Installing

Visual Voice® Pro

Version 5.0

Read Me First!

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C H A P T E R 1

Hardware and Software Requirements

This chapter outlines the minimum system requirements for developing Visual Voice Pro applications.

1.1 Required Hardware

- A 486 or Pentium-class PC with at least 16 MB of available RAM

  Note: The processor and memory requirements for your application are determined by the complexity of the application, the number of lines on which it runs, its data access requirements, and your operating system.

- CD-ROM drive
- At least 25 MB available hard disk space for a minimal installation or 67 MB for a complete installation of all samples and voice files.

  Voice files use 200-500K of disk space per recorded minute depending on voice quality, so plan accordingly. Refer to the FileFormat property in the online Help for more information.

- To play and record voice files, you need a voice board or a sound card. With a sound card, you can develop Visual Voice applications in Test Mode with the Virtual Phone but you cannot answer real telephone calls. To answer real calls, Visual Voice Pro supports the following voice boards:

  ⇒ *2–4-line analog voice and voice/fax boards* (Windows 95/98 and Windows NT)
  For example: ProLine 2/V, Dialog/4, D/21D, D/41D, D/21H, D/41H, VFX/40E

  ⇒ *2–4-line analog voice and voice/fax boards with SCSA support* (Windows 95/98 and Windows NT, SCbus connectivity available only with Windows NT)
  For example: D/41ESC, D41EPCI, VFX/40ESC, VFX/40ESC Plus, VFX/PCI

  ⇒ *High-density analog and digital T1 boards* (Windows NT)
  For example: D/160SC-LS, D/240SC-T1, D240PCI-T1, D/240SC-2T1, D/480SC-2T1, D/300SC-E1, D/300SC-2E1, D/600SC-2E1

⇒ *Network interface boards* (Windows NT)
For example: LSI/81SC, LSI/161SC, DTI/241SC, DTI/240SC, DTI/300SC

⇒ *IP telephony boards* (Windows NT)
For example: DM/IP0821A-T1, DM/IP2431A-T1

⇒ *Aculab network interface boards* (Windows NT)
Must be Revision 5 or higher.
For example: E1 (primary rate or basic rate) and T1 digital interface boards

Note: For specific information on the Aculab hardware to meet your needs, contact Aculab at (850) 763-9281 or usa@aculab.com. International customers should call 44 1908 273800.

⇒ *Voice resource boards* (Windows NT)
For example: D/80SC, D/160SC, D/240SC, D/320SC

Note: You cannot use a "Dialogic-compatible board" because those boards do not support the Dialogic drivers used by Visual Voice Pro 5. To purchase a Dialogic voice board, contact Artisoft Telephony Sales at telephonysales@artisoft.com or (800) 914-9985 or (617) 354-0600. Refer to the "Voice Board Specific Information" Help topic for details about your particular board.

- If you are using an analog voice board, you need a phone and **one** of the following configurations:
  - ⇒ Two available analog phone lines (one for the voice board and one for the phone).
  - ⇒ A line simulator (connects to both the phone and the voice board).

Note: To obtain an inexpensive line simulator, contact Artisoft Telephony Sales.

- If your application requires faxing, you need **one** of the following:
  - ⇒ *For Single line faxing*, a fax modem compatible with Symantec's WinFax PRO®.
  - ⇒ *For Multi-line faxing*, a Dialogic voice/fax board (VFX series), supported by Visual Dialogic Fax software (sold separately) *or* a GammaLink fax board, supported by Visual Fax software (sold separately). Contact Artisoft Telephony Sales for details.

1.2 Required Software

To develop applications with Visual Voice Pro, you must install the following software:

- Microsoft® Windows 95/98 or Windows NT 4.0 (Server or Workstation, Service Pack 3 or higher)

- **One** of the following types of 32-bit development tools:

  ⇒ Any development tool that supports 32-bit ActiveX controls, including Visual Basic® 5.0 or 6.0, Visual C++® 5.0 or 6.0, Visual J++™ 6.0, Delphi™ 3.01 or 4.01, Visual FoxPro™ 5.0 or 6.0, or PowerBuilder™ 6.0.

  > **Note**: To develop multi-threaded applications with graphical elements (such as forms and message boxes), you need Visual Basic 5.0 SP2 or higher. The latest service pack is available at http://www.microsoft.com/vbasic/.

  ⇒ Any 32-bit C or C++ compiler, such as Microsoft Visual C++.

  > **Note**: The *Getting Started with Visual Voice Pro* guide contains tutorials for developing applications with Visual Basic (5.0 and 6.0) and Visual C++. The Code Wizard and Prompt Manager also support Inprise Delphi 3.01 and 4.01. If you are using another tool, you can still use these tutorials, but refer to your tool's documentation for the equivalent steps.
  >
  > Additionally, the Visual Voice Pro installation prompts you to install sample applications for a variety of development tools. Look at these fully-commented samples for ideas, modify them, or use them as a starting point for your own applications.

- Visual Voice Pro 5

- The drivers for the voice board or sound card you are using:

  ⇒ *For a Dialogic board*, a Dialogic Drivers (for Windows 95/98 and Windows NT) CD-ROM is included with Visual Voice Pro.

  > **Note**: International digital configurations usually require country-specific protocol files. Contact your local hardware representative for information about availability.

  ⇒ *For an Aculab board*, you must get drivers from the hardware manufacturer. Contact Aculab at (850) 763-9281 or usa@aculab.com. International customers should call 44 1908 273800.

  ⇒ *For a sound card*, you must use the drivers included with your sound card or operating system.

- For faxing, you need **one** of the following:

  ⇒ *For single line faxing*, Symantec's WinFax PRO®. To use DDE to communicate with WinFax PRO you need version 7.0 or higher. To use the WinFax SDK (a more efficient mechanism), you need version 8.01 or higher.

  ⇒ *For multi-line faxing,* Visual Dialogic Fax or Visual Fax (sold separately). Contact Artisoft Telephony Sales for information.

- Visual Voice Line Extender (Optional)

  The standard version of Visual Voice Pro allows you to run your applications on two telephone lines per PC. To answer more lines per PC, you need to contact Artisoft Telephony Sales to upgrade. Refer to Section 2.4 for more information.

- VFEdit Freeware Editor (Optional)

  VFEdit is included on the Visual Voice Pro CD-ROM. VFEdit is not required to use Visual Voice Pro, but it is a helpful tool that allows you to graphically edit the wave form of voice files from the Prompt Manager. Refer to Section 2.5 for more information.

These requirements describe the environment needed to create and test Visual Voice Pro applications. For a list of files required to run compiled Visual Voice applications, refer to the "Distributing Your Visual Voice Application" online Help topic.

C H A P T E R 2

Visual Voice Pro Installation

This chapter explains the steps required to install Visual Voice Pro 5 software.

2.1 Installing Your Development Tool

You must install your 32-bit development tool before installing Visual Voice Pro. Refer to your development tool documentation for installation instructions.

> **Note**: When installing Visual Basic 6.0, you must select either the Complete Installation or choose Wizards and Templates in the Custom Installation to use the Visual Voice Pro tutorial. When installing Visual Basic 5.0, select either the Complete Installation or choose Sample Applications in the Custom Installation.

2.2 Installing Visual Voice Pro

The Visual Voice Pro 5 setup program installs the software and allows you to select installation options.

To install Visual Voice Pro 5:

1. Make sure that no applications or services are running.
2. Insert the Visual Voice Pro 5 CD into your CD-ROM drive.

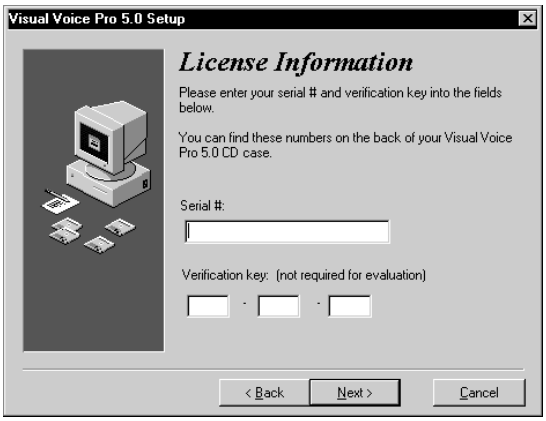
   After a brief wait, Visual Voice Pro installation begins automatically. If the installation Welcome screen does not appear after minute or so, select Run from the Start menu and use the Browse button to run Setup.exe from the CD-ROM drive.

Note: In Windows 95, DCOM v1.2 is required for Visual Voice Pro 5. If it is not installed, you are prompted to quit and install DCOM before continuing. Reboot your PC as directed at the end of the DCOM install, and then re-start the Visual Voice Pro 5 setup.

3. Click Next to continue with the installation.
4. Read the license agreement and click Next to continue.

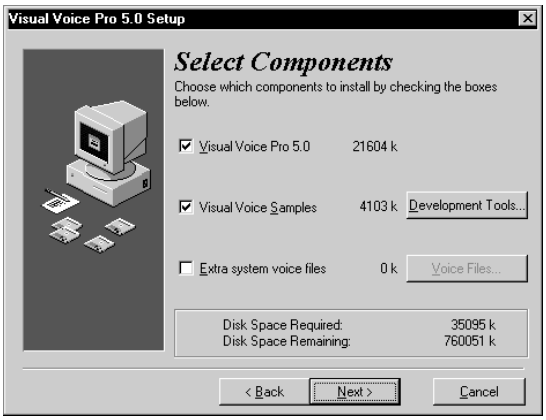
   By continuing the installation, you indicate your acceptance of the Artisoft, Inc. Software License Agreement.
5. Enter your name and company in the Registration Information fields and click Next to continue.

6. Enter your serial number and verification key in the License Information fields and click Next to continue. Your serial number and verification key are located on the back of the Visual Voice Pro 5 CD case. (Evaluation copies of Visual Voice Pro do not require a verification key.)



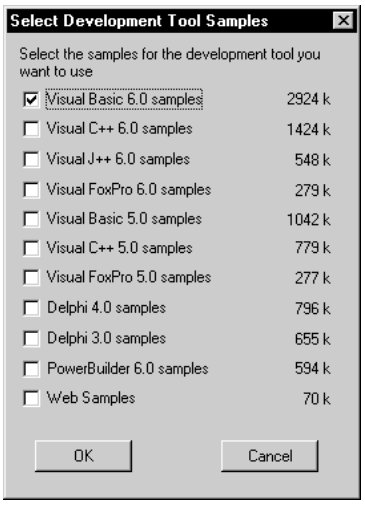
7. Click Next to install into the C:\Program Files\VisualVoicePro5 directory, or click the Browse button to select a different destination directory.

8. Select the Visual Voice Pro components you want to install.



Note: If you are installing to a Windows 95/98 system, the Windows NT-only utilities (SCbus Mapper, Extended T1 experimenter, and Phone Line Configuration Wizard) and sample applications (Call Forwarding and IP Telephony) will not be installed.

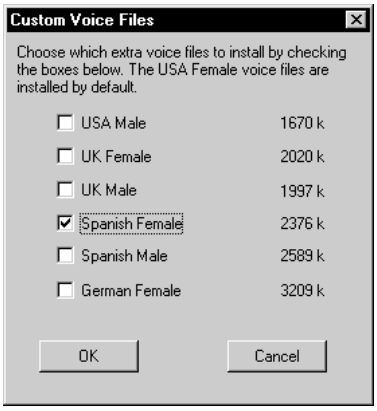
9. Click Development Tools... to choose the samples you would like installed. You can install sample applications for a variety of development environments. Look at these fully-commented samples for ideas, modify them, or use them as a starting point for your own applications.



Note: If you select samples for any of the development tools, executables based on the Visual Basic 6.0 samples are also installed. The sample executables serve as additional developer utilities.

10. Click OK to return to the Select Components dialog.

    An American Female voice is automatically installed for pronouncing characters, dates, monetary values, and numbers. Select Extra system voice files and click Voice Files... to choose additional voices.



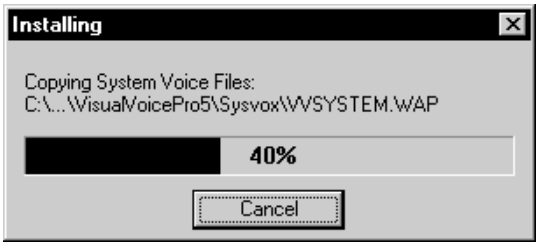
11. Click OK to return to the Select Components dialog and click Next to continue.
12. Select a program group to place the Visual Voice Pro icons and click OK.

    You can use the default (Visual Voice Pro 5), select one from the list, or type a new name to create a group.

    Setup informs you of the backup files that it creates, if any.
13. Click Next to continue.

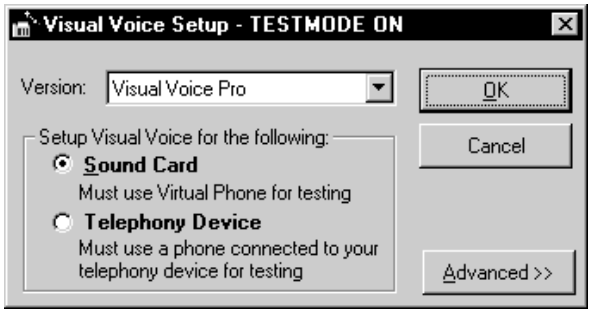
    The Ready to Install! screen appears.
14. Click Finish to begin installation.

    Setup installs the Visual Voice Pro files from the CD. A status bar displays the installation progress.



    When the files are installed, you may be asked to restart your computer. Make sure that you restart your computer before you use Visual Voice Pro.

    The Test Mode Setup window displays.
15. Select either Sound Card or Telephony Device (depending on your configuration) and click OK.



    If you do not have voice board or other telephony device, you should select the Sound Card option and test your applications using the Virtual Phone. Refer to "Testing with the Virtual Phone" in the online Help for more information.

> **Note**: There may be new software patches, code samples, and utilities available since the release of this software. Refer to the Technical Support topic of the online Help for information about accessing Artisoft On-Line to download these enhancements.

Once you have finished installation, go to the Visual Voice Pro 5 program group (or the group that you defined during installation) to view the icons and sample application folders for Visual Voice Pro. You should also start the online Help and read through the Release Notes.

> **Note**: If errors occur during Visual Voice Pro installation, check the following:
>
> - Make sure no other applications or services are running while setup is copying files.
> - If you get an error while setup is copying a file, check to make sure that you do not already have the same file located in a directory in your path. If the file already exists, rename it and run setup again.
> - If you continue to encounter errors during setup, please contact Visual Voice technical support.

2.3 Restoring Deleted Files

If you accidentally delete a Visual Voice Pro 5 file, you can install an individual file from the Visual Voice Pro 5 CD by following the steps below:

☞ **To restore a deleted Visual Voice Pro 5 file:**

1. Make sure that no applications are running.
2. Insert the Visual Voice Pro 5 CD into your CD-ROM drive.
3. Click Cancel when installation starts up automatically and click Yes to confirm that you want to abort installation.
4. Select Run from the Start menu.
5. Run **setup /x** from the CD-ROM drive and click OK.

   The Visual Voice Pro 5 setup program appears with a dialog box listing the files that can be individually extracted from the installation.
6. Select the files to install and click OK.

   The Save As dialog box appears requesting a directory to install the files.
7. Specify the directory for the files and click OK.

   The setup program completes the installation of the selected files.

2.4 Purchasing a Visual Voice Line Extender (Optional)

If you want to increase the number of lines on which you can run Visual Voice Pro, follow these steps:

> **Note**: Visual Voice Line Extenders are not returnable.

☞ **To increase the number of lines available:**

1. Click the Visual Voice License icon  in the Visual Voice Pro 5 program group.

   The Visual Voice License window appears, displaying your serial number, verification key, number of lines you currently have available, and your license key.

2. Call Artisoft Telephony Sales at (800) 914-9985 or (617) 354-0600 with this information.

   A Artisoft Telephony Sales associate will give you a new verification key to increase the number of lines available. Refer to the "Visual Voice License Utility" online Help topic or click the Help button on the Visual Voice License window for more detailed information.

2.5 Installing VFEdit Freeware Edition (Optional)

You do not need to install VFEdit to use Visual Voice Pro 5, but VFEdit lets you graphically edit the wave form of voice files from the Visual Voice Prompt Manager.

☞ **To install VFEdit Freeware Edition:**

1. Make sure that no applications are running.
2. Insert the Visual Voice Pro 5 CD into your CD-ROM drive.
3. Click Cancel when installation starts up automatically and click Yes to confirm that you want to abort installation.
4. Select Run from the Start menu.
5. Click the Browse button and switch to the \VFEdit directory on the CD.
6. Select the Setup icon and click OK.

   The VFEdit setup program prompts you for a destination directory for the software.

7. Select the default directory (or type a different location) and click OK.

   The setup program prompts you to enter the location of the disk labeled "VFEdit: Professional Prompt Editor Disk 1".

8. Click OK, because this disk is included on the CD that is in your CD-ROM drive.

   The setup program prompts you for your registration information.

9. Enter your name and company name. For the serial number, enter 0000.0000.0000. Click Continue.

   You are prompted to enter a path for voice files, then a file type, then a memory address.

10. Select the default values (or enter different values) and click OK to continue.

    The installation begins to copy the files to your hard drive. Click OK if prompted for any additional disks.

Note: The VFEdit Freeware edition has the following limitations:

- VFEdit can record and play VOX and WAV files only through a sound card, not through a phone connected to a Dialogic voice board.
- VFEdit can edit a maximum of two files when launched from the Visual Voice Prompt Manager. To edit more files, you must close and restart VFEdit. To purchase the full edition of VFEdit, contact Voice Information Systems, Inc. at (800) 234-VISI.

2.6 Uninstalling Visual Voice Pro

If you need to uninstall the software, click the Uninstall Visual Voice Pro 5 icon  in the Visual Voice Pro 5 program group or select Visual Voice Pro 5 from the Add/Remove Programs option in the Windows Control Panel.

A warning screen appears to notify you that this action will uninstall Visual Voice Pro. After you click Next, you are asked to chose the uninstall method: automatic or custom. The automatic uninstall removes the major components of Visual Voice Pro, but leaves some files untouched, such as potential shared DLLs. The custom uninstall allows you to select every aspect of Visual Voice Pro to remove from your machine.

After selecting the uninstall method, follow the on-screen instructions to remove Visual Voice Pro.

2.7 Next Steps

If you have a Dialogic voice board, continue to Chapter 3 "Installing Your Dialogic Voice Board." If you are using a sound card and Test Mode, the installation is now finished.

> **Note**: You can use Visual Voice Pro without a voice board or sound card, but you cannot play and record voice files or test your applications.

Dialogic voice board configuration is explained in Chapter 4 (for Windows 95/98) and Chapter 5 (for Windows NT). Chapter 6 explains how to configure IP Telephony hardware for Windows NT. Chapter 7 explains how to configure digital lines for Windows NT.

Once you have installed and configured Visual Voice Pro 5, read the *Getting Started with Visual Voice Pro* guide to learn about Visual Voice components and computer telephony basics. The guide also includes Visual Voice Pro tutorials.

Refer to the online Help for information about:

- Developing Visual Voice applications.
- Running and distributing your applications.
- Using methods, properties, and events for Visual Voice controls.

C H A P T E R 3

Installing Your Dialogic Voice Board

Installing and configuring Dialogic voice boards involves the following steps:

1. Determining the Dialogic board type.
2. Determining available IRQs and memory.
3. Setting the Dialogic board's hardware IRQ.
4. Setting the Dialogic Board ID
5. Setting the Dialogic board's base memory address.
6. Installing the Dialogic board.

These steps are described in detail in the following sections.

3.1 Determining the Board Type

To determine the type of your Dialogic voice board, look for a white sticker near the board's telephone line port. The board type is written in small letters on the sticker.

3.2 Determining Available IRQs and Memory

An IRQ identifies a hardware device to your operating system. Every PC has a limited number of IRQs to assign to add-on boards. One of the most common problems encountered when installing PC add-on boards is assigning the same IRQ to two or more boards.

The IRQ used by the Dialogic board must not be used by any other device. The board's default IRQ may conflict with a device already in your PC. For example, the Dialogic D/xxD series board's default IRQ is 3. Usually, this IRQ is used by a COM port. If it is, IRQ 3 cannot be used by the Dialogic board unless you disable the COM port. (You can disable the COM port with the PC's BIOS or CMOS setup; refer to your PC's manual for details.) IRQ 5 is often a good choice because many systems do not use it.

All Dialogic boards can be set to any available IRQ from 3-7. (Never use IRQ 2 because it is a special cascading IRQ that causes intermittent problems.) 16-bit Dialogic boards (such as D/xxE, D/xxESC, D/12x, and D/240xx) can also use IRQs 10, 11, 12, 14, and 15.

> **Note**: If you are using an Aculab card, you need to find two available IRQs and two available memory addresses — one for the Dialogic board and one for the Aculab card.

Common hardware devices that use IRQs include:

- Serial ports (COM 1, 2, etc.) on IRQ 3 or 4
- Parallel ports (LPT 1, 2) on IRQ 7 or 5
- A mouse on IRQ 3, 4, or 12 (bus mice)
- Modems or Fax modems on IRQ 3 or 4
- CD-ROM drives usually on IRQ 11 or 15
- Sound cards usually on IRQ 5, 7, or 10
- Network cards usually on IRQ 5 or 10

Plug and Play devices may change their IRQ in response to conflicts with new devices.

If you have any of these devices installed, be sure you know the IRQ assigned to them. Instructions for identifying an available IRQ are provided in later sections.

In most cases, the Dialogic board's base memory address does not have to be changed. For example, Dialogic D/xxD series board default memory address is D0000. However, we strongly recommend that you verify your board's base memory address and make sure that address is not used by another device during installation. Memory conflicts, although infrequent, can cause a number of intermittent problems that are difficult to diagnose at run time. Refer below for instructions on how to identify an available memory range.

> **IMPORTANT NOTE FOR PENTIUM USERS**: The Dialogic board's base memory address must specify shared memory in the PC's upper memory region. This area of memory may not be available by default on some Pentium systems. This problem reveals itself through memory configuration errors when you try to load the Dialogic drivers.
>
> Usually, the required memory is unavailable because your system's BIOS uses the area for shadow RAM. To correct this problem, enter your PC's BIOS setup while starting the system (refer to your hardware documentation or watch for instructions at the beginning of the boot sequence) and disable shadow RAM or exclude the addresses used by the Dialogic board from Shadow RAM.
>
> For example, on a Gateway P5-133 using AMIBIOS 1.00.01.CNOT, you would press F1 after the BIOS version displays. When the setup screen appears, select the Advanced menu and the Plug and Play option. Set the ISA Memory Base Address to D0000 and the ISA Shared Memory Size to 64K. This excludes 64K or memory starting at address D0000 from shadowing.

The configuration commands required to exclude memory or disable vary from system to system. Refer to your PC documentation for details. Additional information is also available from the Dialogic First Call Information Server (http://support.dialogic.com).

3.2.1 Identifying Available IRQs and Memory for Windows 95/98

In Windows 95/98, you can quickly identify IRQ and memory usage using the Computer Properties dialog box in the Device Manager.

Note about upgrading from Dialogic DOS drivers:

The memory used by the Dialogic DOS drivers is excluded from other uses by the Emm386.exe X parameter in your Config.sys file. The Windows 95/98 Device Manager reports any memory excluded in this manner as unavailable. This means you cannot use this memory for the Dialogic Windows 95/98 drivers until you remove the excluded range from the Emm386.exe line in your Config.sys file. You can remove Emm386.exe completely if it is not used by other software.

Do not load Dialogic's DOS and Windows 95/98 drivers at the same time. When upgrading to Windows 95/98 drivers, remove the GENLOAD and D40DRV lines from your Autoexec.bat file.

☞ **To view the IRQs and memory usage for Windows 95/98:**

1. Select Settings > Control Panel from the Start menu.
2. Double-click the System icon in the Control Panel.

   The System Properties dialog box appears.
3. Select the Device Manager tab.
4. Click the Properties button.

   The Computer Properties dialog box appears.
5. Select the "Interrupt request (IRQ)" option to view the IRQs and their associated devices.
6. Select the "Memory" option to view the memory settings and their associated devices.

Note: The Windows 95/98 Device Manager only displays devices the operating system can identify. For example, a DOS driver loaded from the Config.sys file typically will not appear. Therefore, the IRQ and memory settings displayed may not show everything used on your system.

3.2.2 Identifying Available IRQs and Memory for Windows NT 4.0

In Windows NT, use the Windows NT Diagnostics to identify IRQ and memory usage.

☞ **To view the IRQs and memory usage for Windows NT:**

1. Select Programs > Administrative Tools (common) from the Start menu.
2. Select the Windows NT Diagnostic icon.

   The Windows NT Diagnostic window appears.
3. Click the Resources tab and click the IRQ button.

   The IRQ dialog box appears in the Resources tab.
4. Identify an available IRQ and click the Memory button.

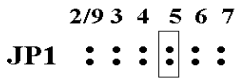
   The Memory dialog box appears in the Resources tab.
5. Identify an available memory range and click OK.

3.3 Setting the Board's IRQ

The way to set the IRQ on your Dialogic voice board varies with the type of board you are using, as explained in the following sections.

3.3.1 D/21D, D/41D, D/21H, D/41H, ProLine/2V, and Dialog/4 Boards

You set the IRQ for the D/21D, D/41D, D/21H, D/41H, ProLine/2V, and Dialog/4 boards with the JP1 jumper. For example, the jumper looks like this when set to IRQ 5:



Set the jumper to the available IRQ you identified previously.

Note: The D/21H, D/41H, and ProLine/2V boards may have more choices than shown in the diagram.

3.3.2 All Other Dialogic Boards

The IRQs for all other Dialogic boards are set by software when you configure the board. Refer to Chapter 4 for Windows 95/98 or Chapter 5 for Windows NT configuration information.

3.4 Configuring Systems with Multiple Boards

If you have multiple D/21D, D/41D, D/21H, D/41H, ProLine/2V, and/or Dialog/4 boards in your system, refer to your Dialogic documentation for additional steps required to configure the boards (using JP7).

For all other Dialogic boards, we recommend incrementing the value of the Board ID rotary switch for each board you install in your PC. However, it is possible to use a Board ID value of 0 for more than one board in some PCI installations. For more information, refer to the Dialogic technical note "How are PCI boards numbered in a pure PCI and a mixed ISA/PCI system?" at **http://support.dialogic.com/is/tnotes/tnbyos/winnt/tn187.htm**

In systems with both analog and digital Dialogic boards, the analog board IDs must be set to lower numbers than the digital board IDs. For example in a system with a D/41ESC analog voice board, a VFX/40ESC analog fax board, and a D/240SC-T1 digital line board, the voice board and fax board IDs must both be lower than the digital line board ID.

3.5 Setting the Board's Base Memory Address

The way to set the base memory address of your Dialogic voice board varies with the type of board you are using, as explained in the following sections.

3.5.1 D/21D, D/41D, D/21H, D/41H, ProLine/2V, and Dialog/4 Boards

The D/21D, D/41D, D/21H, D/41H, ProLine/2V, and Dialog/4 boards base memory address is set with the JP5 and JP6 jumpers. You do not have to change the board's memory address from its default (D0000) unless another card (such as a video board or some specialized board) uses the same memory area or you are installing more than 8 Dialogic boards in the same system.

The JP5 and JP6 jumper settings for various memory addresses are shown below:

JP5	JP6	Base Address
out	out	D0000 (default)
in	out	A0000
out	in	C0000
in	in	B8000

If none of these addresses are available on your system, refer to the Dialogic Quick Install pamphlet supplied with your board for instructions on how to change the offset address with the SW1 switch.

3.5.2 All Other Dialogic Boards

The base memory addresses for all other Dialogic boards are set by software when you configure the board. Refer to Chapter 4 for Windows 95/98 and Chapter 5 for Windows NT configuration information.

3.6 Installing the Board

Before you insert the board into an available slot, make sure you turn the PC off and touch the PC's power supply to ground yourself. If you have multiple boards, attach a telephony bus cable after inserting the board(s). Connect the board(s) to your telephone lines with the sockets on the back of the board.

3.6.1 Attaching Telephony Bus Cables

Many Dialogic boards share resources over a telephony bus. Two standards describe the bus types currently found on Dialogic boards: SCSA defines the SCbus, and H.100 defines the CTbus. You can install Dialogic boards of either type or in a mixed configuration as long as you have the appropriate cables and adapters. If all of your boards use the SCbus, as evident by the letters "SC" in the board names, then you can simply connect a "drop" (or connector) of an SCbus cable to each board. The SCbus cable connector is shaped such that the cable can only be attached in one orientation.

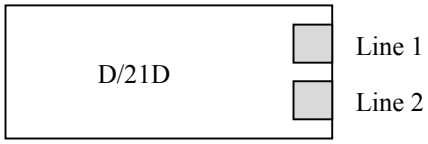
If any of your Dialogic boards are based on the PCI form factor, then they use the CTbus. SCbus cables cannot be directly attached to a CTbus connector, but Dialogic provides a CTbus -> SCbus adapter. Note that attaching the adapter increases the board height and may obstruct the PC case in slender cases.

If all of the boards in the system use the CTbus, then you can use a Dialogic H.100 cable assembly to connect the boards directly without attaching adapters.

To obtain cables and connectors, contact Artisoft Telephony Sales or your Dialogic hardware representative.

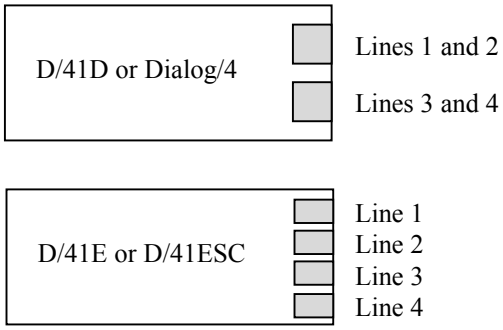
3.6.2 Connecting Phone Lines to a 2-Line board

Dialogic 2-line boards (for example, D/21D) have 2 RJ11 ports on the back of the board. Each RJ11 port can handle 1 phone line.



3.6.3 Connecting Phone Lines to a 4-Line board

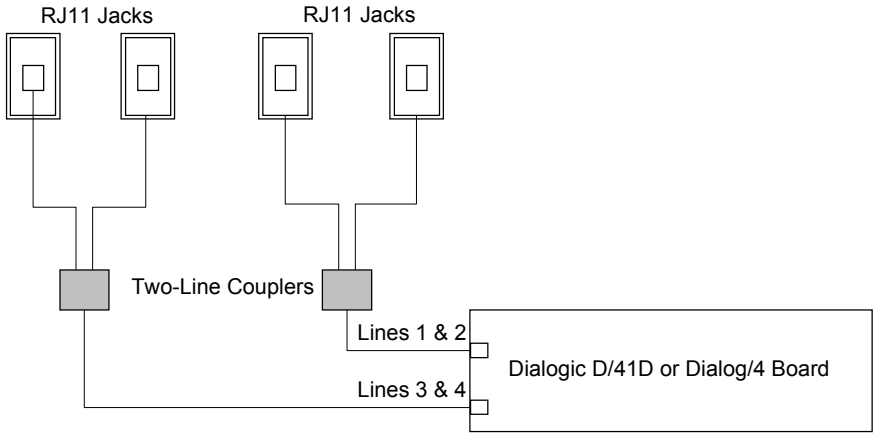
There are 2 types of 4-line Dialogic boards, one with 2 RJ14 ports (such as D/41D and Dialog/4), and one with 4 RJ11 ports (such as D/41E and D/41ESC). An RJ14 port can handle 2 phone lines; an RJ11 port can handle 1 phone line.



3.6.4 Connecting 4 Phone Lines to Two RJ14 Ports

To connect a D/41D or a Dialog/4 board to four single-line wall jacks, you need the following parts. (These parts can be purchased from Radio Shack® or a similar supplier.)

- Two short two-line phone wires. Each two-line phone wire contains four copper wires.
- Two 2-line couplers, one for each D/41D port. (Radio Shack cat. no. 279-401)
- Four short single-line phone wires. Each single-line phone wire contains two copper wires.



☞ **To connect 4 single lines to your D/41D or Dialog/4 board:**

1. Attach a short two-line phone wire from the socket on the two-line coupler marked L1+L2 to the voice board's top RJ14 socket.

Note: The plug on the back of the two-line coupler would fit into an R14 socket; however, because of limited room on the back of the voice board, you cannot plug both two-line couplers directly into the voice board.

2. Plug the phone line you want to use as Line #1 into the socket on the coupler's marked L1.
3. Plug this phone line into the wall in the same way you would connect a normal phone.
4. Plug the phone line you want to use as Line #2 into the socket on the coupler's marked L2.
5. Plug this phone line into the wall in the same way you would connect a normal phone.
6. Repeat Steps 1-5 with the second coupler and the voice board's bottom socket to set up lines 3 and 4.

3.6.5 Connecting 2 Phone Lines to Two RJ14 Ports

Without any extra hardware, you can connect two single phone lines to the two RJ14 ports on a D/41D or a Dialog/4 voice board and not use the extra two lines. The phone line you plug into the voice board's top socket will be Line #1. The phone line you plug into the voice board's bottom socket will be Line #3. Lines #2 and #4 remain unused in this configuration.

C H A P T E R 4

Configuring the Dialogic Drivers for Windows 95/98

To run Visual Voice Pro 5 with Windows 95/98 and Dialogic hardware, install the Dialogic Windows 95/98 drivers as explained in this chapter. If you are planning to run Visual Voice under Windows NT, refer instead to Chapter 5 "Configuring the Dialogic Drivers for Windows NT."

> **Note:** The Dialogic drivers are included with Visual Voice Pro 5 on a separate CD-ROM.

Configuring the Dialogic Windows 95/98 drivers involves the following steps:

1. Installing the Dialogic Windows 95/98 drivers.
2. Configuring the Dialogic boards settings using the Dialogic Configuration Manager.
3. Setting the IRQ and Base Memory Address.
4. Starting the Dialogic Windows 95/98 drivers.
5. Testing the Dialogic Windows 95/98 drivers.

These steps are described in detail in the following sections.

4.1 Installing the Dialogic Windows 95/98 Drivers

> **Note**: The Dialogic drivers included with Visual Voice Pro were designed for Windows 95, but can also be used with Windows 98. Check the Dialogic FirstCall Info Server at http://support.dialogic.com for current information on using the driver set under Windows 98.

☞ **To install the Dialogic Windows 95/98 drivers:**

1. Insert the CD labeled "Dialogic Drivers" included with Visual Voice Pro 5.

   After a brief wait, the "Dialogic Package Release" installation begins automatically. If the installation Welcome screen does not appear after minute

or so, select Run from the Start menu and use the Browse button to run Setup.exe from the CD-ROM drive.

2. Click Next.

   The Registration dialog box appears.

3. Enter the Registration information and click the Next button.

   You are asked to confirm the information you entered.

4. Click Yes to continue.

   If an older version of the Dialogic drivers is detected on your PC, a warning message appears. Exit the installation and select Settings > Control Panel > Add/Remove Programs from the Start menu to uninstall the existing Dialogic drivers. Then, restart the installation setup from the Dialogic Drivers CD.

   If no existing Dialogic drivers are detected, the Setup Type screen appears.

5. Select Typical (the default) which installs all the Dialogic software and click the Next button. (Although the default directory is recommended, you can use the Browse button to change the destination directory, if you wish.)

   The Select Program Folder screen appears.

6. Click the Next button to accept the default (Dialogic Development Package), or you can select a folder from the list or type a new name to create one.

   The Start Copying Files screen appears.

7. Click Next to install the Dialogic files if the displayed information is correct. If you need to change any settings, click the Back button and make your changes.

   After the files are installed, you can view the Dialogic release notes. When you are done, click Cancel.

8. Click No when asked if you want to run the Country-specific Configuration program.

   The Restart Windows dialog box appears.

9. Select "No, I will restart my computer later" and click Finish.

   Continue with the next section.

4.2 Running the Dialogic Configuration Manager

☞ **To configure Windows 95/98 for your Dialogic board:**

1. Select the Configuration Manager icon  in the Dialogic Development Package program group.

   The Dialogic Configuration Manager appears.

2. Click the Add board button to display the Add New Hardware wizard.
3. Click the Next button to begin.
4. Select No in response to "Do you want Windows 95/98 to search for new hardware?" and click the Next button.
5. If this is the **first time** a Dialogic board has been configured using the Windows 95/98 drivers, select "Other Devices" from the list of hardware types, click Next, and select Dialogic from the Manufacturers List Box.

   If a Dialogic board has **previously** been configured using the Windows 95/98 drivers, select Dialogic Cards and then click the Next button.

   A list of Dialogic models appears. (There may be a brief delay while Windows builds a Driver Information Database.)

6. Select your board from the list and click Next.

Note: Select D/41E or VFX/40E if you are using a D/41ESC or VFX/40ESC board.

   A dialog box displays the current software settings for the IRQ and memory range of the board. If the values displayed are incorrect, you can change them in the next step of the installation.

7. Click Next again, and then click Finish to complete the installation. **Do not restart the computer**. Click No when asked if you want to shut down your computer.

   Continue to the next section.

4.3 Setting the IRQ and Base Memory Address

If you previously set your board's hardware to use a particular IRQ and base memory address, you must configure the Dialogic drivers software to match those settings by following the steps below. If your board's IRQ and base memory address are set by software, follow these steps to select valid settings.

To set the Dialogic IRQ and base memory address:

1. Select the Configuration Manager icon  in the Dialogic Development Package program group.

   The Dialogic Configuration Manager appears.

2. Click the Device Manager button.

   The Windows 95/98 System Properties dialog box appears.

3. Make sure the Device Manager tab is selected and click the "+" next to the Dialogic entry to display the installed Dialogic cards. (If no Dialogic entry exists, refer to Section 4.2 "Running the Dialogic Configuration Manager.")

4. Select the Dialogic card you want to change and click the Properties button.

   A properties dialog box appears for the selected card.

5. Click the Resources tab and review the displayed values for the IRQ and base memory address.

6. Change one of the displayed values, if necessary:

   Select Interrupt Request or Memory Range and click the Change Setting button. Set the IRQ or Base Memory Address to the value you previously determined for your voice board (refer to Section 3.2 "Determining Available IRQs and Memory") and click OK.

Note: The Windows 95/98 Device Manager only displays devices that the operating system can identify. For example, a DOS driver loaded from the Config.sys file typically will not appear in the Device Manager. Therefore, the IRQ and Memory settings displayed may not show everything used on your system.

In addition, if you load Emm386.exe from your Config.sys file, memory ranges excluded with the Emm386.exe X parameter appear as unavailable in the Device Manager even if no device is occupying that space.

If you are unable to choose from the D0000-D1FFF range, make sure you are using Basic Configuration 0.

7. Click OK to close the board properties dialog box, click OK again to close the Device Manager, and click Close to exit the Dialogic Configuration Manager.

8. Restart your computer.

4.4 Starting the Dialogic Windows 95/98 Drivers

You can configure the Dialogic Windows 95/98 drivers to start either manually or automatically each time Windows 95/98 is started. It is useful to start the drivers manually until you are sure the drivers are installed correctly. Then, you can configure the drivers to start automatically.

☞ **To start the Dialogic Windows 95/98 drivers manually:**

1. Select the Configuration Manager icon  in the Dialogic Development Package program group.

   The Dialogic Configuration Manager appears.

2. Click the Start button.

   Messages displayed in the Status box indicate whether the drivers started successfully. If the start-up was successful, continue to Section 4.5 "Testing the Dialogic Windows 95/98 Drivers." If the status indicates an error such as "No boards started," refer to Section 4.6 "Troubleshooting Windows 95/98 Drivers" for suggestions on how to correct the problem.

Note: At least one board must be listed in the Dialogic Configuration Manager to successfully start the Windows 95/98 Dialogic drivers. If no boards are listed, refer to Section 4.2 "Running the Dialogic Configuration Manager."

4.5 Testing the Dialogic Windows 95/98 Drivers

The Dialogic Windows 95/98 drivers include a test program to verify that your Dialogic board is functioning correctly.

☞ **To run the Dialogic test program:**

1. Select the Voice Sample Program icon  in the Dialogic Development Package program group.

   The Sample Dialogic Voice Application starts.

2. Select Open from the File menu and open one of the channels associated with your board.

   You should see a message that the open succeeded.

3. Call into the opened phone line.

   If you see a "Call Received" message, your installation was successful.

   You can also use this test program to test picking up the line, playing voice files, and hanging up. Refer to the sample application's online Help for additional instructions.

4. Select Onhook from the Function menu to hang up.

5. Close the Sample Dialogic Voice Application.

Your installation is complete. If you encountered errors, refer to Section 4.6, "Troubleshooting Windows 95/98 Drivers" for possible solutions.

4.6 Troubleshooting Windows 95/98 Drivers

Note: If you continue to receive errors after following the steps outlined in Chapter 4 "Configuring the Dialogic Drivers for Windows 95/98" and reviewing the possible solutions in this section, contact your voice board distributor's technical support for assistance.

If you bought your voice board from Artisoft Telephony Sales, contact our technical support group. Please review and perform all of the steps in Chapter 4 before contacting technical support. Note that the ProductInfo property returns a string with your Visual Voice Pro software version number, your Dialogic driver version number, and the voice board serial number. You should determine this information before contacting technical support. Refer to the ProductInfo property in the online Help for more information.

Symptom	Possible Cause	Solution
Using a D/21D, a D/41D Revision 3, or a Dialog/4 board, you call into one of the Dialogic sample programs and the call is not answered.	The ring detection threshold is too high.	Lower the ring detection threshold, channel-by-channel, by setting the JP101-JP104 jumpers "In." These jumpers are normally in the "Out" position.

Symptom	Possible Cause	Solution
Unable to select a memory address from the D0000-DFFFF range.	Memory range is excluded with the X parameter in Emm386.exe in Config.sys. -or- Basic Configuration 1 was created by Windows 95/98.	See if range D000 - DFFF (DOS notation) was excluded in Emm386. If it was, remove the exclusion. Select the Dialogic card in the Device Manager and choose the Resources tab. Choose Basic Configuration 0 from the list.
Duplicate board ID specified.	Two boards have been assigned to the same board-locator ID.	Check the hardware settings on the boards and edit the software settings with the configuration utility to match the hardware settings.
Genstop failed error code = -1.	This Status Message shows the Dialogic boards could not be stopped because a channel was open on one of the boards.	Close all channels and exit any applications running on the boards, then stop the board using the Dialogic Configuration Manager.
WARNING line ####: XXXXXXX.	You are installing programming libraries without a development package on your system.	Install the C development package and restart installation.
No board(s) found - check system configuration.	The downloader has not found any boards to download. -or- There is a memory conflict or the assigned memory address is not supported.	Check that all the IDs, firmware load files, and parameter files in the board's configuration are correct. Change the base memory address assigned to the board.
Feature name must be followed by ON or OFF.	The Dialogic.cfg file contains a parameter that is a feature name and can only take the value ON or OFF.	Correct the configuration file and restart Genload.

Symptom	Possible Cause	Solution
GENBOOT not responding on board <n>. GENBOOT failed on board <n>.	Genboot.bin may have been corrupted, or the board may not have been properly installed.	Reinstall Genboot.bin from the software release disk. Verify that the board is properly seated in the slot.
Error reading boot file.	The file Genboot.bin may have been corrupted.	Reinstall Genboot.bin from the software release disk and retry the download.
Memory conflict at address <XXXXX>	Two or more voice boards are installed at the memory address (XXXXX). -or- A non-Dialogic expansion board is installed in the specified address. -or- Another shared RAM device (such as a network controller), an EMS driver or memory manager, BIOS shadowing, or caching may be using the memory at the specified address.	Change the memory address using the board configuration utility. Either change the Dialogic board address or the non-Dialogic board address to eliminate the conflict. Disable the feature, exclude the memory address from the feature, or select another memory address for the Dialogic board. Remove the memory manager from Autoexec.bat or Config.sys if it is causing this conflict.
This IRQ is already being used by voice boards - #.	The interrupt assigned to D/41ESC and Dialog/4 voice boards cannot be shared by other Dialogic boards. The IRQ in conflict is displayed in the #.	Assign a new IRQ using the board configuration utility, and configure the board to match the new IRQ.
Timeout occurred waiting for ack/nak.	A communication error between the board and the downloader occurred. -or- Genboot.bin may have been corrupted.	Reinstall the .fwl file you are using for this board from the Dialogic drivers and retry the download. Reinstall Genboot.bin from the software release disk and retry the download.

Symptom	Possible Cause	Solution
WSB0008: Memory Conflict at Address XXXX.	The memory address assigned to the Dialogic boards conflicts with another program or device in your computer.	Remove any memory managers from Config.sys or Autoexec.bat (for example, Himem.sys, Emm386.exe, or Qemm.exe). Change the settings assigned to the Dialogic boards.
Error configuring memory at address <XXXXX>.	The board identification number setting on the board does not match the board's ID value set in the configuration utility.	Check that the ID specified for this board in the configuration utility matches the board identification number settings on the board.
Error in <FWL file name>.	The indicated .fwl file may have been corrupted.	Reinstall the .fwl file from the Dialogic drivers and retry the download.
No boards configured. Nothing to start.	These messages are shown in the Resources Allocated list and Status Messages list of the Configuration Manager when no Dialogic boards have been configured.	Click the Add board button to add the board to the configuration.
ESB0010: No boards found - check system configuration.	The Dialogic boards are configured but disabled, so they cannot be downloaded. -or- The memory address assigned to the Dialogic boards may not be supported.	Enable the boards with the Enable Board button. Change the settings assigned to the Dialogic boards. Refer to Section 3.5 for information on setting the base memory address.

C H A P T E R 5

Configuring the Dialogic Drivers for Windows NT

To run Visual Voice Pro 5 with Windows NT and Dialogic hardware, install the Dialogic Windows NT drivers as explained in this chapter. If you are planning to run Visual Voice Pro under Windows 95/98, refer to Chapter 4 "Configuring the Dialogic Drivers for Windows 95/98."

> **Note:** You have the option of installing one of three different Dialogic driver sets for Windows NT: **DNA**, **IPLink**, or **98.02**. The DNA drivers take advantage of Windows NT's native architecture and therefore are faster. IPLink drivers are based on DNA but include additional support for the DM3/IPLink hardware. 98.02 drivers are based on the slower Streams protocol but support older boards and functionality not currently supported in DNA.
>
> DNA is reccomended for most configurations. See below for installation instructions.
>
> If you have an IPLink board, you must use the IPLink drivers for all of the boards in your system. Skip to Chapter 6 for instructions.
>
> If your configuration includes GammaLink fax hardware (for use with Visual Fax 2.x), SCxbus adapters, or older revisions of D/4xD or D/240SC-T1 boards, you must use the 98.02 drivers. Note 98.02 does not support any PCI boards or GlobalCall. See below for installation instructions.
>
> Refer to the software release topics at http://support.dialogic.com for more details.

For Dialogic Windows NT drivers, configuration involves the following steps:

1. Installing the Dialogic Windows NT drivers.
2. Configuring the Dialogic Windows NT drivers.
3. (98.02 only) Installing the Windows NT Streams environment.
4. Starting the Dialogic Windows NT drivers.
5. Testing the Dialogic Windows NT drivers.

These steps are described in detail in the following sections. Section 5.1 explains the procedures for the Dialogic DNA drivers and Section 5.2 explains the procedures for the Dialogic 98.02 drivers.

5.1 Dialogic DNA Windows NT Drivers

Dialogic Native Architecture (DNA) drivers are fast, support high line densities, and include an easy-to-use configuration tool. However, if your application uses products or features not available with DNA drivers, you should use the 98.02 drivers explained in Section 5.2. Refer to the software release topics at http://support.dialogic.com for more details.

5.1.1 Installing the Dialogic DNA Windows NT Drivers

Note: You must have administrator privileges to install the Dialogic DNA drivers.

☞ **To install the Dialogic DNA Windows NT drivers:**

1. Insert the CD labeled "Dialogic Drivers" included with Visual Voice Pro 5.

   After a brief wait, a driver selection installation screen appears automatically. If the driver selection screen does not appear after minute or so, select Run from the Start menu and use the Browse button to run Setup.exe from the CD-ROM drive.

2. Choose DNA from the driver package options.

   After a pause, the "Dialogic System Software and SDK" installation begins and the Welcome screen displays.

3. Click Next to continue.

   If an older version of the Dialogic drivers is detected on your PC, a warning message appears. Exit the installation and select Settings > Control Panel > Add/Remove Programs from the Start menu to uninstall the existing Dialogic drivers. Then, restart the installation setup from the Dialogic Drivers CD.

   The Registration screen appears.

4. Enter your name and your company name and click Next to continue.

   The Setup Options screen appears.

5. Click Typical from the list of installation types.

   The Destination Location screen appears.

6. Click Next to install the drivers in the default directory. (Although the default directory is recommended, you can use the Browse button to change the destination directory, if you wish.)

   The Program Group Folder screen appears.

7. Click the Next button to accept the default (Dialogic System Software), or you can select a folder from the list or type a new name to create one.

   The Setup Options Summary screen appears.

8. Click Next to install the Dialogic files if the displayed information is correct. If you need to change any settings, click the Back button and make your changes.

   After the files are installed, the Dialogic Setup Finish Options screen displays, giving you the option to view the Dialogic release notes and run the Dialogic Configuration Manager (DCM).

9. Make sure that both the release notes and configuration options are selected and click Next.

   The Dialogic Release Catalog Help topics display and the Dialogic Configuration Manager starts. When you are done reading the online Help, click Cancel.

   Continue with the next section to configure your NT drivers with the Dialogic Configuration Manager before using your drivers.

5.1.2 Configuring the Dialogic DNA Windows NT Drivers

☞ **To configure the Dialogic DNA Windows NT drivers:**

1. If not already running, click the Dialogic Configuration Manager icon  in the Dialogic System Software program group to start the DCM.
2. The DCM should now automatically detect and configure the boards on your PC. If everything is configured correctly, go to Section 5.1.3. If you need to configure a board manually, continue to Step 3:
3. Select Add Device from the Action menu.
4. Select the board you want to configure from the displayed list and click Next.
5. Enter a name for the board to uniquely identify it and click Next. (The board's serial number is recommended.)

6. Use the tabs to supply the properties requested for your board. The tabs and dialog boxes vary depending on the type of board you are installing. All boards require the following information:

   Board Interrupt – The available IRQ you determined in Section 3.2.2.

   Segment/Address/Board Specifics – These are different names for the available memory range you identified in Section 3.2.2. For some boards, you are asked to supply this as a single number (e.g., Board Specifics D0000); however, for other boards, you are asked first for a Segment (e.g., D0000) and then for an Address within it (e.g., 2000) which combined specify the entire address (i.e., D2000)

   The following items are required for SC series boards:

   Board Locator ID – SCbus boards are each assigned a number to uniquely identify them if there are multiple SCbus devices in the system. (This number performs a service on the SCbus similar to that provided by IRQs on the PC's bus.) On Dialogic SCbus boards, the Board Locator ID is set with a green dial located at the top of the board. The dial should be set to 0 for the first board, 1 for the second, and so on. When configuring SCbus boards, you are asked for the number that was assigned to each board.

   Resource – When installing certain low density SCbus boards (e.g., D41ESC), this option allows you to use both the network and voice resource provided on the board (**Use Front End** selection), or to disable the network resources (Front End) and use only the voice resources (**Route Resource to SCbus** selection).

   Bus Connection – If you chose the **Use Front End** option above, this option allows you to choose whether the network and voice resources are all be available for run-time routing to any device on the SCbus (**SCbus** selection) or whether the board's network and voice resources are always be routed to each other using the board's PEB or AEB bus (**Non-SCbus** selection).

7. Click OK when you have completed configuration.
8. Select Exit from the File menu.
9. Restart your system.

5.1.3 Starting the Dialogic DNA Windows NT Drivers

☞ **To start the Dialogic DNA Windows NT drivers:**

1. Select the Dialogic Configuration Manager icon  in the Dialogic System Software program group to start the DCM.
2. Select Start Service from the Service menu (or click the Start icon).

The bottom of the DCM window displays the Dialogic System Service Status. The status changes from "Stopped" to "Running" if the drivers are started successfully. If the message does not change, or if you get an error message, proceed to Section 5.3 "Troubleshooting NT Drivers."

3. Select Exit from the File menu.

5.1.4 Testing the Dialogic Windows NT Drivers

☞ **To test the Dialogic DNA Windows NT drivers:**

1. Select the Multi-threaded Voice icon 

in the Dialogic Sample Programs folder (in the Dialogic System Software program group).

Note: This test program does not work with digital lines.

2. Select Open from the File menu and open one of the channels associated with your board. You should get a message that the open succeeded.
3. Select Onhook from the Function menu to hang up.
4. Select Exit from the File menu.

If these simple tests succeed, you might want to launch the DCM again and set Startup Mode in the Service menu to Automatic so the drivers start whenever you restart your PC. If you encountered errors, refer to Section 5.3, "Troubleshooting NT Drivers" for possible solutions.

5.2 Dialogic 98.02 Windows NT Drivers

The 98.02 drivers support some boards and functionality not supported by the newer and faster DNA drivers (described in Section 5.1). If your configuration includes GammaLink fax hardware (for use with Visual Fax 2.x), SCxbus adapters, or older revisions of D/4xD or D/240SC-T1 boards, you must use the 98.02 drivers.

5.2.1 Installing the Dialogic 98.02 Windows NT Drivers

Note: You must have administrator privileges to install Dialogic 98.02 drivers.

☞ **To install the Dialogic 98.02 Windows NT drivers:**

1. Insert the CD labeled "Dialogic Drivers" that was included with Visual Voice Pro 5.

After a brief wait, a driver selection installation screen appears. If the driver selection screen does not appear after minute or so, select Run from the Start menu and use the Browse button to run Setup.exe from the CD-ROM drive.

2. Choose 98.02 from the driver package options.

   After a pause, the "Dialogic System Software and SDK" installation begins and the Welcome screen displays.

3. Click Next to continue.

   The User Information screen appears.

4. Enter your name and your company name and click Next to continue.

   If an older version of the Dialogic drivers is detected on your PC, a warning message appears. Exit the installation and select Settings > Control Panel > Add/Remove Programs from the Start menu to uninstall the existing Dialogic drivers. Then, restart the installation setup from the Dialogic Drivers CD.

   A message box appears that explains the GammaLink and SCX160 software options. Click OK to continue.

   The Setup Options screen appears.

5. Click Typical from the list of installation types.

   A message box displays, asking if you plan to use MSI hardware. Click Yes for important information about compatibility issues or click No to continue.

   The Choose Destination Directory screen appears.

6. Click Next to install the drivers in the default directory. (Although the default directory is recommended, you can use the Browse button to change the destination directory, if you wish.)

   The Select Program Folder screen appears.

7. Click the Next button to accept the default (Dialogic System Software), or you can select a folder from the list or type a new name to create one.

   The Start Copying Files screen appears.

8. Click Next to install the Dialogic files if the displayed information is correct. If you need to change any settings, click the Back button and make your changes.

   After the files are installed, the Release Catalog/Configuration Utilities screen displays, giving you the option to view the Dialogic release catalog and run the Dialogic Board Configuration Utility.

9. Make sure that both the release catalog and configuration options are selected and click Next.

The Dialogic Release Catalog Help topics display. When you are done reading them, click Cancel.

At this time, you are given the opportunity to install GammaLink or SCX160 software (or you can install these later, if you wish).

After you respond to the message boxes, the Dialogic Board Configuration Utility starts. Continue with the next sections to configure your NT drivers and install the Streams Environment before using your drivers.

5.2.2 Configuring the Dialogic 98.02 Windows NT Drivers

☞ **To configure the Dialogic 98.02 Windows NT drivers:**

1. If not already running, click the Board Configuration icon  in the Dialogic System Software program group to start the Dialogic Board Configuration Utility.
2. Select "Add board to configuration" from the configuration menu and click OK.
3. Select the board you want to configure from the displayed list and click OK.
4. Supply the information requested for your board. The dialog boxes vary depending on the type of board you are installing. All boards require the following information:

   Board Interrupt – The available IRQ you determined in Section 3.2.2.

   Segment/Address/Board Specifics – These are different names for the available memory range you identified in Section 3.2.2. For some boards, you are asked to supply this as a single number (e.g., Board Specifics D0000). For other boards, you are asked first for a Segment (e.g., D0000) and then for an Address within it (e.g., 2000) which combined specify the entire address (i.e., D2000).

The following items are required for SC series boards:

Board Locator ID – SCbus boards are each assigned a number to uniquely identify them if there are multiple SCbus devices in the system. (This number performs a service on the SCbus similar to that provided by IRQs on the PC's bus.) On Dialogic SCbus boards, the Board Locator ID is set with a green dial located at the top of the board. The dial should be set to 0 for the first board, 1 for the second, and so on. When configuring SCbus boards, you are asked for the number that was assigned to each board.

Resource – When installing certain low density SCbus boards (e.g., D41ESC), this option allows you to use both the network and voice resource provided on the board (**Use Front End** selection), or to disable the network resources (Front End) and use only the voice resources (**Route Resource to SCbus** selection).

Bus Connection – If you chose the **Use Front End** option above, this option allows you to choose whether the network and voice resources are all be available for run-time routing to any device on the SCbus (**SCbus** selection) or whether the board's network and voice resources are always be routed to each other using the board's PEB or AEB bus (**Non-SCbus** selection).

5. Select "End Configuration" and click OK.
6. Select "Save Changes and Exit" and click OK.
7. **Do not restart.** Click Continue and follow the steps in the next section.

5.2.3 Installing the Windows NT Streams Environment

The Dialogic NT voice drivers require that you install and run the Windows NT Streams Environment before starting the drivers.

> **Note**: You must perform these steps even if your PC is not on a network and does not have a network card. Also, you must have administrator privileges to install the Streams Environment. Refer to the Windows NT documentation for information on giving privileges to your account administrator.

☞ **To install the Streams Environment:**

1. Select Settings > Control Panel from the Start menu.
2. Double-click the Network icon.

   The Network Settings dialog box appears.
3. Select the Protocols tab. The Network Protocols dialog box appears.

   If the Streams Environment has previously been installed, it is displayed in Network Protocols window.

   If the Streams Environment is not displayed, click the Add Software button and install the software. (A network card is not required to set up the Streams Environment).
4. Restart your system.

5.2.4 Starting the Dialogic 98.02 Windows NT Drivers

☞ **To start the Dialogic 98.02 Windows NT drivers:**

1. Click the Set Dialogic Service Startup Mode icon  in the Dialogic System Software program group.

   The Set Dialogic Service Startup Mode dialog box appears.

2. Click the Start Now button.

   The button changes to "Working…" followed by "Stop Now…" if the drivers are started successfully. If the button does not change to "Stop Now…" proceed to Section 5.3 "Troubleshooting NT Drivers."

3. Click the Close button.

5.2.5 Testing the Dialogic 98.02 Windows NT Drivers

☞ **To test the Dialogic 98.02 Windows NT drivers:**

1. Click the Multi-threaded GUI Based Application icon  in the Dialogic System Software program group.

Note: This test program does not work with T1 lines.

2. Select Open from the File menu and open one of the channels associated with your board. You should get a message that the open succeeded.
3. Select Onhook from the Function menu to hang up.
4. Select Exit from the File menu.

   If these simple tests succeed, you might want to double-click the Set Dialogic Service Start Up Mode icon again and select Automatic so the drivers start whenever you restart your PC. If you encountered errors, refer to the Section 5.3, "Troubleshooting NT Drivers" for possible solutions.

5.3 Troubleshooting NT Drivers

Note: If you continue to receive errors after following the steps outlined in Chapter 5 "Configuring the Dialogic Drivers for Windows NT" and reviewing the possible solutions in this section, contact your voice board distributor's technical support for assistance.

If you bought your voice board from Artisoft Telephony Sales, contact our technical support group. Please review and perform all of the steps in Chapter 5 before contacting technical support. Note that the ProductInfo property returns a string with your Visual Voice Pro software version number, your Dialogic driver version number, and the voice board serial number. You should determine this information before contacting technical support. Refer to the ProductInfo property in the online Help for more information.

Windows NT contains an event log that records errors, warnings, and informational messages from the operating system, security system, and applications. It is useful to view the log for any messages from the Dialogic device drivers or configuration program.

☞ **To view the Windows NT event log:**

1. Select Programs > Administrative Tools (common) from the Start menu.
2. Click the Event Viewer icon.

   The Event Viewer window appears.
3. From the Event Viewer select Menu > System.
4. Double-click the dlgc_log file to view the message description. Refer to your Dialogic docuementation for a list of error messages.

Symptom	Possible Cause	Solution
Running the Dialogic Multi-threaded GUI application causes an error: "C:\Usr\Dialogic\Bin\ Voxctl: Error: 4109 cannot start board: DxxxB1".	The interrupt assigned to the Dialogic board is conflicting with another piece of hardware.	Resolve the Interrupt conflict. Refer to Section 3.2 "Determining Available IRQs and Memory."
Running the Dialogic Multi-threaded GUI application causes Windows NT to hang or exit.	The interrupt assigned to the Dialogic board is conflicting with another piece of hardware.	Resolve the Interrupt conflict. Refer to Section 3.2 "Determining Available IRQs and Memory."
Starting the Dialogic Windows NT drivers produces an error: "Cannot get global handle to GLOADDRV drivers".	Windows NT Streams Environment is not installed.	Install the Windows NT Streams Environment. Refer to Section 5.2.3 "Installing the Windows NT Streams Environment."
Starting the Dialogic Windows NT drivers produces the error "Error starting the GNCFD service. Last error=1075".	Windows NT Streams Environment is not installed.	Install the Windows NT Streams Environment. Refer to Section 5.2.3 "Installing the Windows NT Streams Environment."

Symptom	Possible Cause	Solution
Running the Dialogic Multi-threaded GUI application causes an error: "KMODE_EXCEPTION_ NOT_HANDLED from Streams.sys."	The interrupt assigned to the Dialogic board's IRQ is conflicting with another piece of hardware.	Resolve the Interrupt conflict. Refer to Section 3.2 "Determining Available IRQs and Memory."
Error configuring memory at address <XXXXX>.	D/xxD: JP5/JP6 and offset SW1 settings on the board do not match the board's ADDR= parameter in the Dialogic.cfg file. -or- D/41E, VFX/40, or Dialog/4: The identification number on the board does not match the ID parameter in the Dialogic.cfg file. -or- D/12x and D/8x: I/O port settings on board do not match entry in the Dialogic.cfg file. -or- Another device (e.g., network controller, EMS driver, memory manager, BIOS shadowing, or caching) on the PC may be using the memory at the specified address.	Make sure the address specified by the ADDR= parameter in the Dialogic.cfg file matches the jumper settings on the board. Make sure the ID specified for this board matches the ID= parameter in the Dialogic.cfg file. Make sure the I/O port address matches PORT= parameter specified in the Dialogic.cfg file. Disable the feature, exclude the memory address from the feature, or select another memory address for the Dialogic board.
Error reading boot file.	The file Genboot.bin may have been corrupted.	Reinstall Genboot.bin from the software release disk and retry the download.

C H A P T E R 6

Configuring IP Telephony Hardware (Optional)

This chapter provides step-by-step instructions for installing Dialogic DM3 IPLink boards. The chapter covers the following topics:

- Required Hardware and Software
- Installing the Dialogic IPLink Board
- Installing the Dialogic IPLink Drivers

The Visual Voice online Help and IP telephony sample applications will provide you with the information you need to design your application. To get started, read the Overview section in the online Help's VoiceIP Control Reference.

6.1 Required Hardware and Software

The following hardware and software items are required to use IP telephony:

- Dialogic IPLink board and SCbus-compliant voice board
- Network interface card (NIC). Currently available IPLink boards require a separate NIC even if they already have an on-board NIC.
- Windows NT 4.0
- Dialogic IPLink drivers, release 2.x
- Visual Voice Pro 5
- The VoiceIP control (installed when you install Visual Voice Pro 5)

These requirements describe the environment needed to use the Voice over IP control. See Chapter 1 for a complete description of the Visual Voice Pro application development environment.

6.2 Installing the Dialogic IPLink Board

6.2.1 Hardware Setup

Although Visual Voice can use release 1 IPLink boards, we recommend release 2 boards such as the DM/IP0821A-T1 and DM/IP2431A-T1. The release 2 boards contain more features (such as an on-board network interface card) and will support software upgrades that may be unavailable for release 1 boards. Note that the release 1 B-series boards don't support the industry-standard G.723.1 vocoder, which provides the best available combination of compression and voice quality.

IPLink boards are not yet completely standalone products. They still require the following support hardware:

- A standard Dialogic voice board is required for all phoneline connections. Some IPLink boards have T1 interfaces, but they are not yet "live", so a T1 connection still requires a voice board with a T1 interface.
- Release 2 boards still require a separate network interface card (NIC) even though they have one built in. If you are using a release 2 board, you must have unique IP addresses for the standalone NIC and the IPLink on-board NIC.

6.2.2 Installing the IPLink Board

Before you insert the board into an available slot, make sure you turn off the PC and touch the PC's power supply to ground yourself. Place the IPLink board in an open slot, and connect it to the Dialogic voice board, as described in the Dialogic IPLink installation manual. See Chapter 3 for a detailed discussion of Dialogic voice board installation.

> **Note**: We recommend incrementing the value of the Board ID rotary switch for each Dialogic board you install in your PC. However, it is possible to use a Board ID value of 0 for more than one board in some PCI installations. For more information, refer to the Dialogic technical note "How are PCI boards numbered in a pure PCI and a mixed ISA/PCI system?" at **http://support.dialogic.com/is/tnotes/tnbyos/winnt/tn187.htm**

6.3 Installing the IPLink Drivers

IPLink driver installation involves the following steps:

1. Uninstall all existing Dialogic Windows NT drivers.
2. Run the Dialogic IPLink Drivers setup program.
3. Configure the IPLink firmware.
4. Configure the on-board NIC (release 2 boards only).
5. Start and test the drivers.

6.3.1 Uninstalling Dialogic Drivers

You must uninstall any Dialogic Windows NT drivers that are currently on your PC. The Dialogic IPLink release 2 drivers are in the DNA driver family and support DNA version 2 functionality, but they cannot co-exist with any other Dialogic drivers. Reboot your system after uninstalling the old drivers.

> **Note**: Since IPLink uses DNA-based drivers rather than Streams-based drivers such as 98.02, boards or applications that require Streams drivers can't coexist with IPLink boards. For example, Artisoft Visual Fax 2.x (for GammaLink fax boards) requires Streams drivers, and therefore can't run on the same PC with an IPLink board. Artisoft Visual Dialogic Fax (for Dialogic VFX fax boards) can run with DNA drivers, and can coexist with IPLink boards. Refer to **http://support.dialogic.com** for details on individual boards.

6.3.2 Installing IPLink Drivers

To install the Dialogic IPLink drivers:

1. Insert the CD labeled "Dialogic Drivers" included with Visual Voice Pro 5.

   After a brief wait, a driver selection installation screen appears automatically. If the driver selection screen does not appear after minute or so, select Run from the Start menu and use the Browse button to run Setup.exe from the CD-ROM drive.

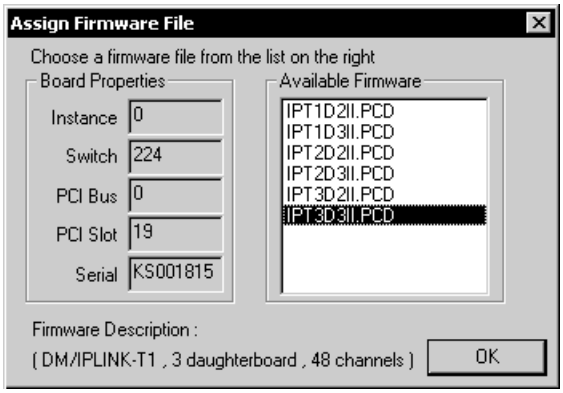
2. Choose IPLink from the driver package options.

   After a pause, the installation begins.

3. Follow the onscreen directions to complete the driver installation. You will have to reboot again after the software has been installed.

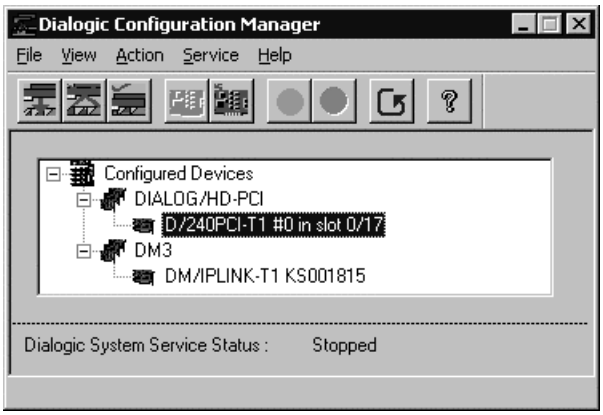
6.3.3 Configuring the IPLink Firmware

After rebooting, start the Dialogic Configuration Manager. The Configuration Manager will automatically detect your new hardware, and will prompt you to select the appropriate firmware for your specific board. The following dialog will be displayed:



Select the appropriate firmware file in the "Available Firmware" list. Whenever you highlight a file in the list, a description of the corresponding board is displayed in the "Firmware Description" field at the bottom of the dialog box. Click OK to install the selected firmware.

After the firmware has been installed, the Configuration Manager's main window will display a list of configured devices, including both the IPLink board and the voice board, as shown below:

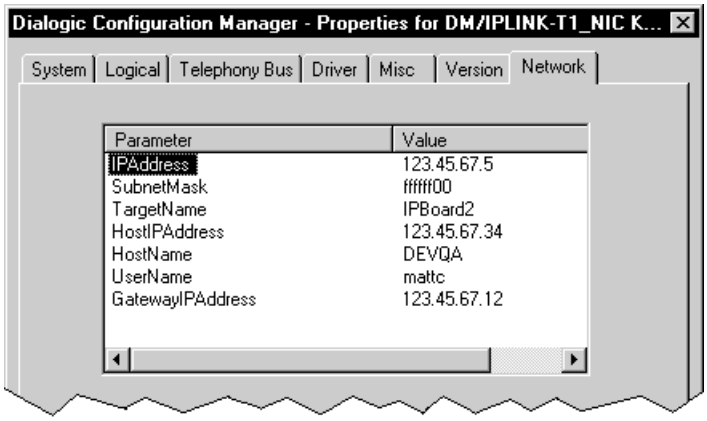


You can distinguish between multiple IPLink boards by model name and serial number. To access the Properties dialog for a board, double-click on its name in this display.

6.3.4 Configuring the Network Interface Card

This step applies only to release 2 IPLink boards. As noted previously, release 2 boards still require a separate, standalone NIC even though they have one built in. You must have unique IP addresses for both the standalone NIC and the IPLink on-board NIC.

To bring up the Properties dialog for the IPLink board, double-click on the board's name in the Configuration Manager main window (as described on the previous page). Click on the Network tab to start setting IP addresses for the NIC.



Be sure to enter the SubnetMask value in hexadecimal format (i.e., **`FFFFFF00`** rather than **`255.255.255.0`**). A standard decimal value will generate an error when the drivers attempt to load.

6.3.5 Starting and Testing the Drivers

After configuring the firmware, start the drivers by selecting the *Start Services* option from the *Services* pull-down menu in the Dialogic Configuration Manager's main window. Both the IPLink board and the voice board should start, but they will take a long time (typically at least two minutes).

To test the drivers, you can run Dialogic's Multi-threaded Voice sample program. There should be an icon for this program in the Dialogic Sample Programs folder of the Dialogic System Software program group. If you encounter errors, refer to "Troubleshooting NT Drivers", section 4.3.

6.3.6 Next Steps

The Visual Voice online Help and sample applications contain the information you need to design your application. To get started, read the Overview section in the online Help's VoiceIP Control Reference.

For further assistance, you can contact Artisoft technical support. For technical support contact information, refer to the Technical Support topic of online Help.

C H A P T E R 7

Configuring Digital Lines (Optional)

This chapter describes how to configure Visual Voice Pro 5 for Windows NT to run with Dialogic T1, Aculab (E1, T1, or ISDN BRI), or GlobalCall digital lines. Section 7.1 explains Dialogic T1 digital line configuration, Section 7.2 explains how to configure Aculab digital lines, and Section 7.3 explains GlobalCall configuration.

7.1 Configuring Dialogic T1 Digital Lines

Visual Voice's Extended T1 support allows you to control line signaling directly and receive events from Dialogic T1 hardware by managing the T1 line's bit signaling (e.g., A and B bits).

For detailed information, refer to the "Extended T1 Support Overview" online Help topic.

> **Note:** The Dialogic Windows NT drivers must already be installed and configured as described in Chapter 5 before configuring Dialogic digital lines.

7.1.1 Determining Extended T1 Signal Definitions

T1 lines use two bits, the A bit and B bit, set to high (on) or low (off) to indicate events on a particular timeslot, such as rings or the line being picked up. The A and B bit signals are sent both from Visual Voice Pro to the CO (for example, a pickup signal) and from the CO to Visual Voice Pro (for example, a ring signal). For some lines, a series of signals are exchanged between Visual Voice Pro and the CO to indicate a pickup or hangup. The bit settings that indicate a particular event depend on how your phone company set up the T1 line.

For each signal, you can specify that the A and B bits be set high (H) or low (L), or you can specify a wink (W). For example, AHBH or ALBH. To determine your T1 signal definitions, ask your phone company the following questions:

> **Note**: The wink definition is set in the Dialogic .PRM file. Refer to your Dialogic documentation for information about changing the wink definition.

Signal	Function	Question to ask your phone company
Initialize	Sets the line to an idle state. (default: ALBL)	"What A and B bit settings indicate an idle line (i.e., before a call)?"
PickUp	Takes the phone off-hook. (default: AHBH)	"What A and B bit settings seize the line when an incoming call is detected? Does the CO respond by sending back signals? If so, what are the A and B bit values? Do I then need to respond again with another signal? If so, what?"
HangUp	Puts the phone on-hook. (default: ALBL)	"What A and B bit settings drop the line? Does the CO respond by sending back signals? If so, what are the A and B bit values? Do I then need to respond again with another signal? If so, what?"
TimeSlotRing	Indicate an incoming call. (default: AHBH)	"What A and B bits settings indicate an incoming call?"
TimeSlotDrop	Indicates the caller hung up the phone. (default: ALBL)	"What A and B bits settings indicate the person that called me hung up?"

For the Initialize, TimeSlotRing, and TimeSlotDrop definitions only one setting for each bit is allowed. The PickUp and HangUp signals can have multiple sets of bit combinations to specify a "handshaking" sequence between the CO and your application.

For example:

- If the CO sends a bit setting of A and B bits high to indicate an incoming call on the T1 line, your TimeSlotRing signal definition should be set to "Wait for AHBH."
- If the CO expects to receive a bit setting of A and B bits high when your application seizes the line, your PickUp signal definition should be set to "Send AHBH."
- If the CO responds to the PickUp signal above with a wink, the PickUp signal definition should be set to "Send AHBH, Wait for Wink."

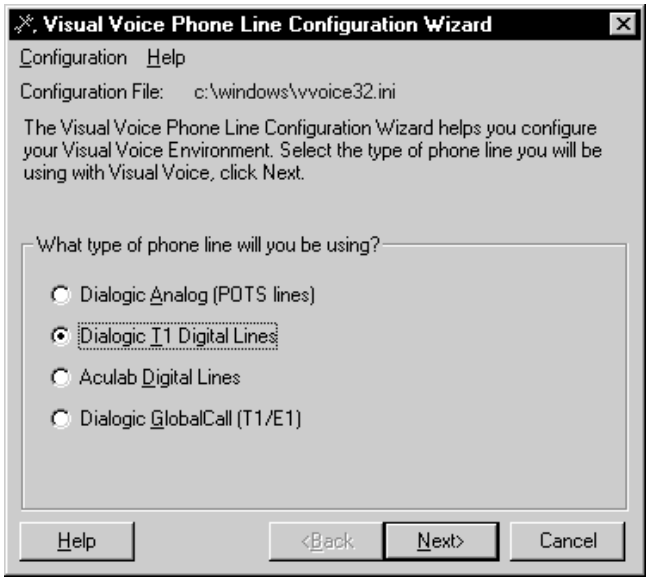
You can use the Extended T1 Experimenter  to watch the A– and B-bit changes and deduce the signals if you are having difficulty obtaining the signal definitions from your telephone company. Refer to the "Using the Extended T1 Experimenter" online Help topic for instructions.

7.1.2 Running the Visual Voice Phone Line Configuration Wizard

The Visual Voice Phone Line Configuration wizard configures your Visual Voice environment for T1, Aculab, GlobalCall, or analog line support. Configuration information is stored in the VVoice32.ini file. Refer to the online Help for more information about this file.

To configure, click the Phone Line Configuration icon  from the Visual Voice Pro 5 program group.

The Visual Voice Phone Line Configuration wizard appears.



Select "Dialogic T1 Digital Lines," click the Next button, and follow the wizard screens. Click the Help button for additional information about any of the Phone Line Configuration parameters.

> **Note**: If you have a board with 2 T1 trunks, such as the D/480SC-2T1, you must enter "2" when prompted to enter the number of T1 boards installed in your system.

While running the wizard, you can see the changes that will be made to your configuration file by selecting View Configuration from the Configuration menu. Refer to the online Help for a description of the VVoice32.ini parameters.

7.1.3 Testing T1 Lines with Visual Voice Pro

The Visual Voice ActiveX Control Experimenter (also called the Voice Experimenter) is a program that lets you test the functionality and behavior of the Visual Voice Pro ActiveX (OLE/OCX) controls, such as the Voice control. The Experimenter is also useful for determining if your T1 signal definitions are correct. This section contains information about testing the following events and methods associated with T1 signal definitions:

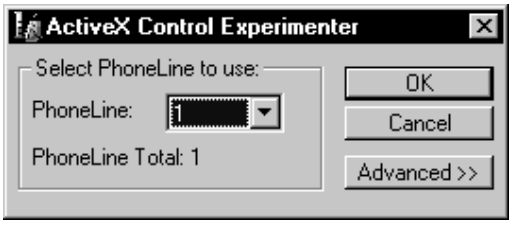
- TimeSlotRing event
- TimeSlotDrop event
- PickUp method
- HangUp method

Refer to the online Help for detailed information about these events and methods.

☞ **To run the Voice Experimenter:**

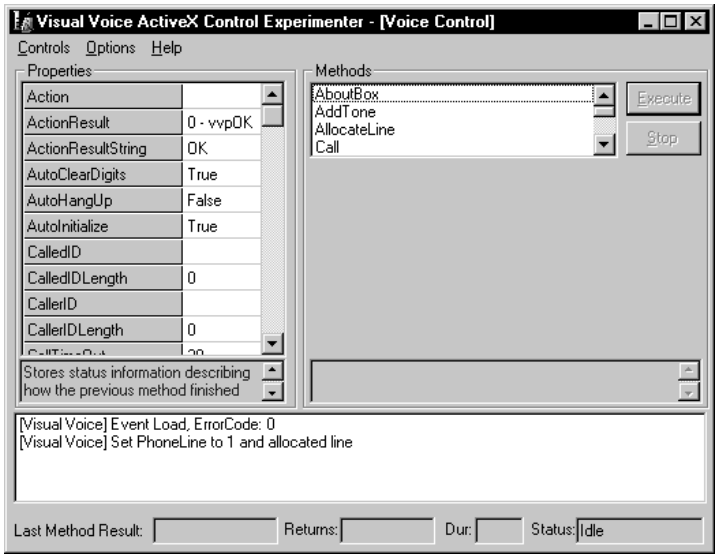
1. Click the Voice Experimenter icon  in the Visual Voice Pro 5 program group.

   The dialog box appears for you to set the phone line and other options.



2. Select the phone line to run with the Voice Experimenter and click the Advanced button to display additional parameters to configure. Click OK when you are finished with the settings.

The Voice Experimenter window appears.



Note: In many T1 environments you cannot control which line receives the call when you dial the phone number for the line. Typically, calls rotate through the channels one-by-one after each call.

Testing the TimeSlotRing Event

The TimeSlotRing event is triggered when a call is detected on a registered TimeSlot.

To test the TimeSlotRing event in the Voice Experimenter, dial the phone number for your T1 line. If your T1 environment is configured correctly, the following lines appear in the Voice Experimenter's Log window:

```
Picked Up Timeslot
Event Timeslot Ring Detected
```

The following table lists problems you might encounter when testing the TimeSlotRing event:

Symptom	Possible Cause	Suggestion
"Event TimeSlotRing" does not appear in the Experimenter Log window when you dial the phone number for your T1 line.	The TimeSlot specified in the RegisterTimeSlot method does not match the line you are dialing.	Use the RegisterTimeSlot method with the correct TimeSlot.
	The TimeSlotRing event signal definition specified in the Phone Line Configuration wizard is incorrect.	Verify the bits received with your CO or by using the Digital Line Experimenter. Refer to Section 7.1.4 "Trouble-shooting T1 Configurations" for more information.
	Your T1 line requires a wink immediately after detecting the TimeSlotRing event.	Close down the Voice Experimenter and restart. Select the Wink Start option on the Set Phone Line dialog box.
"Event TimeSlotRing" and "Picked up Line" appear continuously in the Experimenter Log window when you dial the phone number of your T1 line.	The PickUp event signal definition specified in the Phone Line Configuration wizard is incorrect.	Verify the bits received with your CO or by using the Digital Line Experimenter. Refer to Section 7.1.4 "Troubleshooting T1 Configurations" for more information.

Testing the TimeSlotDrop Event

The TimeSlotDrop event is triggered when the channel registered to the Voice control drops.

☞ **To test the TimeSlotDrop even in the Voice Experimenter:**

1. Dial the phone number for your T1 line. If your T1 environment is configured correctly, the following lines appear in the Voice Experimenter's Log window:

   Picked Up Timeslot
   Event Timeslot Ring Detected

2. Hang up the phone you used once the line has been answered by the Voice Experimenter. The following lines should appear in the Experimenter Log window:

   Hung Up Timeslot
   Event Timeslot Drop Detected

The following table lists problems you might encounter when testing the TimeSlotDrop event:

Symptom	Possible Cause	Suggestion
After hanging up the phone "Event TimeSlotDrop" does not appear in the Experimenter Log window.	The TimeSlotDrop event signal definition is incorrect.	Verify the bits received with your CO or by using the Digital Line Experimenter. Refer to Section 7.1.4 "Troubleshooting T1 Configurations" for more information.
After hanging up the phone "Event TimeSlotDrop" and "Hung up Line" continuously appear in the Experimenter Log window.	The HangUp event signal definition is incorrect.	Verify the bits to send with your CO or by using the Digital Line Experimenter.

7.1.4 Troubleshooting T1 Configurations

The Visual Voice Trace Window is useful for determining if your Visual Voice Pro T1 configuration is working properly. The Trace Window displays all the relevant T1 signaling events that occur on the line.

☞ **To start the Visual Voice Trace Window:**

1. Close any Visual Voice applications.
2. Select the Trace Window icon  from the Visual Voice Pro 5 program group. The Visual Voice Trace Window appears.
3. Run your Visual Voice application.

Example 1:

The following is a sample of what appears in the Visual Voice Trace Window when the signal received corresponds to a signal definition configured with the Phone Line Configuration wizard.

```
VVDT132: TimeSlotRing Received: "AHBH"
```

In this sample, the Dialogic board received a signal event that corresponds to the TimeSlotRing signal definition defined in the wizard.

Example 2:

The following is a sample of what appears in the Visual Voice Trace Window when the signal received does not correspond to a signal definition configured with the Phone Line Configuration wizard:

```
VVDT132: Received unmapped bit transition "AH"
```

In this sample, the Dialogic board received a signal event with the bits set to AH. This event is ignored by the Visual Voice application, because none of the signal definitions specified with the Phone Line Configuration wizard are defined as "Wait for AH."

Refer to the "Using Visual Voice's Extended T1 Support" online Help topic for more information about Visual Voice T1 support.

7.2 Configuring Aculab Digital Lines

Visual Voice's Aculab support allows you to use the Aculab family of digital network access cards with your Visual Voice applications. Aculab cards allow your Visual Voice application to connect to a wide range of digital phone lines including E1, ISDN (both BRI and PRI), and T1 networks. For detailed information, refer to the "Aculab Overview" online Help topic.

Refer to Chapter 1 for general Aculab hardware and software requirements. Note the following:

- Aculab Support cannot be used with Visual Voice's Test Mode.
- Applications using voice processing resources require a Dialogic SCbus voice resource board such as the D/80SC, D/160SC, D/240SC, or D/320SC connected with an SCbus cable to the Aculab card.
- Applications that do not use Dialogic voice boards need to install the Dialogic Libdxxmt.dll and Libsrlmt.dll files. These files are available from Visual Voice technical support. (Refer to the online Help for contact information.)

7.2.1 Installing the Aculab Card

The steps below provide an overview of the Aculab installation procedure. Refer to the Aculab Device Driver Installation Reference Manual for detailed instructions.

1. Configure the card by setting the jumpers to a free IRQ and the DIP switch to the I/O address the card will use.
2. Install the device drivers by copying the appropriate call and switch drivers to your system, creating a config.acu file with configuration information for the drivers, and running Aculab's install.exe to install and configure the drivers.

   At a minimum, your switch driver configuration must specify the port address (-p) and memory window (-w) of the Aculab card and the -jsc switch. The call driver configuration must specify both of these plus the IRQ (-1) used by the card. Refer to the "Using Aculab SCbus Support" Help topic for details.

   Additional signaling configuration parameters that may be needed are explained in the Aculab installation guide.

Note: The Port Address specified with the -p switch in the config.acu file must match the I/O address set with the DIP switches on the board. The memory window specified with the -w switch in the config.acu file should be different from the memory address used for the Dialogic board's base memory address. Make sure you have configured both the Aculab control and switch drivers in the config.acu file.

3. Download the Aculab firmware with mvcldnld.exe.

   You must download the Aculab firmware to the board with mvcldnld.exe each time the system is restarted before you can start your application.

Note: If you change the configuration settings in the config.acu file, you must run Aculab's install.exe before the changes take affect.

7.2.2 Running the Visual Voice Phone Line Configuration Wizard

The Visual Voice Phone Line Configuration wizard configures your Visual Voice environment for T1, Aculab, GlobalCall, or analog line support. Configuration information is stored in the VVoice32.ini file. Refer to the online Help for more information about this file.

To configure, click the Phone Line Configuration icon  from the Visual Voice Pro 5 program group.

The Visual Voice Phone Line Configuration wizard appears.

Select "Aculab Digital Lines," click the Next button and follow the wizard screens. Click the Help button for additional information about any of the Phone Line Configuration parameters.

While running the wizard, you can see the changes that will be made to your configuration file by selecting View Configuration from the Configuration menu. Refer to the online Help for a description of the VVoice32.ini parameters.

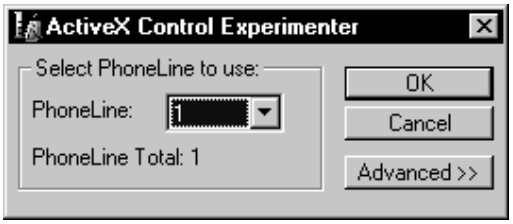
7.2.3 Testing Aculab Support

The Visual Voice ActiveX Control Experimenter (also called the Voice Experimenter) is a program that lets you test the functionality and behavior of the Visual Voice Pro ActiveX (OLE/OCX) controls, such as the Voice control. You can use the Voice Experimenter to test your Aculab installation.

☞ **To run the Voice Experimenter:**

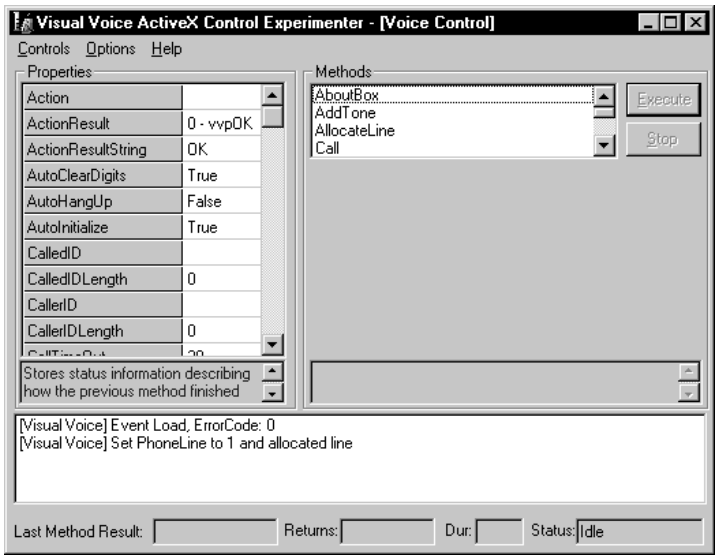
1. Click the Voice Experimenter icon  in the Visual Voice Pro 5 program group.

   The dialog box appears for you to set the phone line and other options.



2. Select the phone line to run with the Voice Experimenter and click the Advanced button to display additional parameters to configure. Click OK when you are finished with the settings.

   The Voice Experimenter window appears.



3. Use the Experimenter to test the following items:

   - Set the CallerIDLength and CalledIDLength properties to the expected number of digits for the CallerID (originating address) and CalledID (destination address) then Call into the Experimenter. After the TimeSlotRing event, the CallerID and CalledID properties will contain the calling line identity (CLI) and the direct dial-in numbers, respectively.

   - Test playing files, recording files, and getting digits.

Refer to the "Using the Voice Experimenter" Help topic for detailed information about the Voice Experimenter.

> **Note**: If possible, we highly recommend that you configure a second Aculab board on a system running DOS and Aculab's CallGen utility. You can then connect the two Aculab boards together to create a simulated phone network. This makes testing and debugging much easier than attempting to test with a live network.

7.2.4 Troubleshooting the Installation

If you have problems successfully installing Visual Voice with Aculab Support, try the following suggestions before contacting Visual Voice Technical Support.

- Open the Control Panel and double-click the Devices icon. Make sure the Aculab drivers were successfully loaded and are running.
- Make sure the Aculab firmware was successfully downloaded with mvcldnld.exe.
- If you are not seeing inbound and outbound call events, try reversing the inbound and outbound network cables on the Aculab board.
- Create a DOS boot disk with the appropriate Aculab DOS configuration files. (You can download the necessary drivers from the Aculab bulletin board). Boot from that disk and use the Aculab CallGen and Ptrace utilities (also available from the Aculab bulletin board) to test your hardware installation independent of Visual Voice and the Dialog hardware.
- If you are using DASS signaling in a simulated environment with CallGen, make sure you are running the DASS client protocol on one machine and the server protocol on the other. Make sure you are running the same protocol (e.g., DASS2) on both machines.

If the Dialogic drivers do not start after installing the Aculab board:

- Make sure the Aculab drivers have been installed from the correct directory (e.g., \Winnt\system32\Drivers\Aculab).

- Make sure the PEB or SCbus connector has been properly attached to both the Dialogic board and the Aculab board.

7.3 Configuring GlobalCall Digital Lines

GlobalCall is Dialogic's protocol-independent technology that allows your application to connect to a variety of T1, E1 and ISDN phone networks without changing code. Once you write your application to Visual Voice's GlobalCall support, you can connect to different types of phone networks by installing the proper Dialogic hardware and Dialogic GlobalCall protocol.

Some GlobalCall protocols are available with the DNA drivers on the Dialogic driver CD-ROM shipped with Visual Voice. If your protocol is not included, contact your local Dialogic representative or Artisoft Telephony Sales at (800) 914-9985 or (617) 354-0600 or telephonysales@artisoft.com for information about availability.

For detailed information, refer to the "GlobalCall Support Overview" online Help topic.

7.3.1 GlobalCall Installation Tips

To use GlobalCall, install the Dialogic boards, Dialogic drivers, the appropriate country-specific protocol, and Visual Voice Pro following the instructions in the previous chapters. Some important tips:

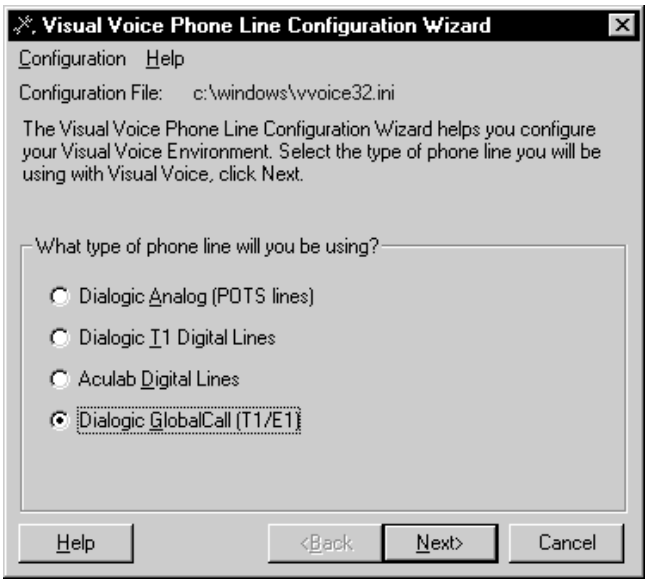
- You cannot use Dialogic 98.02 drivers with GlobalCall.
- Refer to the GlobalCall section of the "VVoice32.ini Parameters" online Help topic for information about configuring GlobalCall parameters.
- GlobalCall support cannot be used with sound cards.
- Some GlobalCall configurations may require additional files such as the Dialogic ICAPI package.
- Many E1 configurations use A-law file format encoding. In order to successfully place files, make sure the appropriate encoding is set in the Dialogic Configuration Manager options.

7.3.2 Running the Visual Voice Phone Line Configuration Wizard

The Visual Voice Phone Line Configuration wizard configures your Visual Voice environment for T1, Aculab, GlobalCall, or analog line support. Configuration information is stored in the VVoice32.ini file. Refer to the online Help for more information about this file.

To configure, click the Phone Line Configuration icon  from the Visual Voice Pro 5 program group.

The Visual Voice Phone Line Configuration wizard appears.



Select "Dialogic GlobalCall (T1/E1)," click the Next button and follow the wizard screens. Click the Help button for additional information about any of the Phone Line Configuration parameters.

> **Note**: The list of Dialogic GlobalCall protocols is expanding. If you are using a CAS protocol such as R2/MF, your protocol may not be one of the selections listed in the Phone Line Configuration Wizard. Choose another R2 protocol such as Singapore R2 (E1). After running the wizard, manually edit the VVOICE32.INI file in your windows directory. In the [GlobalCall] section, replace the Board*x*Protocol settings so that the first two letters match the country abbreviation for your protocol. For example, to use Brazil R2 on board 1, set Board1Protocol=br_r2_. The Board*x*Protocol settings are used to locate the inbound/outbound country dependent parameter (.CDP) files in your Dialogic CFG directory. The protocol file names are formed by appending i.cdp (inbound) or o.cdp (outbound) to the value of Board*x*Protocol. For example, the Brazilian .CDP file names are br_r2_i.cdp and br_r2_o.cdp.

While running the wizard, you can see the changes that will be made to your configuration file by selecting View Configuration from the Configuration menu. Refer to the online Help for a description of the VVoice32.ini parameters.

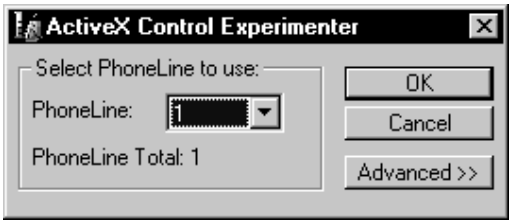
7.3.3 Testing GlobalCall Support

The Visual Voice ActiveX Control Experimenter (also called the Voice Experimenter) is a program that lets you test the functionality and behavior of the Visual Voice Pro ActiveX (OLE/OCX) controls, such as the Voice control. You can use the Voice Experimenter to test your GlobalCall installation.

☞ **To run the Voice Experimenter:**

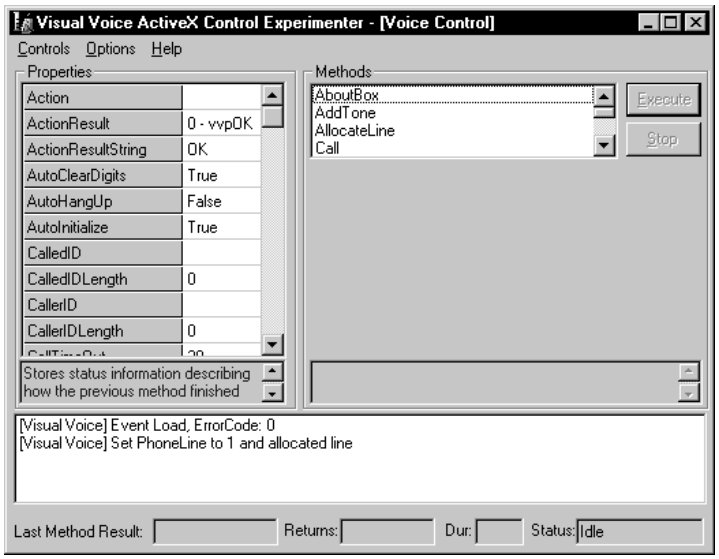
1. Click the Voice Experimenter icon  in the Visual Voice Pro 5 program group.

   The dialog box appears for you to set the phone line and other options.



2. Select the phone line to run with the Voice Experimenter and click the Advanced button to display additional parameters to configure. Click OK when you are finished with the settings.

   The Voice Experimenter window appears.



3. Use the Experimenter to test the following items:

   Place a call to the Experimenter. After the TimeSlotRing event, the CallerID and CalledID properties should contain the appropriate information.

   Test playing and recording files.

Refer to the "Using the Voice Experimenter" Help topic for detailed information about the Voice Experimenter.

7.3.4 Troubleshooting the Installation

If you have problems successfully installing Visual Voice with GlobalCall support, try the following suggestions before contacting Visual Voice Technical Support.

- In the Dialogic Configuration Manager (DCM) options for the Dialogic digital board, make sure the ParameterFile setting in the Misc tab is set to a valid parameter file (.PRM) for the protocol you are using. For example, for Brazil R2, ParameterFile = BR_300.PRM.
- Your phone company may have particular requirements for your digital line. For example, ANI may not be supported. You can modify the digital line settings by changing parameters in the [GlobalCall] section of the VVOICE32.INI file. Refer to the "VVOICE32.INI Parameters" topic in the online Help for more information.

The following suggestions apply specifically to CAS (R2/MF) configurations.

- Certain protocols, such as Romanian R2, require MSVCRTD.DLL to be installed on your system. Contact Dialogic for this .DLL or for updated protocol files.
- Certain protocols, such as US MF, require MSVCR40D.DLL to be installed on your system. Contact Dialogic for this .DLL or for updated protocol files.
- Certain protocols, such as Romanian R2, require a newer version of LIBGCR2.DLL than the version shipped with the DNA 3 drivers. You should receive this file with any protocols that require it. Make sure you install this file.
- If you're using a T1 board with US MF, make sure that the ICAPI.CFG in \DLGCDEV\DIALOGIC\CFG directory contains the following entry:

  ```
  $14 Disable DTI Wait call function ( 1=YES, 0=NO ) : 1
  ```

  For other protocols, the parameter should be 0.