offices.**





# Getting Started





# Getting Started

Welcome to VocalLink. VocalLink is an easy-to-learn and easy-to-use speech recognition interface between your PC and a supported oscilloscope. Without touching an oscilloscope or even being in the room, you can obtain measurements and control the functions of the oscilloscope using an extensive set of verbal commands.

The Pro version has a macro capability that lets you combine a group of voice commands, plus enter GPIB command strings, then execute the macro with a few words. These macros simplify using the oscilloscope without sacrificing its sophisticated capabilities.

## Product Description

VocalLink is a software application that installs on a PC running Windows 95, 98, 2000, and NT 4.0 operating systems that connects to the following Tektronix oscilloscopes. The VocalLink package contains software, headset, microphone, and a user manual.

There are two versions of VocalLink software:

- Basic - This version accepts the basic set of verbal commands to obtain measurements from the Tektronix oscilloscope.
- Pro - This version has the same features as the Basic version, plus an extended set of Macro commands that allow you to create a macro to obtain measurements, use GPIB command strings, and control the function of the oscilloscope. The macro GPIB commands are not available for use on the TDS7000 series.

The instruments supported by VocalLink are listed in the CD Rom booklet that came with your software.

## System Requirements

To install and run VocalLink software, you must have a Windows based PC with the following minimum configuration.

TDS7000 series oscilloscopes meet the system requirements to operate VocalLink software.

- Microsoft Windows 95, 98, 2000, or Windows NT 4.0
- 166 MHz Pentium processor
- 32 MB RAM
- Sound card with an amplifier
- Noise-cancelling microphone headset (supplied)
- CD-ROM drive, 4X or better
- Super VGA monitor or better
- 20 MB of disk space
- TekVISA software (supplied) or other VISA software
- Install one of the following: GPIB controller card and cable, AD007 GPIB-LAN Adapter, RS-232 COM port (TDS3000 only), or a 10baseT Ethernet LAN.

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**NOTE.** *For optimum performance, you need 233 MHz and 64 MB of RAM.*

*On minimum-configured machines, close all other programs before running VocalLink software.*

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### **TekVISA**

Refer to page C-1 for information about TekVISA or VISA files.

### **Ethernet**

When using the Tektronix AD007 GPIB-LAN Adapter, you can connect directly to a 10BaseT LAN (local area network) with an RJ-45 UTP cable (provided with your AD007 GPIB-LAN Adapter). For a complete list of the system requirements for the AD007 Adapter, refer to your *AD007 GPIB-LAN Adapter User Manual*.

When using the TDS3EM Ethernet communication module, refer to the *TDS3000 and TDS3000B Series Programmer Manual* for connecting the TDS3000 and TDS3002 Series oscilloscope to a 10BaseT Ethernet LAN. The TDS3000B Series oscilloscope has a built-in Ethernet.

Once you have connected to the network, follow the steps on page C-2 to use the TekVISA Configuration Utility to enable TekVISA to locate the instrument.

### **GPIB**

If you are using VocalLink software with GPIB communications, you need an IEEE-488.2 GPIB Interface Card, GPIB driver software (usually included with the GPIB interface card), and a GPIB cable. Follow the manufacturer's instructions when installing these components. See page B-1 for common GPIB problems.

### **RS-232**

If your instrument is capable of communicating using RS-232 see page A-1 for how to set default values for your oscilloscope and for general hints and a discussion of cable issues.

## Connect the Headset

A headset unit is provided as a standard accessory with your VocalLink software. Plug the headset into your sound card.

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**NOTE.** *Some sound cards may have ports for line-in and microphone-in, but the line-in port is not used with the VocalLink software.*

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Follow these steps to connect your headset:

1. Using your sound card documentation, identify the microphone-in port and the line-out port on your sound card.
2. Plug the red microphone jack from the headset into the microphone-in port on the back of your sound card.
3. Plug the black speaker jack from the headset into the line-out port on the back of the sound card.



## Sound Card Verification

You must have a sound card installed. It is recommended that you check for and test the recording and playback capabilities of any sound card before you launch the VocalLink software.

If you already have a sound card, make sure the drivers for your sound card are installed. If possible, obtain and install the latest drivers from your sound card manufacturer. Many manufactures have a web site containing their latest drivers.

If you can not use the following procedure, refer to your Windows application manual to test your sound card for record and playback capabilities.

**Checking for a Sound Card.** To check if your sound card is operating properly, follow these steps:

1. Select the Start > Run menu, type in sndvol32 and select Ok.
2. Select the Options > Properties menu, and verify that the correct sound device is selected in the Mixer Device menu.
3. Close the volume control windows.

**Testing Recording and Playback.** To test the sound card recording and playback capabilities, follow these steps.

1. In Windows, select the Start > Run menu, type sndrec32, and then select Ok. Windows displays the Sound Recorder property sheet.
2. Put on your headset (see page 1-4 for headset installation).
3. Select Help > Help topics > **Record a sound** from the contents tab and follow the procedure.
4. Select Help > Help topics > **Play a sound** from the contents tab and follow the procedure.

If you see activity on the Record display but do not hear anything, your playback volume settings are too low.

If you see no activity in the display window during recording or playback:

- Your sound card is installed incorrectly. Check your sound card documentation. You may need to reinstall your sound card.
- Your sound card and microphone are incompatible. If you are using an older sound card it may not provide an adequate “phantom” power supply (amplifier) for the microphone. In this case, you can buy a new sound card or a phantom power supply for the microphone. Also, verify that you are using the latest drivers for your sound card.

## Installing VocalLink Software

This section describes how to install the Basic or Pro VocalLink software products.

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**NOTE.** *To install the Basic or Pro VocalLink software, you must have the 19-character keycode located on a label attached to the outside of your CD-ROM case which was shipped in the Software License Agreement envelope.*

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Follow the steps below to install VocalLink software.

1. Insert the CD-ROM into the CD-ROM drive. Typically, the CD-ROM drive automatically runs the VocalLink installation program. If it does not, run the *Setup.exe* file located in the CD's root directory.

The main installation screen shows multiple tabs, one for each software product. Locate the VocalLink software product. Each product tab provides product overview material and an installation program.

2. To install only the VocalLink software, select the VocalLink tab. The installer displays the product screen.
3. Select Install. The installation wizard guides you through the process of installing the VocalLink software components:
  - TekVISA
  - VocalLink software

### **Installing TekVISA Software**

You are prompted to install TekVISA software, which includes the Tektronix version of Visa32. Visa32 is a component that VocalLink needs to communicate with your instruments.

The VocalLink installer detects if you have another version of Visa32 already installed on your PC. You can choose to use the existing version, or you can replace the existing version with the provided TekVISA. If you are using Visa32 with other programs, refer to *TekVISA* on page C-1 for more information.

Follow these steps to install TekVISA software:

- a. The Tektronix VISA installer starts when you load the VocalLink software. When you have read the preliminary information, select Next.
- b. In the Choose TekVISA Destination Location dialog box, select Next to accept the default location (recommended), or enter the directory location where you want Tektronix VISA installed and then select Next.
- c. In the Choose VXI Plug & Play Destination Location dialog box, select Next to accept the default location (recommended), or enter the directory location where you want TekVISA VXI Plug and Play components installed and then select Next.
- d. In the Setup Type dialog box, select Full Setup Type to install all required VISA files (recommended), or select Custom Setup Type to choose which components to install.

- e. The Start Copying Files dialog box displays the directory location of where VISA and VXI Plug & Play files will be installed. If this information is correct, select Next. If you want to change this information, use the Back button.
  - f. When the TekVISA installation is complete, the Setup Complete dialog box appears. Select Finish to dismiss this dialog box and then proceed to install the VocalLink software.
- 4. The VocalLink install program displays the Software Licence Agreement dialog box. Read the agreement text, then select yes to install the software.
- 5. In the User Information dialog box, enter in your name, your company name, VocalLink product serial number (19-character Keycode), and then select next.
- 6. Confirm the values in the Registration confirmation dialog box. If everything is correct, select yes; otherwise select no to return to the previous dialog box.
- 7. In the Choose Destination dialog box, select next to install the VocalLink software to the default location, or select the browse button to enter a different installation location.
- 8. The installer program writes the VocalLink software to your PC. When the installer is complete, select finish to exit the install program.

## Calibrating the Microphone

You must calibrate the VocalLink software for the volume of your voice. You also may need to recalibrate for each new voice or changes in the environment, or VocalLink may experience problems recognizing words or command phrases.

---

**NOTE.** *The following selections and adjustments for VocalLink software have additional tuning tips listed in the Help > Tuning menu.*

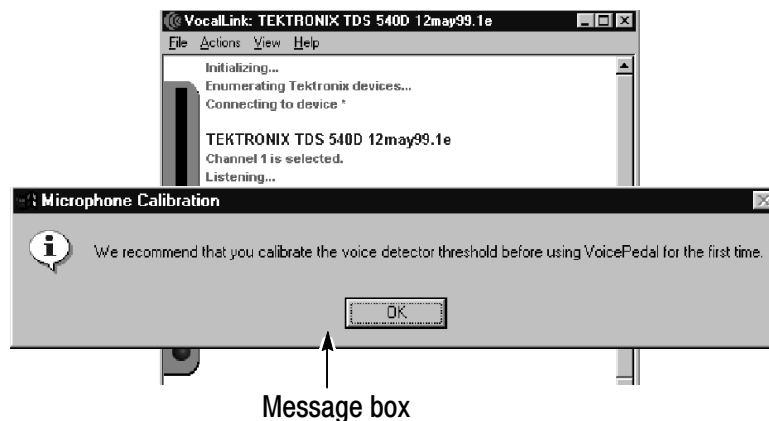
---

Follow these steps to calibrate the microphone:

1. Power on your oscilloscope.
2. Select the Start > Programs > Tektronix > VocalLink menu.  
VocalLink software remains busy for a few seconds on start up while it polls for an available instrument.

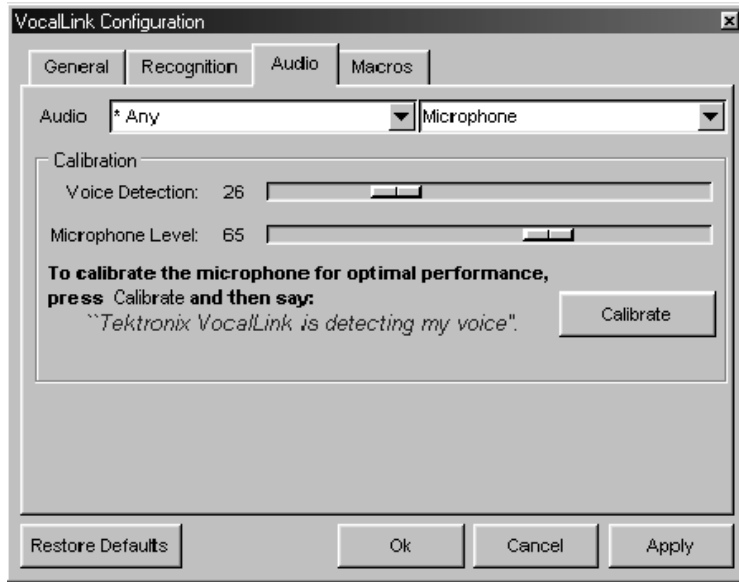
When an instrument is connected, it is listed in the data window. For example, in Figure 1-1, the Tektronix TDS754D v6.0e was connected. If several instruments are connected on your network, VocalLink will choose the first instrument it finds, unless you have specified an instrument in the General dialog box under Instruments (see page 3-6).

When you launch VocalLink software for the first time, the Microphone Calibration message box will appear (see Figure 1-1).



**Figure 1-1: Microphone calibration message**

3. Select OK. The Configuration dialog box for the Audio tab is displayed.



**Figure 1-2: Audio dialog box**

4. Put the headset on, and adjust the microphone. The microphone should be two-finger widths from the corner of your mouth. Refer to your headset instructions for more details.
5. Follow the bold instructions on the Audio tab (see Figure 1-2) to calibrate the VocalLink software. Pronounce each word clearly using normal conversational speech and volume. Select Ok.

---

**NOTE.** *When you calibrate the Voice Detection and Microphone levels, the Windows microphone controls are also automatically adjusted.*

*Press the Restore Default button if you want to revert to the default settings and the Cancel button to recalibrate your voice.*

---

If VocalLink requires further calibration, the prompt, “resay the calibration,” appears up to three times. See troubleshooting on page 3-14 if you cannot clear this message.

6. You are now ready to say voice commands:
  - The voice command set for Basic and Pro is listed on page 3-1 and in the Help > Commands menu.
  - To create macro commands see page 2-6.
  - For best results, pause before speaking any command.
  - If you do not hear any playback when a response for a measurement is returned, see troubleshooting on page 3-14.

## Uninstall

To uninstall VocalLink, select the Add/Remove program in the Microsoft Windows Control Panel. This runs the Uninstall wizard, which takes you through the VocalLink uninstall process.

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**NOTE.** *TekVISA must be uninstalled separately.*

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# **Operating Basics**



# Operating Basics

This section describes VocalLink software features common to both the Basic and Pro software, unless stated otherwise.

## Main Screen Overview

The VocalLink window consists of an indicator bar, a menu bar, a data window, and a diagnostic window. Figure 2-1 shows each area of the VocalLink window.

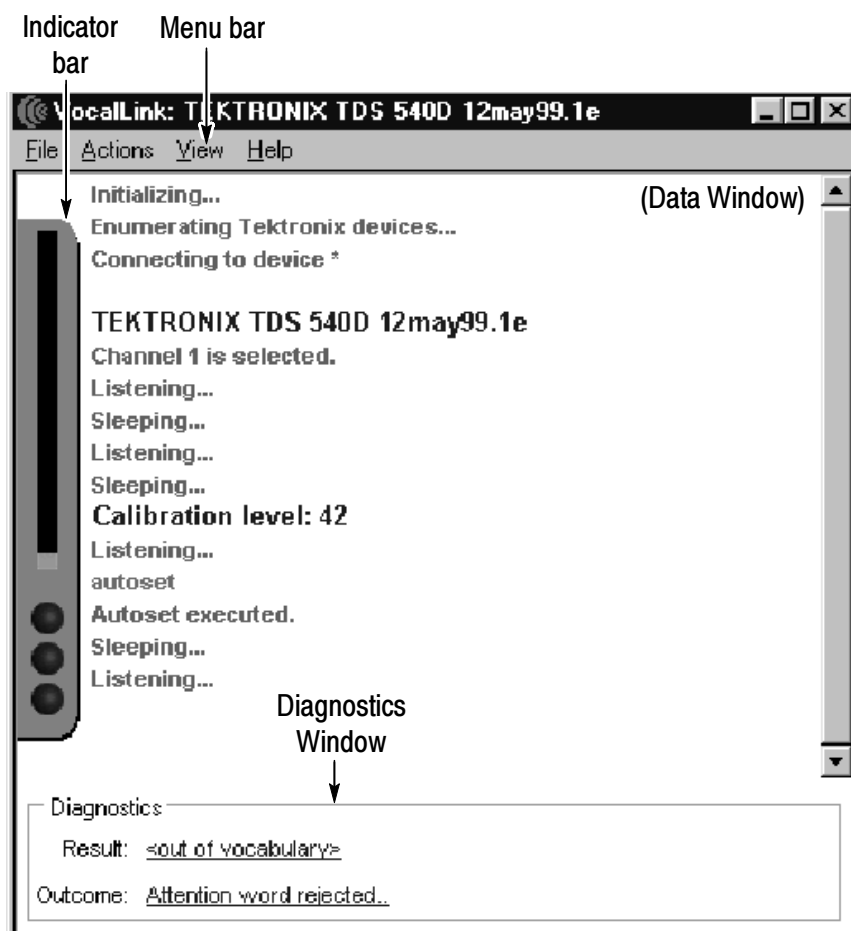


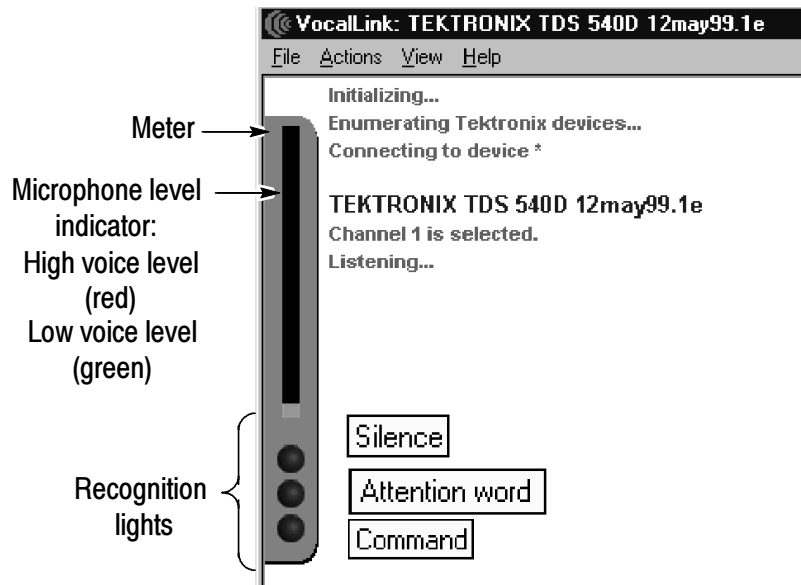
Figure 2-1: Main Screen

### Data Window

The Data window contains a history of your inputs along with the responses returned from VocalLink software (see Figure 2-1 on page 2-1). To show or hide the history window, select the View > Text menu.

### Meter

The meter contains visual information related to voice recognition. Within the meter are the microphone level gauge and three recognition lights: Silence, Attention word, and Command (see Figure 2-2). To show or hide the meter, select the View > Meter menu.



**Figure 2-2: Meter**

**Microphone Level.** The microphone levels are shown in two colors. Red is for a high-voice detection level and green a low-voice detection level.

There are three flashing recognition lights:

Recognition lights	Meaning
Silence	Flashes green when a sound is recognized.
Attention word	Flashes green or red. Green indicates an attention word* was recognized and red that the first sound was not recognized as a attention word.
Command	Flashes green if the command was recognized and red if the command was not recognized.

\* **An attention word activates the voice recognition software causing it to receive VocalLink commands (see page 3-9).**

### Menu Bar

The menu bar contains menus and associated submenus available in VocalLink (see Figure 2-3). You access the menu bar using standard Windows menu processes. The menus and submenus are listed in more detail on page 2-3. To hide the menu bar, select the View > Menubar menu. To show the menu bar, right select in your window, and then select the View > Menubar menu. If you do not have a mouse do not hide the menu bar.



**Figure 2-3: Menu Bar**

The following table briefly describes the contents of each menu.

Menus	Meaning
<b>File &gt; Print</b>	Opens a dialog box that prints the data window to the current printer.
<b>Preferences</b>	<p>Opens the VocalLink configurations dialog box with the following tabs:</p> <p><b>General:</b> Selects the language, device, and the speech synthesizer feedback levels (see page 3-6).</p> <p><b>Recognition:</b> Sets the behavior of the recognition software (see page 3-8).</p> <p><b>Audio:</b> Calibrates the microphone and chooses an audio device (see page 3-11).</p> <p><b>Macro:</b> Lists the macros you create (see page 3-12).</p>
<b>Exit</b>	Exits the Vocallink application and saves all your settings.
<b>Actions &gt; Listen</b>	Toggles the microphone between sleeping (microphone ignores all sound) and listening (identifies command phrases).
<b>Calibrates microphone</b>	Opens the audio dialog box that lets you calibrate the microphone.
<b>View &gt; Menubar</b>	Displays the menu bar in the Main window.
<b>Text Window</b>	Displays the history text in the Main Window.
<b>Meter</b>	Displays the meter in the Main Window.
<b>Diagnostics</b>	Displays the diagnostic window in the Main window.
<b>Always On Top</b>	Places the VocalLink application in front of any other application window.

Menus	Meaning
<b>Help &gt; Commands</b>	Shows a list of all the VocalLink commands
<b>Tuning</b>	VocalLink Tuning Tips
<b>About VocalLink</b>	VocalLink version

### Diagnostic Window

The diagnostic window provides command phrase results, voice playback, and diagnostic information about your spoken command. To show or hide the diagnostic window, select the View > Diagnostic menu. The diagnostic window is displayed at the bottom of the VocalLink window (see Figure 2-4).

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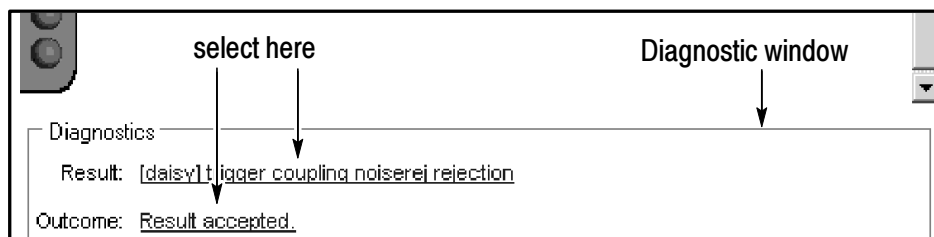
**NOTE.** *The following selections and adjustments for VocalLink software have additional tips listed in the Help > Tuning menu.*

---

There are two entries displayed in the diagnostic window: Result and Outcome. To the right of Result is the result of your spoken command phrase to VocalLink recognition software. To the right of Outcome is the decision made by the VocalLink recognition software about your command phrase.

When you select on the link:

- Result — your spoken command is played back to you
- Outcome — troubleshooting methods are displayed and explained based on a listed diagnostic feedback. There may be several possible outcomes for your spoken command phrase.



**Figure 2-4: Diagnostic window**

## Creating Macros (Pro Version Only)

Macros allow you to combine multiple commands from the Macro command set (see page 2-10), plus program sequences of GPIB command strings (not available for TDS7000), then invoke them using a voice command. You can use several macros concurrently and share macros with other users (see Figure 2-5).

### Creating a Macro

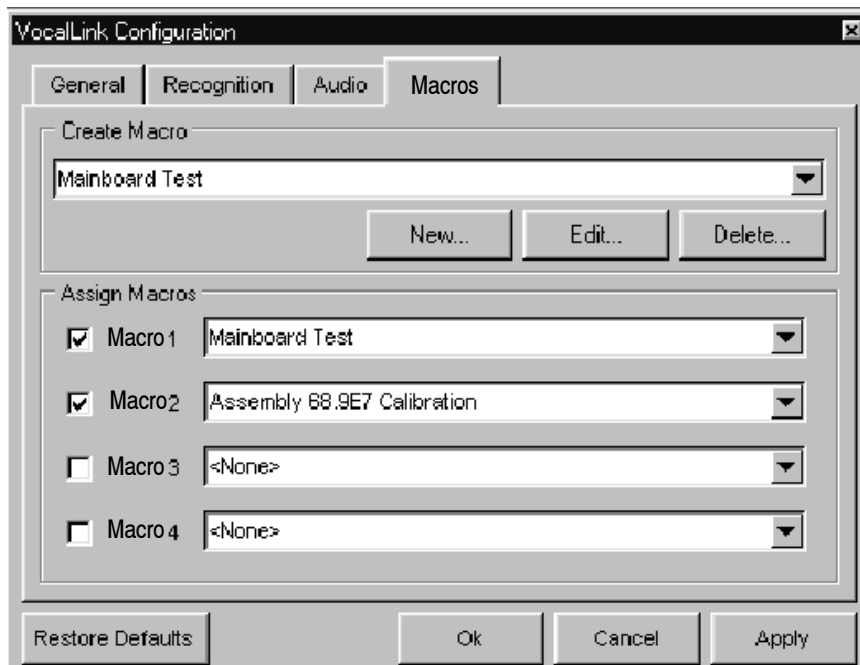
To create a macro from the available Macro command set, follow these steps:

1. In the VocalLink Configuration dialog box, open the Macro tab dialog box (File > Preferences menu).
2. Press the New button. The Macro Editor window appears.

---

**NOTE.** To abandon an editing session, select Cancel at any time.

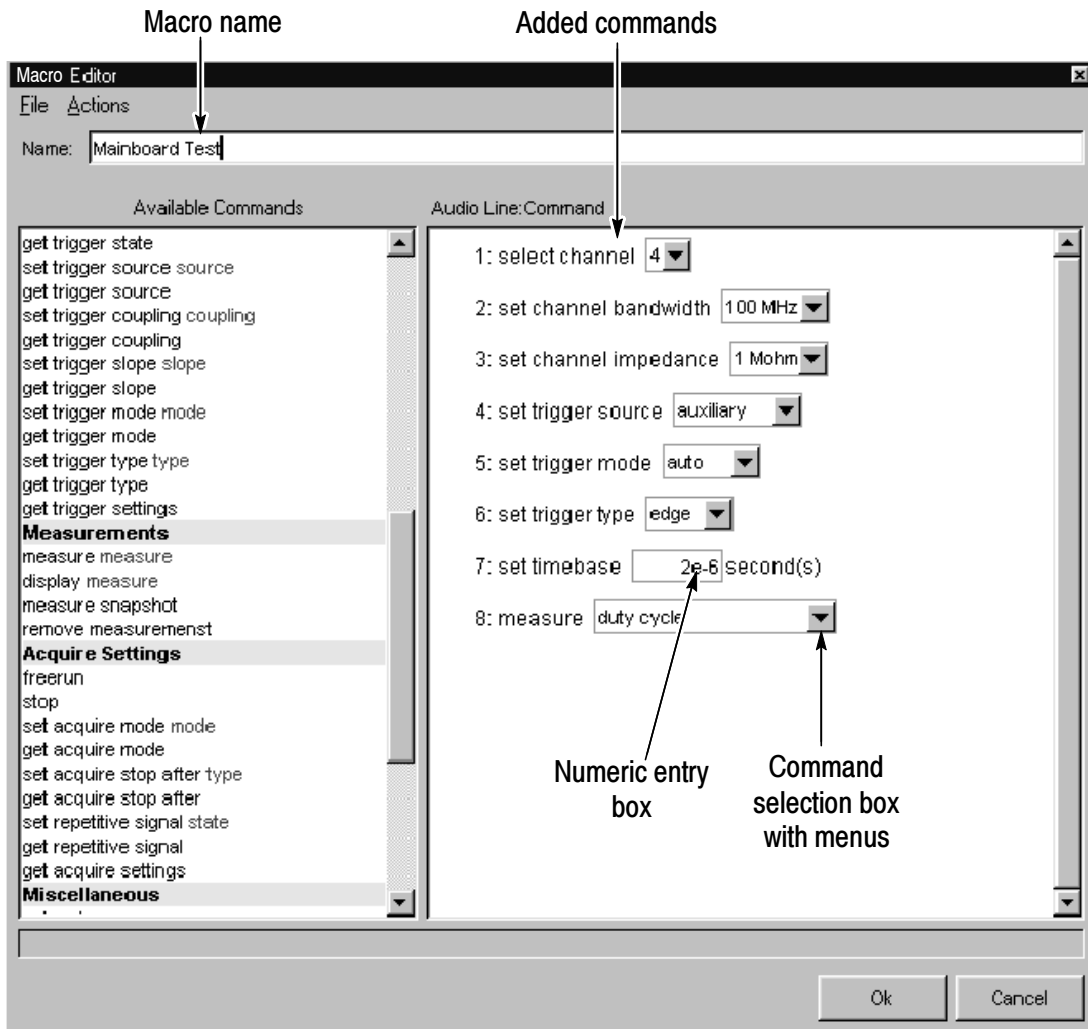
---



**Figure 2-5: Macro dialog box**



3. Enter a name for your macro in the Name field (see Figure 2-6).  
By default, the macro name is the same as the file name.



**Figure 2-6: Macro editor dialog box**

**NOTE.** The Macro command set is listed in the left pane of the Macro Editor window and in this section on page 2-10. The Macro command set is an equivalent to the voice command set.

4. Add a command to the right pane by selecting an available command twice in the left pane.

If you want to delete a macro command from the right pane, select that command and press the delete key.

5. Check the box on the left side of the right pane if you want audio playback (see Figure 2-6).

---

**NOTE.** Each command line you enter is numbered in the right pane, to allow macro control for goto and conditional jumps.

---

6. After adding macro commands to the right pane, select or enter the appropriate command values in the selection box menus (see Figure 2-6). For example, the command to set trigger mode has a menu that displays auto and normal. You would select one of these choices.

If a number is needed, enter a number in scientific notation in the entry box to the right of the command. For example, if you want to set the timebase for 2 microseconds, you must enter 2e-6.

7. In the Macro Editor dialog box, select the Action > Validate Macro menu to check that the macro executes correctly. A selection box is highlighted if an error is detected (see Figure 2-7). A description of the error also appears under the left pane. Correct the error, if necessary.

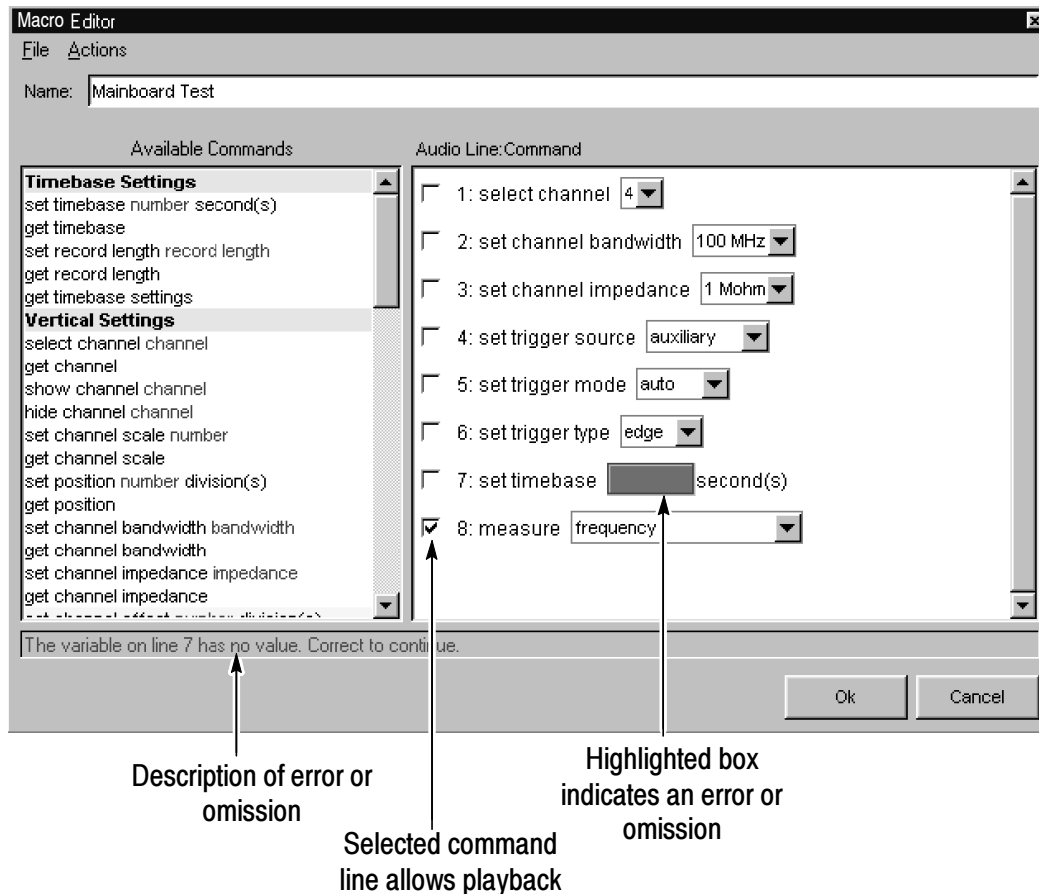
8. To save this macro, select Ok. By default, the macro is enabled and inserted at the next available macro listing in the Macro dialog box.

In the Macro dialog box (see Figure 2-5) you can assign a different number to your new macro. Select your macro name from the menu in the macro 1 field or in whatever numerical sequence you prefer.

9. To enable your new macro, use the execute test command and the macro number. For example say, “Daisy execute test 1.”

**NOTE.** *If the macro is disabled, an error message appears: macro <n> disabled.*

*Make sure that your macro is selected in the Macro dialog box (see macro 1 in Figure 2-5 on page 2-6).*



**Figure 2-7: Macro command errors**

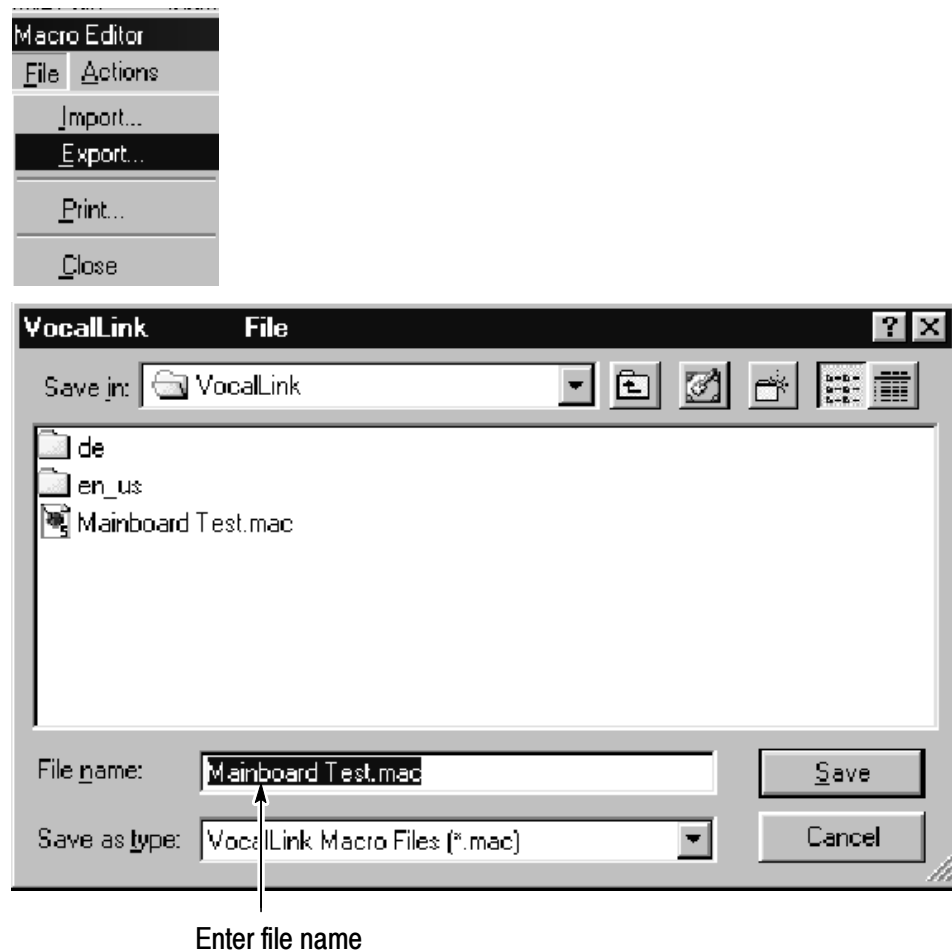
**Table 2-1: Macro command set**

<b>Timebase Settings</b>	<b>Measurements</b>
set timebase number second(s)	measure measure
get timebase	display measure
set record length record length	measure snapshot
get record length	remove measurement
get timebase settings	<b>Acquire Settings</b>
<b>Vertical Settings</b>	freerun
select channel channel	stop
get channel	set acquire mode mode
show channel channel	get acquire mode
hide channel channel	set acquire stop after type
set channel scale number	get acquire stop after
get channel scale	set repetitive signal state
set position number division(s)	get repetitive signal
get position	get acquire settings
set channel bandwidth bandwidth	<b>Miscellaneous</b>
get channel bandwidth	autoset
set channel impedance impedance	calibrate
get channel impedance	initialize
set channel offset number division(s)	clear menu
get channel offset	hardcopy
set channel coupling coupling	save wave
get channel coupling	gpib write command
get channel settings	gpib query command
<b>Trigger Settings</b>	<b>Macro Control</b>
set trigger level number	goto line
get trigger level	if result@line condition number goto line
force trigger	play prompt
get trigger state	wait for continue
set trigger source source	
get trigger source	
set trigger coupling coupling	
get trigger coupling	
set trigger slope slope	
get trigger slope	
set trigger mode mode	
get trigger mode	
set trigger type type	
get trigger type	
get trigger settings	

## Creating Several Macros

The Export command allows you to save several more macros to a file. You can display only four macros in the Macro dialog box (see page 2-6).

1. When you are editing a macro and the Macro Editor window is open, select the File > Export menu and the Macro File window appears.



**Figure 2-8: Export window**

2. Enter your file name and select Save.

To open a macro file, select the File > Import menu.

## Using GPIB and Macro Control Commands

Within the Macro commands set are the GPIB commands and the Macro Control commands. Brief descriptions of the commands follow.

### GPIB Commands (not available for the TDS 7000)

The GPIB commands are located in the macro command list under Miscellaneous. Once you place the GPIB command in the right-hand pane, you can enter a GPIB command string directly into the GPIB command field.

VocalLink Software does not validate or interpret the GPIB command string. The line result is the number returned by the GPIB command. If you selected the GPIB macro command line, you can activate the GPIB command string to playback the line number (see Figure 2-7).

Macro command	Definition
gpiB write	This command allows the user to enter any valid GPIB command string.
gpiB query	This command is similar to the GPIB write command, except that this command expects a string to be returned by the command. This result is printed to the Main window.

### Macro Control Commands

The Macro Control commands allow you to change the execution of an instrument setting or measurement. You can use the Macro Control commands to also set up measurement routines for other users. A file, called Sample.mac, showing an example using control commands is provided with your VocalLink software.

Macro command	Definition
goto line	This command jumps to either an available line or the end of the macro.
if result@line condition number goto line	This command allows conditional jumps that compare two values, and, if true, allows a jump, or, if false, executes the next command.
play prompt	This command allows you to record your own spoken instructions. For example, you can tell the user to move the probe or speak the name of a macro.
wait for continue	This command allows you to pause the execution of a macro until the user says the attention word followed by continue. For example, "Daisy continue," causes the macro to continue execution. The user can use other voice commands while the program is waiting for "continue." Nested macros are allowed when using this command.







# Reference



# Reference

This chapter contains reference information.

- Voice Command Set for both Basic and Pro software
- Configuration dialog boxes
- Troubleshooting guide

## Voice Command Set (Basic and Pro Versions)

The following voice command set for Basic and Pro VocalLink software is also listed in the Help > Commands menu.

You must use an attention word before each command phrase.

You would say the command phrase *[Daisy] scale/voltage up [up]* as “Daisy scale up” to increase the scale or “Daisy scale up up” to increase the scale more.

The attention word [Daisy] can be replaced with other attention words (see page 3-9). A bracket [ ] indicates an optional word and a parentheses ( ) indicates you must choose between two or more words. Not all commands are possible on all oscilloscopes. If a command is not available an error message is displayed on the main screen.

**Table 3- 1: Basic and Pro Voice Command Sets**

---

<b>Vertical</b>	
[Daisy] voltage (1/2/5/10/20/50/100/200/500) [pico/nano/micro/milli] volt	
[Daisy] scale (1/2/5/10/20/50/100/200/500) [pico/nano/micro/milli] [volt/ampere]	
[Daisy] scale up [up]	
[Daisy] voltage up [up]	
[Daisy] scale down [down]	
[Daisy] voltage down [down]	

---

<b>Timebase</b>	
[Daisy] get timebase	
[Daisy] timebase (1/2/5/10/20/50/100/200/500) [pico/nano/micro/milli] second	
[Daisy] timebase up [up]	
[Daisy] timebase down [down]	
[Daisy] get timebase settings	Pro only
[Daisy] (increase/decrease) record length	Pro only

---

<b>Position</b>	
[Daisy] position up [up]	
[Daisy] position down [down]	
[Daisy] position zero	

---

<b>Trigger</b>	
[Daisy] get trigger settings	
[Daisy] get trigger level	
[Daisy] get trigger state	
[Daisy] trigger [level] up [up]	

**Table 3-1: Basic and Pro Voice Command Sets (Cont.)**


---

<b>Trigger</b>	
[Daisy] trigger [level] down [down]	
[Daisy] trigger [level] zero	
[Daisy] trigger level 50 percent	
[Daisy] trigger level [minus] (1/2/5/10/20/50/100/200/500 [milli/micro] volt /ampere	
[Daisy] trigger slope (fall/rise)	
[Daisy] trigger mode (auto/normal)	
[Daisy] force trigger	
[Daisy] trigger source (channel 1/2/3/4/ auxiliary/ line)	Pro only
[Daisy] trigger coupling (AC/DC)	Pro only
[Daisy] trigger coupling (high/low frequency) [rejection]	Pro only
[Daisy] trigger coupling noise [rejection]	Pro only
[Daisy] trigger type edge	Pro only
[Daisy] trigger [level] (ECL/TTL)	Pro only

---

<b>Channel</b>	
[Daisy] get channel [1/2/3/4] settings	
[Daisy] get channel	
[Daisy] show channel (1/2/3/4)	
[Daisy] hide channel (1/2/3/4)	
[Daisy] select channel (1/2/3/4)	

### **Channel (Cont.)**

[Daisy] channel offset [minus] (0/1/2/5/10/20/50/100/200/500) [pico/nano/micro/milli] [volt/ampere]

[Daisy] coupling (AC/DC/ground)

[Daisy] channel bandwidth (20/100/250/full) [megahertz] Pro only

[Daisy] channel impedance (50 ohm /1 mega ohm) Pro only

[Daisy] channel offset up [up] Pro only

[Daisy] channel offset down [down] Pro only

---

### **Measure**

[Daisy] (measure/display) peak to peak

[Daisy] (measure/display) frequency

[Daisy] (measure/display) mean

[Daisy] (measure/display) period

[Daisy] (measure/display) RMS

[Daisy] (measure/display) rise time

[Daisy] (measure/display) fall time

[Daisy] (measure/display) positive pulse width

[Daisy] (measure/display) negative pulse width

[Daisy] (measure/display) maximum

[Daisy] (measure/display) minimum

[Daisy] (measure/display) duty cycle

[Daisy] measure snapshot

[Daisy] Remove [all] measurements

---

## Acquire

[Daisy] freerun	
[Daisy] stop	
[Daisy] get acquire (settings/state/mode)	Pro only
[Daisy] acquire mode (sample/peak detect/high resolution)	Pro only
[Daisy] acquire mode (average/envelope)	Pro only
[Daisy] stop after (button/single acquisition) *	Pro only
[Daisy] repetitive signal (on/off)	Pro only

---

## Miscellaneous

[Daisy] autose	
[Daisy] clear menu	
[Daisy] hardcopy	
[Daisy] save wave	
[Daisy] go to sleep	
[Daisy] (raise/lower interface) †	(TDS7000)
[Daisy] initialize	Pro only

---

## Macros (Pro)

[Daisy] execute test (1/2/3/4)	Pro only
[Daisy] continue	Pro only

\* **This command sets the acquisition stop after mode to either RUNSTOP or SEQUENCE.**

† **Raise Interface moves the window to the front and Lower Interface moves the window to the back of all other windows.**

## Configuration Dialog Boxes

There are four Configuration dialog boxes: General, Recognition, Audio, and Macros.

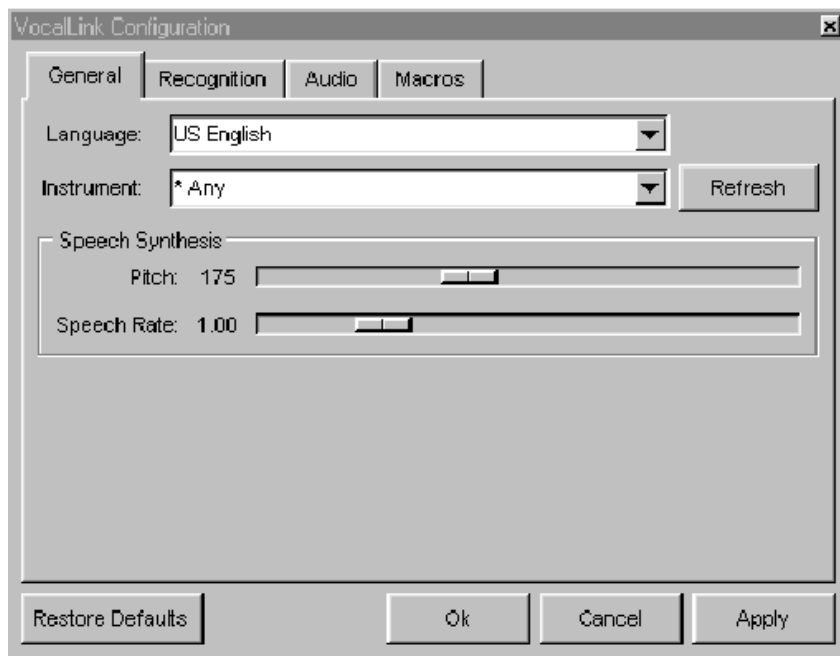
---

**NOTE.** *The following selections and adjustments for VocalLink software have additional tuning tips listed in the Help > Tuning menu.*

---

### General Tab

The General dialog box contains selections and adjustments for Language, Instrument, and Speech Synthesizer (see Figure 3-1). Use this dialog box to control the playback behavior. To access the General tab dialog box, select the File > Preferences menu.



**Figure 3-1: General tab dialog box**



**Language.** You can select the available languages from this menu.

**Instrument.** You can select which instrument VocalLink connects to. The refresh button updates the list of instruments available through the VISA interface.

**Pitch.** You can lower or raise the pitch of the voice playback. The pitch is measured in Hertz.

Slide left for a lower pitch ← → Slide right for a higher pitch



**Speech Rate.** You can change the number of words per minute that the voice synthesizer speaks. The speech rate number is a multiplier; for example, 2 is twice the natural rate of speech and 0.5 is half the natural rate.



Slide left for slower speech rate ← → Slide right for faster speech rate

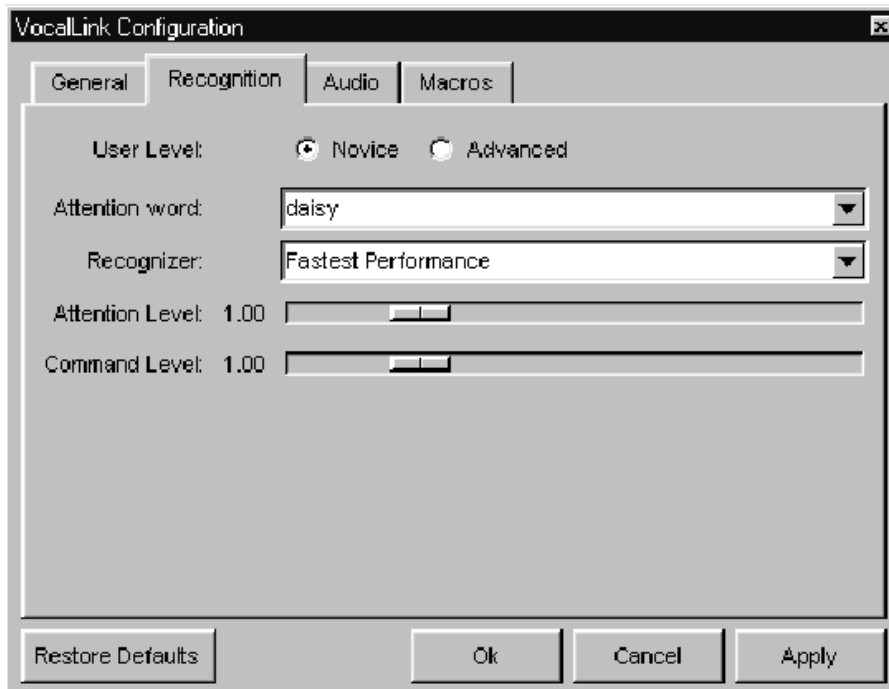
## Recognition Tab

The Recognition dialog box contains selections and adjustments for the User Level, Attention word, Recognizer, Attention Level, and Command Level controls. Use this dialog box to change the behavior of the voice recognition software (see Figure 3-2). To locate the Recognition tab dialog box select the File > Preferences menu.

---

**NOTE.** *The following selections and adjustments for Basic and Pro VocalLink software have additional tuning tips listed in the Help > Tuning menu.*

---



**Figure 3-2: Recognition tab dialog box**

**User Level.** This setting allows a shorter or longer period of silence at the end of a word before voice recognition occurs. For example, a novice user will speak slower and need more time to respond. If you are familiar with the software and want shorter pauses and faster response time, then choose the advanced setting.

User Level Selection	Effect
Novice	Slower recognition (Default)
Advanced	Faster recognition

**Attention Words.** This menu lists the attention words. Select one or choose all (\*). When all (\*) attention words are chosen, then any one of them can start the beginning of a command phrase.

Daisy          TekScope          Sally          Rosie          \*(all)

---

**NOTE.** *If all attention words are enabled voice recognition errors may increase.*

---

**Recognizer.** This menu lists voice-recognition engine choices. The default recognition engine has the fastest performance and requires the least amount of system resources; therefore, it should be used on lower performance computers. The other recognition engine demands increasingly more system resources but is more accurate.

Recognizer selection	PC performance
Fastest performance (Default)	Requires less system resources
Best recognition accuracy	Require more system resources

---

**NOTE.** When you load VocalLink, the Attention Level and the Command Level adjustments are set to defaults.

*If you choose to make further adjustments, it is recommended that you choose a more precise recognition threshold for attention words than for command phrases and that you make small adjustments.*

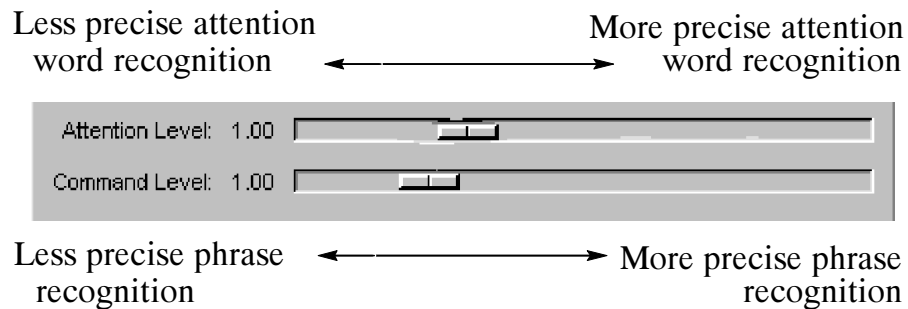
*Accents and noisy environments can lower optimal performance; however, set the attention and command levels to as a precise a setting as is possible.*

---

**Attention Level.** This slide adjustment controls the recognition threshold for when an attention word is recognized. For example, moving the slider to the far left may result in more recognition errors.

**Command Level.** This slide adjustment controls the recognition threshold for when a command phrase is recognized.

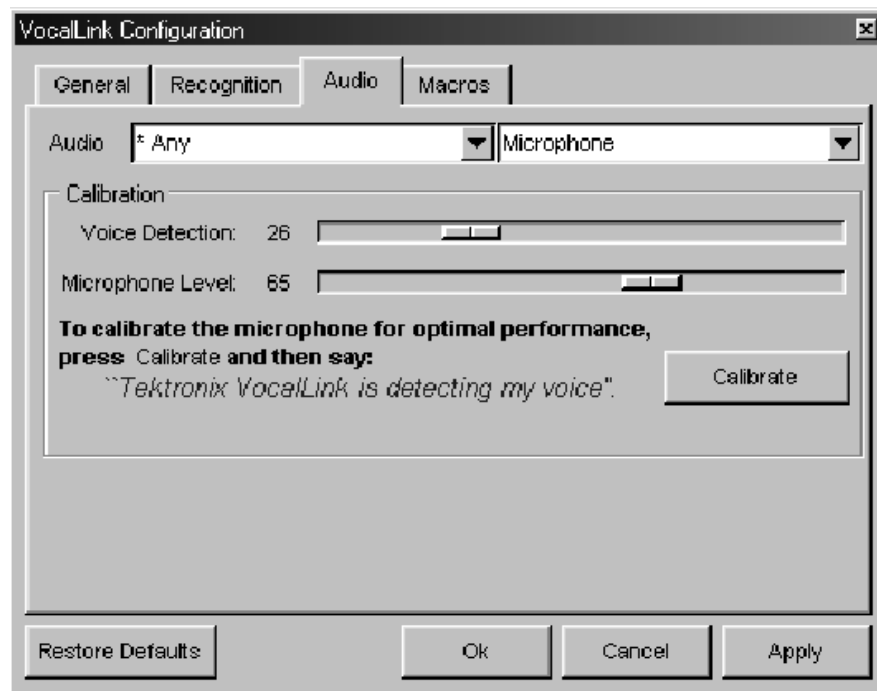
For example, moving the slider to the far left may result in acceptance of inaccurate command phrases. Moving the slider to the far right requires you to be more precise when speaking.



## Audio Tab

The Audio dialog box contains selections and adjustments for the Audio, Voice Detection, and Microphone Level controls. Use this dialog box to calibrate the microphone. To access the Audio tab dialog box, select the File > Preferences menu.

**NOTE.** *The following selections and adjustments for VocalLink software have additional tuning tips listed in the Help > Tuning menu.*



**Figure 3-3: Audio tab dialog box**

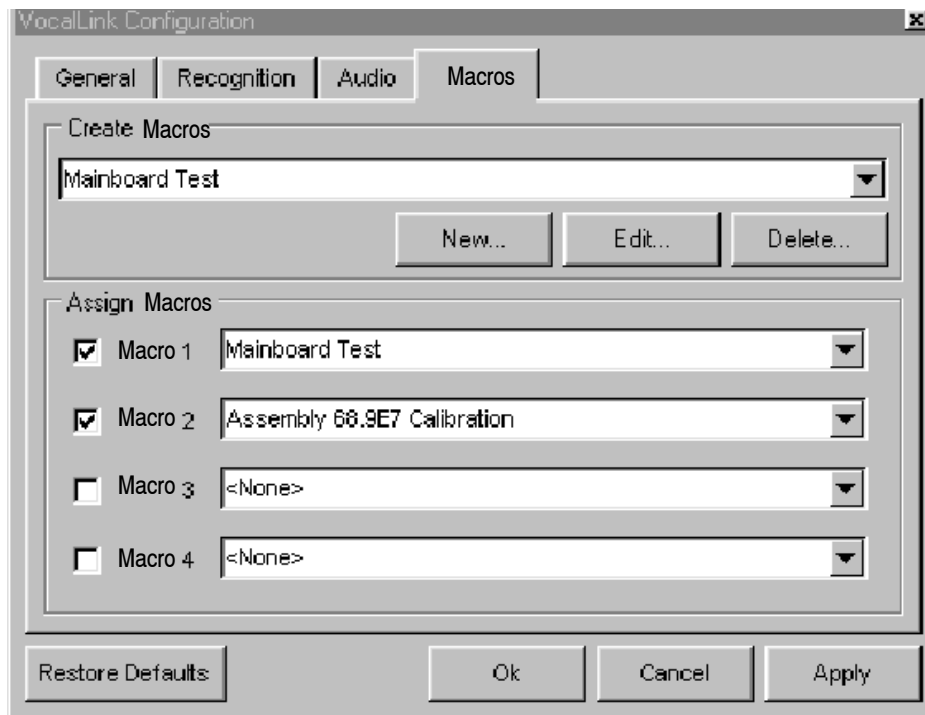
**Audio.** You may select other sound devices from this menu, if any. The default is \*Any.

**Voice Detection.** The amplification threshold is automatically set when you calibrate VocalLink software.

**Microphone Level.** The recording level is automatically set when you calibrate VocalLink software.

## Macros Tab

The Macros dialog box (see Figure 3-4) can display four macros that you initiate. You can create more than four macros by saving the macros to a file. See page 2-6 for a list of macro commands and page 2-10 to create a macro. To access the macros tab dialog box, select the File > Preferences menu.



**Figure 3-4: Macro dialog box**

**Create Macros.** This field displays the current macro. You can create a new macro by selecting the New button. When your macro is displayed in the Create Macros field you can edit or delete it by selecting the Edit or Delete buttons. The Create Macros menu button lists your macros.

**Assign Macros.** You can display four macros in the Assign Macros window. Selecting a box to the left of the word macro enables the macro. By default the file name is the same as the macro name defined in each macro field. The Macros menu buttons list your macros.

### **General Adjustments and Indicators**

Review the following information to ensure successful voice recognition.

**Voice Detection Adjustment.** After calibrating the VocalLink software, you may need to adjust the Voice Detection level.

If you must speak louder for the voice recognition to activate:

1. Select the File > Preferences menu
2. In the Audio tab, lower the Voice Detection value by dragging the slider to the left.

---

**NOTE.** *The Microphone Level is adjusted only if your Voice Detection levels are at their highest or lowest values.*

*For finer playback or voice recognition adjustments, review the General and Recognition tab dialog boxes on pages 3-6 and 3-8.*

---

**Meter.** The Meter on the main screen (see page 2-2) displays green for a softer voice and red for a louder voice. These colors indicate your voice detection levels. This is another way to determine if your voice detection values need adjustment.

Speak into the microphone and watch the red and green graphical responses to your voice on the main screen. Are your graphical responses mostly red or mostly green?

Green with a flash of red generally indicates a proper voice detection level. A constant red level indicates the level is too high. For more information about recognition lights see page 2-3.

## Troubleshooting VocalLink Problems

This section contains troubleshooting symptoms common to both the Basic and Pro VocalLink software. Troubleshooting is also available in your online help the Help > Diagnostics menu.

---

**NOTE.** *The following selections and adjustments for VocalLink software have additional tuning tips listed in the Help > Tuning menu.*

---

### Calibration routine warns of bad settings

Possible problems:

- Your microphone is not properly connected (See page 1-4).
- Your sound card is not installed correctly

**Quick check.** Verify that the sound card and the latest drivers are installed. See page 1-5.

- Your recording levels are incorrect.

**Quick check.** Verify that the microphone is selected in the recording properties panel. See page 1-5.

### You can not hear playback

Possible problems:

- Your speaker or headset is not properly connected.

**Quick check.** Verify that the microphone is plugged into mic-in and not line-in. See page 1-4.

- Your sound card is not installed correctly

**Quick check.** Verify that the sound card and the latest drivers are installed. See page 1-5.



- Your playback levels are incorrect:

**Quick Check.** Verify that the playback volume is not muted in the Windows playback properties panel.

In Windows, select the Start > Run menu, type sndvol32, and then ensure that mute is not selected under the Microphone column.

- If you hear a distorted recording:

Your recording level is too high; adjust the recording volume.

### **VocalLink does not respond when I speak a command**

Possible problems:

- Attention and/or command thresholds are too high.

**Quick check.** Observe the meter on the main screen to see if the attention light is flashing green. If it is, then the attention threshold is set correctly; you may need to adjust the Command level threshold. If it is not, adjust the attention threshold.

See page 3-10 to adjust rejection thresholds for Attention and Command levels.

- The speech detector needs calibrating.

See page 1-9 to calibrate the speech detector.

### **VocalLink activates falsely when I am not talking to it**

Possible problems:

- Attention thresholds are too low.  
See page 3-10 to adjust rejection thresholds for attention levels.
- The speech detector needs calibrating.  
See page 1-9 to calibrate the speech detector.

### **VocalLink recognizes the wrong command**

Possible problems:

- Hears too much or too little; the speech detector needs recalibrating.  
See page 1-9, Calibrating speech detector.
- You are speaking the command incorrectly.  
See command list on page 3-1, or the the Help > Commands menu.

### **VocalLink is slow to respond**

Possible problems:

- VocalLink does not detect that you have finished speaking right away; speech detector needs recalibrating.  
See page 1-9 to recalibrate the speech detector.
- The *User level* setting may need to be changed. See page 3-9 to determine if you are an advanced or novice user.
- Your PC is at or below the minimum requirements (see page 1-2 for a list of requirements).
- There are other programs running or your machine is low on resources.



# **Replaceable Parts List**



# Replaceable Parts List

This section contains a list of the replaceable components for the VocalLink product.

## Parts Ordering Information

Replacement parts are available through your local Tektronix field office or representative.

Changes to Tektronix products are sometimes made to accommodate improved components as they become available and to give you the benefit of the latest improvements. Therefore, when ordering parts, it is important to include the following information in your order:

- Part number
- Instrument type or model number
- Instrument serial number
- Instrument modification number, if applicable

If you order a part that has been replaced with a different or improved part, your local Tektronix field office or representative will contact you concerning any change in part number.

## Using the Replaceable Parts List

The tabular information in the Replaceable Parts List is arranged for quick retrieval. Following is a brief description of the columns.

- Column 1, Tektronix part number
- Column 2, Quantity
- Column 3, Name and description
- Column 4, Mfr. code is the name of the actual manufacturer.
- Column 5, Manufacturer or vender part number.

## Abbreviations

Abbreviations conform to American National Standard ANSI Y1.1-1972.

## Mfr. Code to Manufacturer Cross Index

The table titled Manufacturers Cross Index shows codes, names, and addresses of manufacturers or vendors of components listed in the parts list.

### Manufacturers cross index

<b>Mfr. code</b>	<b>Manufacturer</b>	<b>Address</b>	<b>City, state, zip code</b>
80009	TEKTRONIX INC	14150 SW KARL BRAUN DR PO BOX 500	BEAVERTON, OR 97077-0001
TK2548	XEROX CORPORATION	14181 SW MILLIKAN WAY	BEAVERTON, OR 97005
TK6108	KENT H LANDSBERG CO	27929 SW 95TH, SUITE 101	WILSONVILLE, OR 97070

### Replaceable electrical parts list

<b>Tektronix part number</b>	<b>Qty</b>	<b>Name &amp; description</b>	<b>Mfr. code</b>	<b>Mfr. part number</b>
071-0824-01	1	MANUAL,TECH:USER,VCLNKB	TK2548	071-0824-01
116-1007-00	1	HEADSET	TK6108	116-1007-00



# Appendices





# Appendix A: RS-232

This section provides instructions to set the default RS-232 values on various Tektronix oscilloscopes and some general troubleshooting help.

## Setting RS-232 Default Values

Refer to the following information for RS-232 interface connections for your specific oscilloscope family.

### TDS 3000 Series Oscilloscopes

If you are using a TDS 3000 Series oscilloscope, you can use the Set RS-232 Parameters to Default Values button to set the RS-232 settings on the oscilloscope to the default values.

Follow the steps below to access the Set RS232 Parameters to Defaults button.

1. Push the Utility button on the oscilloscope.
2. Push the bottom left bezel button (System Config) on the oscilloscope repeatedly until I/O is selected.
3. Select RS-232.
4. Push the fifth bezel button on the oscilloscope (labeled Set RS232 Parameters to Default).

You can examine the Error Log for clues about your RS-232 interface connection. Follow the steps below to access the Error Log:

1. Push the Utility button on the oscilloscope.
2. Push the bottom left bezel button on the oscilloscope repeatedly until Diag is selected.

3. Push the bezel button on the oscilloscope labeled Error Log.

Check the lines in the Error Log titled RS-232 Line Snapshot and RS-232 Errors. Refer to the programmer manual for your oscilloscope for information about interpreting the information in the Error Log.

### **TDS500, TDS600, and TDS700 Series**

The TDS500, TDS600, and TDS700 Series oscilloscopes may support RS-232 printers but cannot be controlled over the RS-232 interface. VocalLink Software can only communicate with these series of oscilloscopes using a GPIB interface connection.

## **RS-232 General Hints**

- Make sure the communication parameters are set correctly on the oscilloscope. Baud rates should be the same, Parity should be None, Data Bits should be 8, and Stop Bits should be 1.

Soft flagging should never be used for waveform and hardcopy transfers. This is because waveform data and hardcopy output contain binary characters which can easily include the XON and XOFF characters used to implement soft flagging. Soft flagging should only be used for transferring stored setups since stored setup information generally consists of printable ASCII text.

- Although it generally should not matter if the EOL characters are the same, set the EOL to CRLF to be sure there are no problems.

- Not all instruments support full RS-232 communications. Some instruments only support GPIB communication, while others support limited RS-232 functions, such as printer functions.
- If you are able to connect to an instrument but unable to transfer waveforms successfully, you may have a cable that is not wired correctly for hard flagging.

If you can successfully transfer settings to and from the instrument at the fastest supported baud rate, hard flagging is probably working. If not, try soft flagging. If you can successfully transfer settings using soft flagging but not with hard flagging, there is a good chance the hard flagging lines of your cable are not connected properly.

## **RS-232 Cable Issues**

If the information provided so far in this section fails to resolve your RS-232 problems, try the following information:

- You might be using an incompatible RS-232 cable. There is no such thing as a standard RS-232 cable, so you may need to use an ohmmeter to verify that your cable is wired correctly. Many cables do not have all of the pins connected.
- Determine whether the PC and oscilloscope are DTE (Data Terminal Equipment) or DCE (Data Communications Equipment) devices. This information is in the documentation provided with your oscilloscope and with your PC.

- If you are connecting a DTE device to a DCE device you will need a straight-through cable. This is a cable that has the same pin assignments on both ends of the cable.
- If you are connecting two devices of the same type, you need a null modem cable. This is a cable whose lines are crossed such that the inputs of one device are connected to the outputs of the other.



**CAUTION.** *Do not connect the output lines of two same-type devices to each other. Doing so will damage one or both of the devices.*

---

- For hand flagging to work, the RTS (Request To Send) and CTS (Clear To Send) lines must be connected. Use an ohmmeter to verify that they are actually connected since not all cables connect these lines. The RTS line is sometimes referred to as RFR.
- The DCD (Data Carrier Detect) line is not used by VocalLink so it does not matter whether or not it is connected. The DCD line is sometimes referred to as RLSD.

## RS-232 Cable Examples

The information in this section provides correct wiring and pin assignments for RS-232 interface connections with each type of oscilloscope.

### TDS3000 Series Oscilloscope to PC (DB9 to DB9 )

Table A-1 lists the correct wiring for connecting a TDS3000 Series oscilloscope with 9 pins to a 9 pin serial port on a DTE PC. These oscilloscopes are DTE devices.

**Table A-1: Pin assignments for TDS3000 Series oscilloscopes (DB9 to DB9)**

TDS line	DB9 connector pin number (to oscilloscope)	DB9 connector pin number (to PC)	DB9 signal name
(RxD)	2	3	(TxD)
(TxD)	3	2	(RxD)
(DTR)	4	6	(DSR)
(GND)	5	5	(GND)
(DSR)	6	4	(DTR)
(RTS)	7	1, 8 <sup>1</sup>	(CTS)
(CTS)	8	7	(RTS)

<sup>1</sup> Pins 1 and 8 are wired together.

### Connecting Two Like Devices (DCE to DCE or DTE to DTE) Using Null Modem Cable

Table A-2 lists the correct wiring for connecting two like devices together using a DB25 female to DB25 female cable.

**Table A-2: Pin assignments for DB25 Female to DB25 Female Null Modem Cable**

DB25 female 25 pin connector	DB25 female pin number	PC pin	Line name
Chassis Ground	1	1	Chassis Ground
(TxD)	2	3	(RxD)
(RxD)	3	2	(TxD)
(RTS)	4	5	(CTS)
(CTS)	5	4	(RTS)
(DSR DCD)	6,8 <sup>1</sup>	20	(DTR)
(DTR)	20	6,8 <sup>1</sup>	(DCR DCD)
(Signal GND)	7	7	(Signal GND)

<sup>1</sup> Pins 6 and 8 are wired together.

## Appendix B: GPIB

Most GPIB problems are caused by general errors. Table B-1 lists common GPIB problems.

**Table B-1: Common GPIB Errors**

<b>Problem</b>	<b>Solution</b>
Loose cable	Make sure cables are securely connected to both the PC and the oscilloscope.
Wrong GPIB address	Make sure you have selected the correct address. Verify the GPIB address of your instrument. The address is an instrument function, so refer to your instrument user manual for instructions on how to check and set the instrument's GPIB address.
Multiple devices using the same GPIB address	Make sure each instrument connected to the GPIB bus has a unique GPIB address.
Timeout value too slow	Set the timeout value to a faster time.
Windows GPIB Drivers not Installed	Install the proper Windows GPIB drivers.
Old version of GPIB drivers	If possible, obtain and install the latest drivers from your GPIB manufacturer. Many manufactures have a web site containing their latest drivers.

If you experience problems using GPIB communication, use the steps below to try to resolve the problem. Usually, problems have a simple cause such as an incorrect address or faulty cable. If the procedures below or other GPIB-related help information does not fix the problem, contact Tektronix Technical Support for further help. See page vii for information on how to contact Tektronix.

First, make sure you are using the proper equipment to establish the GPIB connection:

- GPIB Interface card (IEEE Std 488.2) Version C.12 or later
- GPIB Cable

After verifying you are using the proper GPIB equipment, follow the steps below.

1. Disconnect all GPIB cables from the PC.
2. Run the hardware diagnostics supplied with the GPIB card.
3. Run the software diagnostics supplied with the card.
4. If the GPIB diagnostics fail, or if you have difficulty running them, contact the technical support of the card manufacturer.
5. If the GPIB diagnostics pass, contact Tektronix.



## Appendix C: TekVISA

Appendix C provides information about VISA files, and how to configure the TekVISA utility when using AD007 GPIB-LAN or TDS3EM communication modules.

### Choosing a VISA File

TekVISA is the Tektronix version of VISA software. Typically, only one version of VISA (*Visa32.dll* file) is located in your C:/windows/system at a time. If you have another company's VISA on your system, then you must choose between TekVISA and that other VISA. VocalLink software will only use a VISA file called *Visa32.dll*.

To choose between TekVISA and another VISA, you will need to consider further information. *Choosing a VISA File*, will help you with this decision.

If you decide to have two VISA files, *Managing Two VISA Files* (see page C-2) will guide you through the renaming process for these VISA files.

If you choose to overwrite the existing *Visa32.dll* file, the installation process will delete any other *Visa32.dll* file in your System directory of Windows and replace it with the TekVISA *Visa32.dll* file.

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**NOTE.** Review the following information when choosing between TekVISA and another company's VISA.

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- The AD007 GPIB-LAN Adapter and the Tektronix TDS3EM requires TekVISA.
- The VocalLink software may work with a VISA from another company, provided their VISA software supports the interface types with which you are working. If you choose to use a VISA from another company and find it does not work with the

VocalLink software, you can install TekVISA later using the VocalLink installer.

- TekVISA does not support VXI Mainframe communication.

## Managing Two VISA Files

To keep two different VISA files, you will need to rename the existing VISA file and then copy the other VISA file you want to use to your system.

In the following example, you have two VISA files (one is from National Instruments, one is TekVISA), and the current VISA file is the National Instruments (NI).

To overwrite the NI VISA file, follow these steps:

1. Rename the NI VISA file to *Visa32\_ni.dll*
2. Copy the TekVISA *Visa32.dll* file into the Window's System directory.

VocalLink can now use the TekVISA *Visa32.dll* file.

## Configuring TekVISA for AD007 GPIB-LAN or TDS3EM

Check that your instrument is connected to the LAN and is assigned a valid IP address. If you do not know the IP address check with your network administrator.

Follow the steps below to add the IP address of the instrument to the TekVISA configuration program.

1. Select Start > Programs > TekVISA > VISA Configuration to run the TekVISA configuration program. The program will take a few moments to locate current resources.
2. Select the Add button in the Remote Hosts pane to open the Add Remote Host dialog box.
3. Enter the IP address of your instrument in the Host Name field. For example, 128.23.304.45. Do not enter or change the values in the other fields.

4. Select the OK button. The configuration program closes the Add Remote Host dialog box and searches the LAN for the specified address.
5. The configuration program updates the TekVISA Configuration dialog box with the VISA resource for the newly-added instrument.

---

**NOTE.** The VISA Configuration program labels Ethernet and GPIB resources as GPIBx::x::xxx; this is OK. The RS-232 resources are labeled as ASRL::INSTR

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6. If the VISA Configuration program does not locate your instrument, verify with the network administrator that:
  - The instrument has a valid IP address
  - The instrument IP address is loaded into the instrument.
  - The instrument is powered on and connected to the LAN.





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