**DANGER:**

Electrical current from power, telephone, and communication cables is hazardous. To avoid shock hazard, connect and disconnect cables as shown below when installing, moving or opening the covers of this product or attached devices. The power cord must be used with a properly-grounded outlet.

### To Connect

1. **Turn everything OFF.**
2. **First, attach all cables to devices.**
3. **Attach signal cables to receptacles.**
4. **Attach power cord to outlet.**
5. **Turn device ON.**

*Note: In the U.K., by law, the telephone cable must be connected after the power cord.*

### To Disconnect

1. **Turn everything OFF.**
2. **First, remove power cord from outlet.**
3. **Remove signal cables from receptacles.**
4. **Remove all cables from devices.**

*Note: In the U.K., by law, the power cord must be disconnected after the telephone line cable.*
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Notices

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Any additional information necessary to achieve interoperability of this program with other programs is available from: The DirectTalk Products Manager, Mail Point 183, IBM United Kingdom Laboratories, Hursley Park, Winchester, Hampshire, England, SO21 2JN.

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- Operating System/2
- Personal System/2
- PS/2
- S/390

Other company, product, and service names, which may be denoted by a double asterisk (**), may be trademarks or service marks of others.
About this book

This book provides information for the installation and configuration of the IBM CallPath DirectTalk/2 voice-processing system (referred to elsewhere in this book as DirectTalk/2). The book includes detailed instructions for the following tasks:

- Installing and configuring DirectTalk/2 Version 2.1 as a new system
- Migrating to DirectTalk/2 Version 2.1 from previous releases
- Updating a DirectTalk/2 Version 2.1 system
- Reinstalling DirectTalk/2 Version 2.1
- Deleting DirectTalk/2 Version 2.1

Note: Before you start to use the information in this book, read the README.DOC file which you will find on the DirectTalk/2 CD-ROM (or on System Diskette 1). This file contains last minute information.

Who Should Use This Book

This book is intended to help system administrators prepare for and install the DirectTalk/2 system.

System administrators must understand the communications, hardware, software, and storage prerequisites for installing DirectTalk/2. They are expected to be familiar with installing hardware and software on a Personal System/2 or a personal computer used either as a stand-alone unit, or as part of a network with connections to a host computer. They must also be familiar with the installation, configuration, and terminology of IBM Operating System/2 (OS/2).

In addition, system administrators are expected to be familiar with the network requirements of their location and with their computer system, including peripheral equipment such as terminals and printers. Knowledge of their telephone system and telephony terminology is also necessary.

When referring to a computer system for use with DirectTalk/2, the term personal computer is used in this book. DirectTalk/2 Version 2.1 runs under IBM OS/2 Warp Version 3.0.

How to Use This Book

Before you install the DirectTalk/2 system, read the whole of this book, and then read any information in the IBM CallPath DirectTalk/2 National Language Information that relates specifically to the country in which you are installing. (See “Other DirectTalk/2 Books and Information” on page xiv.)

The information is divided into the following chapters:

- Chapter 1 provides an overview of the DirectTalk/2 Version 2.1 installation and configuration procedure
- Chapter 2 describes what you should do before you start the installation procedure
• Chapter 3 describes how to install all the necessary hardware
• Chapter 4 describes how to configure the non-DirectTalk/2 components of your system
• Chapter 5 describes how to install, update, reinstall, and delete the DirectTalk/2 software
• Chapter 6 describes how to start up the DirectTalk/2 system
• Chapter 7 describes how to set up the DirectTalk/2 software
• Chapter 8 describes how to configure the DirectTalk/2 Telephony Server
• Chapter 9 describes how to migrate to DirectTalk/2 Version 2.1 from earlier releases
• Appendix A describes how to create installation diskettes from the DirectTalk/2 CD-ROM
• Appendix B describes the configuration of Aculab cards
• Appendix C describes the configuration of Dialogic ISA cards
• Appendix D describes the configuration of Dialogic Micro Channel cards
• Appendix E describes parameters that are available for supported telephony cards

A glossary of terms and abbreviations is also included.

Procedure descriptions in this book generally refer to the mouse method of performing the tasks. All the procedures can also be performed from the keyboard using the normal OS/2 commands and controls.

Where to Find More Information

Other DirectTalk/2 Books and Information

This book is part of a library of DirectTalk/2 books. To get the most out of your system, refer to the other DirectTalk/2 books as well. The following books are included on the DirectTalk/2 CD-ROM and can be read online using the Library Reader program which is also included on the DirectTalk/2 CD-ROM. If you prefer to have hardcopy of any of the documents, you can print pages, sections, or whole books from Library Reader. You can also buy the printed books by placing orders through your IBM representative, or the IBM branch office serving your locality.

The online versions of these books are also included on the Networking Systems Library CD-ROM.

• IBM CallPath DirectTalk/2 General Information and Planning, GB35-4403
• IBM CallPath DirectTalk/2 Application Programmer’s Guide, SB35-4404*
• IBM CallPath DirectTalk/2 Administrator’s Guide, SB35-4405*
• IBM CallPath DirectTalk/2 Application Development User’s Guide, SB35-4408*
The books marked with * in the list above are also provided in IPF online readable format. (Use the OS/2 VIEW command to display these manuals.)

All the programs and utilities provided with DirectTalk/2 also include online help to assist you with the various DirectTalk/2 related tasks.

For more information about CallPath products see:
- The Internet CallPath and DirectTalk Home Page

Non-DirectTalk/2 IBM Documentation Referenced in This Book
- IBM Distributed Console Access Facility documentation
- IBM Real-Time Interface Co-Processor documentation
- IBM Communications Manager/2 documentation
- IBM Communications Server/2 documentation
- IBM Personal Communications documentation

Non-IBM Hardware and Software Related Information
The following non-IBM documentation and contacts may also be of use:
- Dialogic Products and Services Guide (available in hardcopy or CD ROM titled World View 3)
- Dialogic Software Installation Guide
- Dialogic System Release 4.2 Software Installation Reference
- Getting Started with a Technology on Antares under OS/2
- Dialogic Application Note 17 (AN017) Ordering Service and Installing Equipment for T-1 Applications
- XXX Voice SW Reference Guide for OS/2 and XXX Hardware Reference Guide - specific to the hardware being used/purchased (where XXX is the particular board level product being used)
- L&H TTS SW Reference for OS/2 (for Antares)
- VCS ASR SW Reference for OS/2 (for Antares)
- Aculab Device Driver Installation Reference Manual
Dialogic Headquarters and Technical Support

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  Japan
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- Other regional offices are located worldwide. Consult the Dialogic Web site or World View3 CD-ROM for additional locations if needed.

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Voice Control Systems (VCS (**) Technical Support

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Dallas, Texas
TX 75244
Tel. 214-386-0300
Chapter 1. An Overview of DirectTalk/2 Installation

This chapter describes, in general terms, how to install and configure DirectTalk/2 Version 2.1 with all the optional features. Read carefully through the text to get an overview of the installation procedure, disregarding those items which do not apply to your proposed DirectTalk/2 system.

Read through the remaining chapters of this guide for a detailed explanation of the installation and configuration procedure.

The recommended installation procedure is as follows:

1. Install and configure all required hardware
2. Install and configure all device drivers and hardware related software
3. Install and enable the DirectTalk/2 software
4. Check out your initial DirectTalk/2 installation
5. Configure your DirectTalk/2 system

The DirectTalk/2 CD-ROM

The DirectTalk/2 CD-ROM contains the following software:

1. The DirectTalk/2 Base System files
2. The DirectTalk/2 Optional Feature files
3. The DirectTalk/2 Language files
4. The SystemView License Use Management programs
5. The following DirectTalk/2 manuals in IPF online readable format. (Use the OS/2 VIEW command to display these manuals.)
   - *IBM CallPath DirectTalk/2 Application Development User's Guide*
   - *IBM CallPath DirectTalk/2 Administrator's Guide*
   - *IBM CallPath DirectTalk/2 Application Programmer's Guide*
   - *IBM CallPath DirectTalk/2 Problem Solving Guide*
6. The Dialogic and Aculab device drivers and card support software
7. All the DirectTalk/2 manuals in READ/2 online readable format
8. The IBMREAD/2 program for reading the DirectTalk/2 manuals online and for printing hardcopy if required
9. Diskette images of items 1 to 6

Items 1 to 5 are installed using the DirectTalk/2 Installation Program.

Items 6 and 8 each have their own installation programs, and a utility is provided to create diskettes from item 9.

The DirectTalk/2 manuals (item 7) can be read directly from the CD-ROM, or can be copied to a hard disk on your personal computer.
If you want to install DirectTalk/2 from diskettes, you should create the diskettes from the images on the CD-ROM (item 9) using the procedures described in Appendix A, “Making Installation Diskettes from the CD-ROM” on page 75.

You can also copy all the files from the CD-ROM to a LAN-attached server to enable installation on other personal computers attached to the LAN.

Installing the Hardware

If you want to run voice applications on your proposed DirectTalk/2 configuration, you will need to install one or more Dialogic or Aculab cards into the expansion slots of your personal computer. In addition, some configurations require host communication or network cards.

You are recommended to install the various pieces of hardware in the following order:

1. Install the telephony hardware:
   - Voice communication cards
     The voice communication cards are one or more cards consisting of:
     - Network Interface (NIF) cards (for example, Dialogic LSI/80(\textsuperscript{**}) and DTI/211(\textsuperscript{**}), or Aculab Digital ISDN Access)
     - Voice Processing (VP) cards (for example, Dialogic D/81(\textsuperscript{**}) or D/121(\textsuperscript{**}))
     - Combined network interface and voice processing cards (for example Dialogic D/41ESC(\textsuperscript{**}))
   - Dialogic Text-to-Speech (TTS) cards for the Text-to-Speech Feature (optional)
   - Dialogic Voice Recognition (VR) cards for the Voice Recognition Feature (optional)
   - Dialogic Antares(\textsuperscript{**}) cards for the Text-to-Speech and Voice Recognition features (optional)

   \textbf{Note}: The other optional DirectTalk/2 features do not require any additional telephony hardware.

2. Install the host communications/network hardware (optional)

3. Install remote support hardware (optional)

   To install the remote capabilities of the IBM \textit{Distributed Console Access Facility} (DCAF), you need:
   - Any external modem supported by DCAF
   - Cables
Installing Non-DirectTalk/2 Software

1. Configure all Micro Channel cards using your OS/2 backup Reference diskette and the option diskettes supplied with the cards.
2. Install the Dialogic or Aculab device drivers and card support software from the DirectTalk/2 CD-ROM (or from the diskettes created from the DirectTalk/2 CD-ROM).
3. Configure all ISA telephony cards.
4. Configure NetBIOS resources.
5. Install host communications device drivers and support software.
   **Note:** If you plan to install an IBM Real-Time Interface Co-Processor (ARTIC) card for host communications, you must install the ARTIC OS/2 device drivers before installing the DirectTalk/2 software.
6. Install remote support device drivers.
7. Install IBMREAD/2.

Installing and Enabling the DirectTalk/2 Software

The DirectTalk/2 software needs to be installed and configured to create a working system. Your licenses then have to be installed to enable DirectTalk/2 and any optional features.

To install DirectTalk/2 software you need:

- The DirectTalk/2 CD-ROM

or

- The following diskettes created from the DirectTalk/2 CD-ROM:
  - The DirectTalk/2 system diskette set
  - The country parameters diskette
  - At least one language diskette set

The software is installed using an installation program provided on the CD-ROM (or the first installation diskette).

At installation time defaults are provided for all the configuration parameters and, providing you have installed the hardware correctly, in most cases you will have a working DirectTalk/2 system just by accepting the default values offered by the program.

To enable your installed system you require:

- A DirectTalk/2 License diskette
- A Lines License diskette if you want to use the Telephony Server component
- A License diskette for each optional feature you want to enable
You then need to use the License Use Management **Nodelock Administration** program (which is included on the DirectTalk/2 CD-ROM), and your License diskettes to install your license information.

---

**Checking Your Initial DirectTalk/2 Installation**

Before making any configuration changes, you are recommended to start your default system and to run the **MENU** sample application to check that you have a working system.

---

**Configuring Your DirectTalk/2 System**

You can configure each node in your DirectTalk/2 system to meet your specific requirements using the following programs which are installed during the DirectTalk/2 installation.

- **DirectTalk/2 Setup**
  
  Which allows you to set or change various configuration settings for the base system and optional features

- **Telephony Server Configuration**
  
  Which enables you to set or change telephony parameters
Chapter 2. Preparing to Install DirectTalk/2

This chapter describes the preparatory work which you need to do to enable your DirectTalk/2 installation to proceed smoothly.

The preparatory steps are:
- Define your DirectTalk/2 network configuration
- Define your DirectTalk/2 system requirements
- Determine NetBIOS resource requirements
- Define any host computer interfaces
- Determine installation and configuration parameter values

Defining Your DirectTalk/2 Network Configuration

Before installing your DirectTalk/2 system, you first need to determine what type of system you want, and what you want to use it for. For example:
- Will you need to install a network of distributed DirectTalk/2 systems, or a stand-alone system? (See IBM CallPath DirectTalk/2 General Information and Planning for information on the use and advantages of distributed DirectTalk/2 systems.)
- Do you want to have separate development and production systems?
- Do you need a multiuser development environment? If so, how many developers will there be?
- Do you need a dedicated system administrator’s personal computer? If so, how many of them?
- How do you want to handle application statistics? For example, you can have the statistics from all your DirectTalk/2 nodes sent automatically to a central location (for example, your system administrator’s personal computer), or they can be collected locally.

For information on the network configuration options see IBM CallPath DirectTalk/2 General Information and Planning.

Outlining Your Configuration

Once you have determined configuration requirements, it is useful to draw a picture of the network. This makes a good vehicle for planning the responses you need to provide to the installation and setup programs when you install and configure your system. Each node requires a unique name in your system.

Sample Network Configuration

The following diagram shows a sample DirectTalk/2 network configuration.
Figure 1. Sample DirectTalk/2 Configuration

- Two DirectTalk/2 nodes dedicated to production applications (PROD01 and PROD02). The nodes contain hardware and software required to run voice applications.
- One DirectTalk/2 node dedicated to application development (DEV01). This node contains hardware and software required to run voice applications. These resources will be shared by two application developers. Because this node is for development, all statistics generated by applications on this node will be collected on this node. This node can also support an application developer.
- Two DirectTalk/2 nodes (APDEV01 and APDEV02) for application developers. These nodes will run only the Voice Application Developer.
- One system administrator’s DirectTalk/2 node (SYSADMIN). This node runs the Node Manager and collects all statistics from production applications.

Defining Your DirectTalk/2 Nodes

When you are preparing to install DirectTalk/2, you need to consider a number of requirements relating not only to DirectTalk/2, but also to the personal computers on which it will run. Ensure that all the following items are complete for each node in your network before going on to the next section.

Note: Detailed information about all the node requirements listed below can be found in IBM CallPath DirectTalk/2 General Information and Planning.

- Telephone requirements.
Calculate how many telephone lines you require for DirectTalk/2.

- Space, power, and environmental requirements.
  Ensure you have sufficient power outlets and the appropriate physical environment for your DirectTalk/2 system.

- Network requirements.
  Decide if this is a stand-alone DirectTalk/2 system or part of a distributed system on a network of personal computers.

- Host Communications requirements.
  Decide whether or not your DirectTalk/2 system will communicate with a S/370, S/390, AS/400, or ASCII host machine.

- Check that your personal computer is suitable for your proposed DirectTalk/2 configuration:
  - Ensure the processor on your personal computer meets or exceeds the minimum requirements for your DirectTalk/2 package.
  - Ensure you have enough memory installed.
  - Ensure you have enough free space on your fixed disk.
  - Ensure you have installed IBM OS/2 Warp Version 3.0 including all the necessary components to support your proposed configuration. This must include OS/2 REXX.
  - Ensure you have installed any communications software you plan to use to communicate with a host computer, such as Communications Manager/2 (CM/2), Personal Communications for OS/2 (PCOMM), or TCP/IP for OS/2.
  - Ensure you have all the adapter cards and any other hardware required for your proposed DirectTalk/2 system, together with any associated support software.
  - Ensure you have sufficient available adapter slots in your personal computer to accommodate the required hardware for your proposed DirectTalk/2 system.

Estimating Your NetBIOS Resource Requirements

If you are using a Local Area Network (LAN) distributed system, you need to make an estimate of the NetBIOS resources that you require. NetBIOS resources are quantities of sessions, command, and names. When you configure NetBIOS using Multiple Protocol Transport Services (MPTS), you must specify numbers for each of these resources. As a general rule, DirectTalk/2 takes all three of these resources in equal quantities. So, if DirectTalk/2 requires 40 sessions, it also requires 40 commands and 40 names. The following resource estimates are provided to help you determine your own requirements. The NetBIOS requirements are affected by:

- The number of host sessions configured
- The number of remote clients permitted to access this node
- The number of remote nodes that the local node manager can access
The formula is as follows:

\[
\text{total} = \text{number of host sessions} + \text{number of LAN clients} + \\
\text{number of remote nodes} + \text{overhead}
\]

Where overhead is:

- 0, if LAN clients=0 and remote nodes=0
- 6, if LAN clients=0 and remote nodes > 0
- 7, if LAN clients > 0

**Defining Your Host Computer Interface**

DirectTalk/2 can communicate with a host computer (IBM S/370, S/390, or AS/400), or any computer which supports IBM 3151, DEC VT100, or VT220 Telnet sessions.

If you are planning to install the optional DirectTalk/2 Host Communications Feature, you need to determine what additional software products you need to install. Use the information provided in this section to help with this task.

**S/370 and S/390 Hosts**

DirectTalk/2 communicates with a S/370 or S/390 host computer via the Advanced Program to Program (APPC) interface, or 3270 terminal emulation. Depending on the communications option you have chosen you will need to install and configure the appropriate communications software. See “Configuring Host Communications” on page 30 for configuration procedures.

For 3270 emulation of up to 26 host sessions, DirectTalk/2 supports the Emulator High Level Language Application Programming Interface (EHLLAPI) provided by either IBM Communications Manager/2 or IBM Personal Communications for OS/2. DirectTalk/2 supports 3270 emulation for screen sizes of 24x80, 32x80, 43x80, and 27x132 characters. Data conversion between the EBCDIC host and the ASCII personal computer is provided by the communication products.

For 3270 emulation of more than 26 host sessions, DirectTalk/2 supports:

- The LUA interface of IBM Communications Manager/2 or Communications Server/2
- The IBM Realtime interface Co-processor (ARTIC) Portmaster Adapter/A or Multiport Model 2 adapters using an EIA RS232 or V.35 Synchronous Data Link Control (SDLC) link

DirectTalk/2 supports emulation of 3278 models 2,3,4, and 5 Display Stations using non-extended datastream, and provides code page conversion between the EBCDIC host data and the ASCII personal computer for these links.

APPC communication is supported via the IBM ARTIC Portmaster Adapter/A or Multiport Model 2 adapters using an EIA RS232 or V.35 SDLC link. It is primarily designed to support communication with IBM CICS applications and requires user-written voice program actions and a user server on the CICS system.
AS/400 Host

DirectTalk/2 communicates with an AS/400 host via 5250 or 3270 terminal emulation. Depending on the communications option you have chosen you will need to install and configure the appropriate communications software.

5250 emulation is provided via the IBM Communications Manager/2 EHLLAPI interface and supports a 24x80 character screen size equivalent to the following 5250 Display Station models:

- IBM 3196 Display Station Model A20
- IBM 3197 Display Station Model C20
- IBM 5291 Mainframe Interactive Display
- IBM 5292 Mainframe Interactive Display Model 1

3270 emulation can also be used via the 3270 Remote Attachment Support of the AS/400. DirectTalk/2 supports this function as for 3270 connections to the S/370 and S/390.

Hosts Which Support ASCII Terminals Using TCP/IP

DirectTalk/2 can communicate with any host computer which supports Telnet terminals. The IBM Transmission Control Protocol/Internet Protocol (TCP/IP) for OS/2 communications software product is required for this support. Specifically DirectTalk/2 emulates the following ASCII terminals:

- IBM 3151
- DEC VT100
- DEC VT220

These terminals normally operate as teletype devices, outputting characters on a line by line basis. When the bottom of the screen is reached, the whole screen scrolls up a line at a time. Care must be taken in application design to ensure that the host program does not cause data to scroll off the emulated screen before the voice application has captured it. The host application should generally be written to drive the screen in non-scrolling mode by outputting the correct control characters for the defined terminal type.

DirectTalk/2 configuration allows definition of the above terminal types on both the personal computer and the host. Ideally these should be the same, although it is not mandatory.

Any physical communications link supported by TCP/IP for Telnet sessions can be used.

SNA Network Planning

If you are using 3270 emulation via SNA it is necessary to define the terminals to the host system. This is described in the appropriate communications product documentation. For 3270 using ARTIC communication adapters this information is given here.
DirectTalk/2 emulates an IBM 3274 Subsystem Control Unit with attached terminals. This is an SNA Physical Unit (PU) Type 2.0 cluster controller. The ARTIC communications adapter connects to the host via an SDLC line and (usually) a modem. At the host, the line is usually connected via a modem to an IBM 37xx Communications Controller. The ARTIC cards support either an RS232 or V.35 interface at up to 64Kbps data rate with the appropriate modem. If the DirectTalk/2 system is located close to the 37xx controller, a modem may not be necessary; consult your network specialist for advice. The setting of the CLOCKING parameter in the SNA terminal definition depends on whether you use a modem. Set CLOCKING=EXT if using a modem or set CLOCKING=DIRECT if not.

To define DirectTalk/2 to an SNA network, you must define:

- a line
- a PU
- a number of Logical Units (LUs)

The LUs are allocated during the terminal emulation configuration and APPC configuration.

For terminal emulation, an LU is associated with each terminal emulation session. There can be up to four such sessions for each telephone line in the DirectTalk/2 configuration but the maximum number of host sessions you can have depends on the number of DirectTalk/2 applications running, the host connection method and whether you are using the Voice Messaging feature.

**Note:** The following calculations assume that your node is stand-alone. If your node is part of a network the value of 124 should be substituted with the number of NetBIOS resources you have configured with MPTS (see “Estimating Your NetBIOS Resource Requirements” on page 7).

The maximum possible number of host sessions (H) is given by the following formula:

\[ H = 124 - L - 2M \]

where:

- \( L \) is the greater of the number of phone lines and the number of DirectTalk/2 applications. There is generally one DirectTalk/2 application per phone line but in some instances the number of applications may be greater than the number of lines.

- \( M \)

  1 if the Voice Messaging feature is installed

  or

  0 if you do not have voice messaging.

For example, if you have a 24 line system with Voice Messaging, then the maximum possible number of host sessions would be:
\[ H = 124 - 24 - 2 = 98 \]

and a 48 line system with no voice messaging would be:

\[ H = 124 - 48 = 76 \]

This maximum possible number is also subject to the limitations of the communications method as follows:

<table>
<thead>
<tr>
<th>Session Type</th>
<th>Communications Method</th>
<th>Maximum Number of Sessions</th>
</tr>
</thead>
<tbody>
<tr>
<td>3270</td>
<td>CM/2 EHLLAPI</td>
<td>26 \textsuperscript{2}</td>
</tr>
<tr>
<td>3270</td>
<td>PC/3270 EHLLAPI</td>
<td>26 \textsuperscript{2}</td>
</tr>
<tr>
<td>3270</td>
<td>ARTIC</td>
<td>H</td>
</tr>
<tr>
<td>3270</td>
<td>CM/2 or CS/2 LUA</td>
<td>H</td>
</tr>
<tr>
<td>5250</td>
<td>CM/2 EHLLAPI</td>
<td>15 \textsuperscript{2}</td>
</tr>
<tr>
<td>5250</td>
<td>PC AS/400 EHLLAPI</td>
<td>26 \textsuperscript{2}</td>
</tr>
<tr>
<td>ASCII</td>
<td>TCP/IP</td>
<td>H</td>
</tr>
<tr>
<td>APPC</td>
<td>ARTIC</td>
<td>H</td>
</tr>
</tbody>
</table>

\textbf{Notes:}
1. \( H \) is the maximum possible number of host sessions calculated above
2. These figures assume a LAN connection. They may be less for other host links. See the communications product documentation for details.

If you use a combination of communications methods the total number of host sessions are limited to \( H \). In addition EHLLAPI sessions are subject to a total of 26 if using both 3270 and 5250 together. It is not possible to use CM/2 EHLLAPI and PCOMM EHLLAPI together on the same system.

For APPC, an LU is associated with each APPC path that is configured during APPC configuration. DirectTalk/2 supports screen sizes for the following 3278 models:

- 2 (24x80)
- 3 (32x80)
- 4 (43x80)
- 5 (27x132)

DirectTalk/2 responds to the screen size specified in the PSERVIC field in the host terminal definition table in VTAM. DirectTalk/2 does not support the 3270 extended datastream Query command so the Query bit (bit 0) of the Presentation Services Flags byte (byte 14) of the PSERVIC definition must be set to zero.
The following parameters must match DirectTalk/2 settings for the ARTIC configuration. Consult your systems programmer and note the values for use during DirectTalk/2 configuration:

NRZI=
Whether NRZI (YES) or NRZ (NO) data encoding is used on the link.

Interface type=
Whether an RS232 or V.35 modem is being used on the link.

PU ADDR=
The SDLC polling address of the ARTIC adapter on the link.

MAXDATA=
The maximum data packet size to be used on the link.

Initial LU LOCADDR=
The first LOCADDR defined as a 3270 terminal for this PU. DirectTalk/2 assigns LOCADDRs sequentially from this value for the number of terminal sessions defined.

These parameters are typically found in the SYS1.VTAMLST file on the host.

The following is an example of SNA definitions:

**Example SNA Definitions**

```
* SDLC LINK FOR PORTMASTER UNITS
GRS11 GROUP LNCTL=SDLC,
    DIAL=NO
    REPLYTO=1.0,
    DUPLEX=FULL,
    NRZI=YES
    SSCPFM=USSSSCS,
    MODETAB=TPOMODE,
    PAUSE=0.1,
    RETRIES=(7,4,3)
    CLOCKNG=EXT,
    OWNER=WLMVS1,
    ISTATUS=ACTIVE,
    USSTAB=TPOUSS,
    PUTYPE=2,
    MAXOUT=7,
    MAXDATA=265,
    PASSLIM=7,
    ANS=CONTINUE,
    IRETRY=NO,
    PACING=5,
    TYPE=NCP

*19.2 KBPS LINE
T02909L LINE ADDRESS=(032),SPEED=19200
*PORTMASTER CONTROLLER
T02909P2 PU ADDR=C1
```
For APPC links, the following parameters are needed for DirectTalk/2 configuration:

**Initial LU LOCADDR**

The first LOCADDR defined as an APPC session for this PU. DirectTalk/2 assigns LOCADDRs sequentially from this value for the number of APPC paths defined.

**LOGMODE**

The log mode entry that defines the mode DirectTalk/2 will use when requesting an APPC session with the host application.

DirectTalk/2 does not use synchronization for APPC conversations. Host programs supporting DirectTalk/2 should therefore be defined with SYNCEVEL 0.

**NetView Alerts**

DirectTalk/2 can optionally send SNA NMVT alerts when significant events occur which need to be reported to a network operator. This function is available with Communications Manager/2, Communications Server/2, or ARTIC host connections. It is not available when using Personal Communications for OS/2 or TCP/IP for OS/2.

Alerts are received by the single Alert Focal Point in an SNA domain. The IBM NetView series of products typically provides this function and so alerts are generally referred to as ‘NetView Alerts’ in DirectTalk/2. NetView Alerts are sent to the NetView...
on the system where the PU is defined. When used with the ARTIC adapters, DirectTalk/2 is an NMVT Service Point and requires a Service Point Name to be configured. This name must be unique in the network. When used with Communications Manager/2 or Communications Server/2, the CPname as configured in Communications Manager/2 is used as the Service Point Name.

Deciding Which DirectTalk/2 Components and Features to Install

DirectTalk/2 consists of a base system component, a runtime system component, and a number of optional features. You need to decide which components and features you need to install to create a system that will meet your requirements.

Notes:
1. To use any of the telephony functions you must install the runtime system component, as well as the base system component and any additional features you may want to use.
2. You require a license for the base system, and a separate license for your runtime system and each optional feature that you want to install.

DirectTalk/2 Base System Functions

A base DirectTalk/2 system, when connected to other voice systems that are capable of running voice applications, allows you to:

- Use the application development environment including:
  - A menu driven program for creating voice applications
  - A set of predefined actions and variables that you can use in your applications
  - A number of prerecorded voice segments for commonly-used words and phrases in multiple languages
  - Support for recording your own voice segments
  - Test and debug tools
  - The ability to develop applications in either DirectTalk/2's own application language or in OS/2 REXX

- Use the system management tools which:
  - Support local and remote system management
  - Collect statistics on application use
  - Display real-time status of telephone lines and applications
  - Provide password protection and audit-trail facilities

The base system license also enables you to install and use the Toolkit which allow you to write your own user actions, user servers, and user requesters to expand your system features.
DirectTalk/2 Runtime System Functions

Adding the runtime system component to your base DirectTalk/2 system allows you to run applications that can:

- Answer the telephone and interact with callers.
- Accept pushbutton or voice input from callers.
- Play prerecorded messages.
- Provide correct spoken syntax for numbers, dates, times and currency.
- Originate calls.
- Allow the caller to exit the application and talk to a person.
- Refer or transfer the caller to another person.
- Recognize dial tone, ring back, line busy, and circuit busy tones.
- Allow analog or digital connection.
- Manipulate data including:
  - Process numeric, alphabetic, and alphanumeric data
  - Perform arithmetic calculations and string operations
  - Combine prerecorded voice segments with variable data
  - Make decisions based on caller input or stored data

Functions Provided by DirectTalk/2 Features

The DirectTalk/2 optional features extend the facilities offered by the runtime system. Some of the optional features also require additional hardware and software to make use of their function.

Voice Recognition Feature

This feature, when used with additional voice recognition hardware and software, adds the following capabilities to your system:

- Recognition of discrete numeric voice input
- Recognition of discrete alphanumeric input
- Recognition of continuous numeric speech input (depending on the Dialogic hardware used)
- Resolution of ambiguous responses to improve accuracy
- Recovery from speaker error and provision of context-sensitive help
- Support for multiple voice recognition languages
- Allowing callers to interrupt prompts (depending on the Dialogic hardware used)
- Allowing callers with rotary phones to use DirectTalk/2 applications

Text-to-Speech Feature

This feature, when used with additional text-to-speech hardware and software, enables ASCII text to be converted to computer-generated speech. The text source can be the DirectTalk/2 database or voice segments text, application data, or a host screen. This feature is available for use with Dutch, English, German, French, Italian, and Spanish.

Note: To use the full range of languages you must use Antares cards with L&H firmware.
Communications Feature
This feature, when used with additional communications hardware and software, adds the following capabilities to your system:

- Interaction with host computers, including retrieving data and communicating it to the caller
- Support for a wide range of host communications options for S/370, S/390, AS/400, and ASCII terminal hosts
- Support for multiple host terminal emulation sessions per telephone line
- Support for a variable number of shared paths for APPC servers in host APPC sessions

Voice Messaging Feature
This feature adds the following capabilities to your system:

- Recording and storing voice messages in a mailbox
- Retrieving and playing messages from a mailbox
- Maintaining a directory of mailbox users and databases of user names and messages

Telecommunications Devices for the Deaf (TDD) Feature
This feature allows hearing-impaired callers to communicate with DirectTalk/2 through TDD terminals.

ADSI Feature
This feature adds the following capabilities to your system:

- Support for interaction with ADSI devices
- A development environment to create and manage ADSI scripts
- Support for the transmission of ADSI functions to ADSI devices with real-time variable substitution
- Support for the receipt alphanumeric data from ADSI devices

Determining Installation and Configuration Settings
Some of the information required to configure your system is entered during installation and the rest is entered using Setup and Telephony Server Configuration which are supplied as part of DirectTalk/2. You may find it useful at this stage to determine which settings you will want to change and the values you intend to use. IBM CallPath DirectTalk/2 General Information and Planning contains information to assist you in making your decisions, and online help is provided with each of the configuration programs.

Installation Settings
During the installation process on each DirectTalk/2 node, you will need to provide the following information:

- Which components of DirectTalk/2 you want to install
- The drive and directory for the installation
If you want to install more than the base system you will also need to provide information on:

- The number of telephone lines you want to install
- The country and language you want to use
- The optional features you want to install

At installation time default values are used for all the other configuration settings to provide you with a simple working system. However, you will eventually want to change some settings to create the nodes you have outlined earlier in this chapter. You use Setup and Telephony Server Configuration to make these changes, and the online help included with these programs provides detailed descriptions of and information about, each of the settings and choices.

**Setup Settings**

The following list contains the settings that can be changed with Setup.

For each Node in your network decide the following:

- A name of up to eight characters for the node. If the node is part of a voice system network, the name must be unique within the network.

- If the node is part of a voice system network:
  - Will this node be used to run voice applications? If yes what is the name of the node that will collect the statistics of Voice Applications running on this node?
  - Will this node be used to develop voice applications? If yes what is the name of the node where the voice applications created on this node will be run and stored during development?
  - Will this node manage its own and/or other voice systems? If it will manage other voice systems, decide their node names.
  - Will this node collect statistics from voice applications on other nodes? If yes, decide the names of nodes from which they will be collected.
  - Will this node manage voice mailboxes? If yes, what is the name of the node where the mailbox directory is stored.
  - The maximum number of LAN clients that can be attached to this system. This number includes all other nodes that:
    - Send statistics to this node
    - Store or test their applications on this node
    - Manage applications that are running on this node
    - Store Mailbox directories on this node
    - Access databases on this node
  - The number of the LAN adapter that this node will use for communications.

- The voice application sessions you want to automatically start when this voice system is started.
• Which application manager you want to use by default. If most of your applications are developed with the VAD, you should choose the **Voice Application Manager**. If most are developed with Telephony REXX, you should choose **Telephony REXX**.

• The voice programs you want to be preloaded when the voice system starts. This should be all the voice programs that you use in an application session, although voice programs developed using Telephony REXX cannot be preloaded.

• What information you want to log. The following statistics, messages, and events can be logged:
  – Application statistics
  – Node messages
  – Command Server messages
  – Node statistics
  – Node management events

• The telephony cards you want to use and any specific ports you want them to connect to.

• Which terminal emulators you want to use (if any) and any special setup you may want to use.

• Which NetView alerts you want to send (if any).

• Whether you want to use Mailbox paging, and the line number to use for this service.

• Whether you plan to add any user actions, servers, or clients. If you do, you also need to determine any extra client or server paths you want to use, and any user servers you want to start when the voice system starts.

---

**Telephony Server Configuration Values**

**Telephony Server Configuration** enables you to change the following telephony parameters:

• The telephone number associated with each port
• Network interface card parameters
• Voice processing card parameters
• Voice recognition parameters
• Text-to-Speech parameters
• Telecommunication Devices for the Deaf parameters
• ADSI parameters
• Voice function parameters
• Voice segment sampling rate
• Call progress and hangup tone definitions

Consult Appendix E, "Telephony Card Configuration Parameters" on page 113, and the documentation supplied with your installed hardware and software, to find out which parameters you can configure for each of your cards and features.
Chapter 3. Installing the Hardware

DirectTalk/2 uses hardware that must be installed and configured before you can use the DirectTalk/2 software. This chapter provides instructions for installing the hardware you need and also tells you where to go to find more information if and when you need it.

**Note:** For information on installing device drivers and other card related software see Chapter 4, “Configuring the Non-DirectTalk/2 Components” on page 23.

The hardware associated with DirectTalk/2 and its optional features comprises Dialogic and Aculab E1 cards, host communications or network cards (optional), and remote support cards (optional). The recommended hardware installation procedure is as follows:

1. Install any Aculab cards
2. Install the Dialogic cards
3. Install the Host Communications or network hardware
4. Install the Remote Support hardware

**Note:** To protect the cards, it is recommended that you use an anti-static (or equivalent) wrist strap when handling the cards.

---

### Installing the Aculab E1 Hardware

The Aculab E1 cards include jumpers and switches which need to be set before the cards are installed in your machine. See Appendix B, “Configuring Aculab cards” on page 79 for details of the switch settings.

When the switches and jumpers are set, insert the cards into vacant slots in your personal computer taking notice of any instructions that come with the Aculab E1 card.

If you need further assistance refer to the Aculab documentation and contacts listed in “Non-IBM Hardware and Software Related Information” on page xv.

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### Installing the Dialogic Hardware

The Dialogic hardware that you may want to install on your system includes the following:

- Voice communications cards
- Text-to-Speech cards
- Voice Recognition cards
- Antares cards

Before you start to install your Dialogic cards you should check the following:

- Cards are designed for use in either Micro Channel, or in Industry Standard Architecture (ISA) personal computers and you should first make sure that your cards are suitable for your particular system.
Dialogic cards can not be installed in peripheral component interconnect (PCI) bus slots.

Within your personal computer, your telephony cards can be connected together using a Pulse Code Modulation (PCM) Expansion Bus (PEB), or System Computing Bus (SCbus) and you should make sure that you have cards that are compatible with the bus type you intend to use. See IBM CallPath DirectTalk/2 General Information and Planning for an explanation of the different telephony bus types.

Note: You cannot mix an SCbus and PEBs in the same machine.

Most cards need to be configured physically by setting jumpers and switches on the card, and installing dongles on Antares cards. This should be done before installing the cards inside the personal computer.

If PEB or SCbus is being used, the cards need to be connected with ribbon cables. The way in which the cables are connected and terminated determines your configuration and how your resources are shared. See “Connecting Ribbon Cables.”

Use the information provided in IBM CallPath DirectTalk/2 General Information and Planning to determine which cards are suitable for your requirements.

Use the information provided in Appendix D, “Configuring Dialogic Micro Channel Cards” on page 111 and Appendix C, “Configuring Dialogic ISA Cards” on page 93, and in the Dialogic documentation to configure specific cards.

When any switches and jumpers have been configured, insert the cards into suitable slots in your personal computer taking notice of any instructions that come with each particular card.

Further information and assistance can be obtained from the Dialogic documentation and support lines listed in “Non-IBM Hardware and Software Related Information” on page xv.

Connecting Ribbon Cables

If you want to share resources on a PEB or SCbus, the cards must be connected together through a ribbon cable. The same cable is used for both bus types.

If you are configuring a PEB bus system, a terminator needs to be installed on each of the cards that form the ends of the bus, unless these cards are self terminating. Where there is a choice, the terminator should be plugged in the Resource position. Terminators should not be present on any of the intermediate cards in the chain. Of the cards currently supported by DirectTalk/2 2.1, only the DTI/211 and Aculab E1 cards are self terminating. These cards can only be used at the ends of a PEB bus.

If you are configuring your system as an SCbus terminators are not required.
Installing the Host Communications and Network Hardware

DirectTalk/2 supports host communication through:

- The ARTIC Communication Adapter
- The following IBM communication products:
  - Communications Manager/2
  - Communications Server/2 OS/2 Access feature
  - Personal Communications for OS/2
  - TCP/IP for OS/2

Installing ARTIC Communication Adapters

For communication using an ARTIC Portmaster Adapter/A or Multiport Model 2 adapter follow the instructions given here for installing the adapter.

You require the following hardware:

- One of the following ARTIC Co-processor Adapters, depending on the type of personal computer being used:
  - Portmaster Adapter/A for Micro Channel personal computers
  - Multiport Model 2 for ISA personal computers
- One of the following Electrical Interface Boards (EIBs), depending on the SDLC line type (modem) being used:
  - Eight-Port RS-232 EIB
  - Six-Port V.35 EIB
  - Four-Port Selectable EIB
- An appropriate coprocessor interface cable for the EIB:
  - Eight-Port Cable
  - Six-Port V.35 Cable
  - Selectable Cable
- An appropriate modem and attachment cable or a Null-modem cable if connecting to a host computer that is near to the personal computer on which you are installing DirectTalk/2.

Before installing the ARTIC adapter into your personal computer, install the Interface Board onto the Co-processor Adapter according to the instructions in the Guide to Operations manual for the adapter.

For Micro Channel personal computers

Install the card according to the Portmaster Adapter/A Guide to Operations. During this process you are asked to configure the personal computer using the Reference Diskette. When in the View Configuration screen note the following values which you will need for configuring DirectTalk/2:
Physical card number
The physical card number of the adapter. This will be zero if this is the only card installed.

I/O Address
This is the address the support software uses to control the adapter. This will be 02A0H-02A7H if only one adapter installed. You only need to record the lower (starting) address.

Shared Storage Window Location and Size
The DirectTalk/2 software that is downloaded to the adapter utilizes an 8 kilobyte (KB) window. The automatic configuration will assign this value to an available 8KB window.

For ISA personal computers
Install the card according to the Multiport Model 2 Guide to Operations. Accept the default settings for all jumpers and switches, except block SW1:

- Set interrupt level to 7.
- Set the Card I/O Base Address to 02A0 for card 0 if this is the only Multiport adapter installed in the personal computer. If more than one adapter is installed, set the appropriate I/O address as shown in the Guide to Operations and make a note of the address for later use in DirectTalk/2 configuration.

Installing Adapters Supported by the Communications Products
Communications Manager/2, Personal Communications for OS/2, and TCP/IP for OS/2 support a number of protocols and connection types, through communications adapters (Token Ring and Ethernet for example). See the communication product and adapter documentation for details of which adapters you can use, and how to install them.

Installing Remote Support Hardware
You can manage a DirectTalk/2 system over a telephone line or local area network (LAN) using either the DirectTalk/2 distributed system configuration on a Token-Ring LAN or the IBM Distributed Console Access Facility (DCAF). DCAF can communicate across synchronous or asynchronous connections. If you plan to use DCAF for remote support you will need an additional communications link. DCAF supports a number of different communications adapters, including LAN adapters. Consult the DCAF documentation and install the appropriate adapter, modem and cables.

Note: It is not possible to use the same ARTIC adapter with DCAF and DirectTalk/2 at the same time. If your DCAF remote link is via SDLC you will need an additional SDLC adapter such as an IBM Multiprotocol Communications Adapter, IBM SDLC Adapter, or another ARTIC adapter.
Chapter 4. Configuring the Non-DirectTalk/2 Components

This chapter describes how to install and configure the device drivers and other software associated with the hardware you have installed for use with DirectTalk/2. It assumes that you already have IBM OS/2 Warp Version 3.0 installed and configured on your personal computer.

**Note:** This hardware configuration is critical. Unless the cards are set up according to the IBM recommendation, the DirectTalk/2 system might not function.

The recommended software installation procedure is as follows:

1. Configure any Micro Channel cards
2. Install and configure any required Aculab software
3. Install and configure required Dialogic software
4. Configure NetBIOS resources
5. Install and configure the host communications or network software.
6. Install and configure the remote support software.

### Configuring Micro Channel Cards

Any Micro Channel cards installed in your personal computer should now be configured by using the following:

- Your personal computer backup Reference diskette
- Option diskette supplied with the card

After installing all the cards that your location requires, insert the backup Reference diskette in your personal computer and restart the system.

From the reference diskette program, select **Copy an options diskette**, then select **Set Configuration**. For details, refer to the documentation provided with each card.

### Installing and Configuring the Aculab E1 Adapter Card Software

You must install the Aculab software before installing DirectTalk/2. An Aculab E1 adapter card is controlled by two software drivers:

**The Switch device driver (MVSWDEV.SYS)**
which is common to all supported E1 signalling protocols.

**The Call Control device driver.**
which is signalling protocol specific. For example, you must use the MVCLCAS.SYS driver for the E1 CAS protocol for 30 lines.

Protocol-specific firmware also has to be downloaded to the card before the voice system is started. The file containing this firmware has to be copied to your system together with the utility to download it to the card.
The Aculab software that you should install is supplied on the DirectTalk/2 CD-ROM. **Do not use** any software that may have been supplied with your Aculab card as it may not be compatible with DirectTalk/2 Version 2.1.

To copy the required files to your personal computer:

1. Insert the DirectTalk/2 CD into your CD-ROM drive.
2. Open the CD-ROM drive window on your personal computer.
3. Create a directory on your system where you want to store the Aculab device drivers and firmware files. This directory can be on any of your hard disks and can have any name you choose.
4. Copy the following files from the Aculab directory on the CD-ROM to your new directory:
   - `mvswdev.sys`  The switch control device driver.
   - `mvclxxx.sys`  The protocol specific 30 or 60 line call control driver.
   - `fname.RAM`    The protocol specific firmware file.
   - `mvcldnld.exe` The firmware download utility.
   - `restart.exe`  Utility to redownload, or restart the firmware. (This utility can also be used in place of mvcldnld.)
   - `dspdnld.exe`  Utility to download firmware to the Aculab daughter card. (This is required for certain protocols such as CCITT R2.)

   The names of the protocol specific files are shown in Table 2 on page 25.
5. Add the following two entries for the two device drivers to your `CONFIG.SYS` file:
   ```
   device=mvswdev.sys  
   device=mvclxxx.sys 
   ```
   where mvclxxx is the name of your protocol-specific call control driver.
   This will install the device drivers with the default settings for all the configuration options. If you want to change any of these options, you need to add parameters to each of the device driver entries. See Appendix B, "Configuring Aculab cards" on page 79 for details of the configurable options.
When you reboot your personal computer the Aculab device drivers are enabled.

**Notes:**

1. If you install more than one Aculab card, you must enter a pair of device statements for each card.
2. When you start DirectTalk/2 the Aculab firmware is automatically downloaded if you have Aculab cards installed.
If you are installing from diskette the procedures are the same, but you should insert the DirectTalk/2 diskette which holds the Aculab files, and open the diskette drive window instead of the CD-ROM drive.

### Table 2. Aculab Call Control Driver protocol specific files

<table>
<thead>
<tr>
<th>Protocol</th>
<th>30 lines</th>
<th>60 lines</th>
<th>fname</th>
</tr>
</thead>
<tbody>
<tr>
<td>DASS-2</td>
<td>MVCLDASS</td>
<td>MVCLDADA</td>
<td>DASS_USR</td>
</tr>
<tr>
<td>DPNSS</td>
<td>MVCLDPNS</td>
<td>MVCLDPDP</td>
<td>M1DPNSS</td>
</tr>
<tr>
<td>DPNSS enhanced</td>
<td>MVFDDPHS</td>
<td>MVFDDPDP</td>
<td>M1DPNSS</td>
</tr>
<tr>
<td>BT Callstream</td>
<td>MVLCAS</td>
<td>MVLCACA</td>
<td>M1BTCU</td>
</tr>
<tr>
<td>Mercury PDI DDI and non-DDI</td>
<td>MVLCAS</td>
<td>MVLCACA</td>
<td>M1PD1</td>
</tr>
<tr>
<td>FTZ 1TR6</td>
<td>MVCL1TR6</td>
<td>MVCL1T1T</td>
<td>1TR6_USR</td>
</tr>
<tr>
<td>Euro ISDN (ETS 300)</td>
<td>MVCLETS</td>
<td>MVCLETET</td>
<td>ETS_USR</td>
</tr>
<tr>
<td>ETS300 Sweden</td>
<td>MVCLETS</td>
<td>MVCLETET</td>
<td>SWED_USR</td>
</tr>
<tr>
<td>VN3/VN4</td>
<td>MVCLVN3</td>
<td>MVCLVN</td>
<td>VN3_USR</td>
</tr>
<tr>
<td>TS014</td>
<td>MVCLAUST</td>
<td>MVCLAU</td>
<td>AUST_USR</td>
</tr>
<tr>
<td>TNA 133</td>
<td>MVCLTNA</td>
<td>MVCLTN</td>
<td>TNA_USR</td>
</tr>
<tr>
<td>FETEX 150</td>
<td>MVCLFETX</td>
<td>MVCLFE</td>
<td>FETX_USR</td>
</tr>
<tr>
<td>ALS70D(T11-53E)</td>
<td>MVLCAS</td>
<td>MVLCACA</td>
<td>M1ALSUT</td>
</tr>
<tr>
<td>P7</td>
<td>MVLCAS</td>
<td>MVLCACA</td>
<td>M1P7</td>
</tr>
<tr>
<td>P8</td>
<td>MVLCAS</td>
<td>MVLCACA</td>
<td>M1P8</td>
</tr>
<tr>
<td>CCITT R2</td>
<td>MVLCAS</td>
<td>MVLCACA</td>
<td>M1R2T1</td>
</tr>
<tr>
<td>R1/E&amp;M</td>
<td>MVLCAS</td>
<td>MVLCACA</td>
<td>M1R1EM</td>
</tr>
</tbody>
</table>

(If you are installing from diskette the procedures are the same, but you should insert the DirectTalk/2 diskette which holds the Aculab files, and open the diskette drive window instead of the CD-ROM drive.)

### Installing and Configuring the Dialogic Card Software

You must install the Dialogic card software before installing DirectTalk/2. The software you should install is supplied on the DirectTalk/2 CD-ROM. **Do not use** any software that may have been supplied with your Dialogic cards as it may not be compatible with DirectTalk/2 Version 2.1. All the procedures are described using the CD-ROM as your installation source. If you are installing from diskette, insert the appropriate diskette and open your diskette drive window.

To install the Dialogic card software:

1. Insert the DirectTalk/2 CD into your CD-ROM drive
2. Open the CD-ROM drive window on your personal computer
3. Open the DIAGONIC\BASE directory
4. Double click on the **INSTALL.EXE** icon

The installation procedure consists of a series of menus and screens in which you are asked to make choices, or enter information. Some help is automatically provided on the screen, and more is sometimes available by pressing `<F1>` or entering `?’` in the entry field.
You are asked to make the following selections:

- Where you want to install the software. You are provided with a default of DIALOGIC.

- Whether you want to install the runtime files, or the runtime and development files. Use the screen help to make your decision, but you are recommended to at least install the ANSR demonstration program which is part of the Development files selection.

- Which card types you have installed. The screen help lists all the card numbers for each card type. Select all the types you have installed. Depending on the card types you choose you may also be asked to select more specific card numbers.

When the software has been installed, the configuration process starts automatically. The questions you are asked depend on the cards you have installed. Screen information and online help are provided to assist you. You may also find the information in Appendix C, “Configuring Dialogic ISA Cards” on page 93 useful when making your choices.

At the beginning of the installation process, and when configuration is complete, you are given the chance to view, or display the Release notes. These notes tell you about changes from previous releases and any previously undocumented restrictions, or enhancements, in the use of the hardware and software. After installation, the release notes are available as .DOC files in the DOC subdirectory of the main Dialogic installation directory.

If you want to change your Dialogic installation or configuration at a later date, run the SCMKCFG.EXE program if you are using SCbus mode, otherwise run the MKCFG.EXE program.

### Installing Dialogic Country Specific Parameters

To enable your Dialogic network interface cards to operate properly you need to install the files that contain the parameters values that are valid for the countries in which you are operating.

Use the following procedure to install the appropriate files:

1. Insert the DirectTalk/2 CD into your ROM drive
2. Open the CD-ROM drive window on your personal computer
3. Open the DIALOGIC\CSP directory
4. Double click on the INSTALL.EXE icon

The install program displays a list of countries that are supported by the current release of the Dialogic software. Choose the countries in which you want to use your DirectTalk/2 system.

The install program installs the necessary files on your personal computer and modifies the DIALOGIC.CFG file to enable the cards to operate correctly.
Installing Antares Technology Firmware

The Antares firmware has its own installation procedure which must be performed after the main Dialogic software installation.

If you re-install the main Dialogic software, you must also reinstall and reconfigure the Antares firmware. Make sure that you make backup copies of your Antares configuration that you can refer to during this task.

The Antares installation consists of the following:

1. Install the Antares base package which is the common Antares operating environment. This must be installed before any other Antares software and it only has to be installed once on a system, regardless of how many different Antares software technologies are installed.

2. Install the required Antares software technologies. Currently these are:
   - L&H Text-to-Speech
   - VCS Voice Recognition

3. Configure the Antares environment. This requires the editing of the Antares configuration file ANTARES.CFG.

Installing the Antares Base Package

You must install the main Dialogic card software before installing the Antares software. The software you should install is supplied on the DirectTalk/2 CD-ROM. Do not use any software that may have been supplied with your Dialogic cards as it may not be compatible with DirectTalk/2 Version 2.1.

To install the Antares base software:

1. Insert the DirectTalk/2 CD into your CD-ROM drive
2. Open the CD-ROM drive window on your personal computer
3. Open the DIALOGIC\ANTBASE directory
4. Double click on the INSTALL.EXE icon

The installation procedure consists of a series of menus and screens in which you are asked to make choices, or enter information.

The answers you must give to the following two questions are fixed:

- Choose a System Release Version - select **Release 4.2**
- Choose an installation directory - you must use the same directory as that used for the main Dialogic software installation (DIALOGIC is the default)

Use the help provided with the install program if you need assistance with other choices.

**Note:** You will be asked to choose whether you want to use PEB or SCbus. Which you choose depends on the configuration you want to create, but if you want to change to the other bus type at any time, you must rerun this installation procedure.
Installing the Antares Software Technologies
You must install the main Dialogic card software and the Antares base package software before installing the Text-to-Speech or Voice Recognition software. The software you should install is supplied on the DirectTalk/2 CD-ROM. Do not use any software that may have been supplied from any other source as it may not be compatible with DirectTalk/2 Version 2.1.

To install the Antares Software Technologies, use the same procedures as for the Antares Base Package using the appropriate installation program as follows:

- For L&H Text-to-Speech, use the INSTALL.EXE from the DIALOGIC\LHSTTS directory on the DirectTalk/2 CD-ROM.
- For VCS Voice Recognition, use the INSTALL.EXE from the DIALOGIC\VCSVVR directory on the DirectTalk/2 CD-ROM.

Take care: Before you install VCS Voice Recognition, make sure that there are no copies of VRXLIB32.DLL on your machine. In particular, check your OS2\DLL directory.

You can choose any drive or directory for the installation, preferably not the main Dialogic or DirectTalk/2 directories.

Ignore any comments relating to the installation of firmware files that are downloaded to the Antares card, as these files are provided as part of the language component of DirectTalk/2.

Configuring the Antares Environment
The Antares configuration details are specified in the ANTARES.CFG file, which can be found in the CONFIG subdirectory of the main Dialogic installation directory. To perform the Antares configuration, this file has to be edited using any text editor you choose. See “Software Configuration” on page 106 for details of the values you should use.

If you are attaching the Antares cards to an SCbus, you must also edit the DIALOGIC.CFG file by adding the line:

BusType=SCBUS

to the [Genload - All Boards] section.

Some Hints and Tips for Dialogic Software Installation
This section gives you some additional information that you might find useful during the installation of your Dialogic software.

Installing Header, Library, and Demonstration Files
If you want to install the support software, headers, and libraries, but you do not yet have the cards installed, when you get to the configuration screens, you can specify the number of cards to be configured as zero, or choose to end the configuration. This technique is also useful if you have installed the cards but do not want to enable them yet.
Note: The configuration program creates a number of statements in your CONFIG.SYS file. You must disable any of these statements that relate to cards that are not installed, or that you do not want to enable.

The Development files also contain a demonstration program (ANSR) which you can install with or without the headers and libraries. It is useful to run this program to test your system after you have installed and configured your Dialogic hardware.

Voice Recognition Cards
If you are installing VCS voice recognition on VRP cards for use with alphanumeric vocabularies, you must also “alpha enable” the cards with separately-purchased software. This software is purchased directly from VCS and, when placing the order, you need to supply the serial numbers of the VR daughter cards you want to enable. Use the instructions supplied with the software to run it and enable your cards.

Configuring NetBIOS Resources
If you are using distributed DirectTalk/2 systems on a LAN, sufficient NetBIOS resources must be available. After installing the LAN support on OS/2, NetBIOS must be enabled and configured using the LAN Adapter and Protocol Support (LAPS) program, which is stored in the \IBMCOM directory (refer to your LAPS documentation).

Note: LAN Server V4.0 uses MPTS to configure LAPS. Do not run LAPS directly if you are running this level of software.

Use the number of NetBIOS resources that you estimated in “Estimating Your NetBIOS Resource Requirements” on page 7 as input to the LAPS program. After you have changed the NetBIOS resource quantity definitions, you must restart (reboot) your system.

Checking NetBIOS Resource Usage
Because of the large number of applications and their varied configurations, it is difficult to predict the NetBIOS resource you require. Once you have installed DirectTalk/2 you can check your actual usage at any specific time using a program called TMSCHKNB which is supplied with DirectTalk/2. This program should be run after booting the system to see the base NetBIOS resources available. Then, by running it again after each application is started, you can determine the resource requirements for these applications.

To run the NetBIOS resource check program, change to the directory where DirectTalk/2 is installed and enter:

TMSCHKNB -A0

The number after the –A keyword is the LAN adapter number where NetBIOS is being used. If you have only one LAN adapter, this will normally be zero (Primary Adapter).

Check to see that the LAPS quantity definitions for NetBIOS Session, Commands, and Names are sufficient to cover the requirements of the applications you want to run.
simultaneously. If not, either the definitions must be increased, or other applications must be stopped while DirectTalk/2 is running.

Configuring Host Communications

Configuration of the communications hardware/software depends on which type of communication link and communications method you are using. This section describes the actions you need to take for the following communications scenarios:

- **3270 terminal emulation using Communications Manager/2 or Personal Communications for OS/2 EHLLAPI (up to 26 sessions)**
- **5250 terminal emulation using Communications Manager/2 or Personal Communications for OS/2 EHLLAPI (up to 26 sessions)**

  **Note:** Only 15 sessions are supported if using CM/2

- **3270 terminal emulation using Communications Manager/2 LUA or Communications Server/2 LUA (more than 26 sessions)**
- **ASCII terminal emulation using TCP/IP for OS/2 Telnet.**

All the above require the use of the LAPS program to configure the communications adapter. LAPS is shipped as part of several communications packages including:

- NTS/2
- LAN Server
- TCP/IP for OS/2
- Warp Connect (MPTS)
- **3270 terminal emulation using ARTIC Portmaster Adapter/A or Multiport Model 2 adapter**
- **APPC using ARTIC Portmaster Adapter/A or Multiport Model 2 adapter**

**3270 Terminal Emulation Using CM/2 or PCOMM EHLLAPI**

1. Use LAPS to configure the communications adapter as described in the communications product and adapter documentation.
2. Install the CM/2 or PCOMM program product and configure it to use the adapter as described in the product documentation.
3. Define the terminals on the host system as described in the CM/2 or PCOMM documentation.
4. Configure the 3270 sessions required for your DirectTalk/2 system, plus any you need for normal operator terminals as described in the CM/2 or PCOMM documentation. For DirectTalk/2 to use EHLLAPI sessions you must configure normal 3270 sessions, but they can be started minimized or hidden to prevent them taking up screen space. Each session has a short session name which is a single alphabetic character. Those sessions to be used as DirectTalk/2 host sessions must be defined with consecutive short names eg. 'A','B','C'... etc. Make
a note of the initial short session name as it is required for DirectTalk/2
configuration later.

Note: For PCOMM, if you create multiple sessions, this is determined by the
order in which the sessions are started. The first session is given a short
name of A, the second B and so on.

Configure one of the following screen sizes supported by DirectTalk/2:

- 24 x 80
- 32 x 80
- 43 x 80
- 27 x 132

5250 Terminal Emulation Using CM/2 or PCOMM EHLLAPI

1. Use LAPS to configure the communications adapter as described in the
communications product and adapter documentation.

2. Install the CM/2 or PCOMM program product and configure it to use the adapter as
described in the product documentation.

3. Define the terminals on the AS/400 system as described in the CM/2 or PCOMM
documentation.

4. Configure the 5250 sessions required for your DirectTalk/2 system plus any you
need for normal operator terminals as described in the CM/2 or PCOMM
documentation. For DirectTalk/2 to use EHLLAPI sessions you must configure
normal 5250 sessions, but they can be started minimized or hidden to prevent
them taking up screen space. Each session has a short session name which is a
single alphabetic character. Those sessions to be used as DirectTalk/2 host
sessions must be defined with consecutive short names eg. 'A','B','C'... etc. The
starting short name is required for DirectTalk/2 configuration later.

Note: For PCOMM, if you create multiple sessions, this is determined by the
order in which the sessions are started. The first session is given a short
name of A, the second B and so on.

Configure the screen size as 24 x 80.

3270 Terminal Emulation Using Communications Manager/2 LUA

1. Use LAPS to configure the communications adapter as described in the
communications product and adapter documentation.

2. Install the CM/2 program product and configure it to use the adapter as described
in the product documentation.

3. Define the terminals on the host system as described in the CM/2 documentation.

4. Configure the LUA sessions required for your DirectTalk/2 system as follows:
   a. From the main CM/2 setup screen select 'Additional definitions'
   b. Select LUA APIs in the Feature or Application window
   c. Select SNA LUA APIs from the Communications Manager Profile List
d. For each LUA session select the CREATE button

e. Enter the Host Link Name, NAU address, and LU name as follows and select OK

**Host link name**
The Host link name defaults to 'HOST0001' and you can usually let it default unless you have configured more than one host link, in which case select the link to the host where your 3270 terminals are defined.

**NAU address**
The NAU address is the Network Addressable Unit address for the logical unit (LU) and is defined as the LOCADDR in the VTAM definition on the host. Contact your host system programmer to get the list of NAU addresses available for the host link you are defining. Each LUA session must have a different NAU address. It is possible to configure CM/2 to use both normal 3270 emulation sessions and LUA sessions. In such cases it is important to be aware that all the sessions configured on a single host link share the same set of NAU addresses which must be unique for each session.

**LU name**
The LU name is used by DirectTalk/2 to identify the particular terminal session. Each LU used by DirectTalk/2 has the same 5-character prefix followed by a 3-character sequence number. The sequence number is assigned sequentially, by DirectTalk/2, starting from '001' and incrementing by one for each session. DirectTalk/2 uses a default prefix of 'E32LU' but you may select any 5 characters you want. Using the defaults, for example, you would use LU names of 'E32LU001', 'E32LU002' etc for the names of each LUA session you configure up to the number required for your system. DirectTalk/2 supports a maximum of 4 times the number of voice lines installed, but system performance may be compromised if you configure too many sessions for your hardware configuration.

**Notes:**

1. There is no fixed relationship between the numeric portion of the LU name and the corresponding NAU address other than the mapping achieved via this table within the CM/2 configuration.

2. You will need as many LU names as there are host sessions to be used by the DirectTalk/2 3270 LUA emulator.

   The resulting list of API definitions should look like this:

<table>
<thead>
<tr>
<th>LU Name</th>
<th>Host Link Name</th>
<th>NAU Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>E32LU001</td>
<td>HOST0001</td>
<td>2</td>
</tr>
<tr>
<td>E32LU002</td>
<td>HOST0001</td>
<td>3</td>
</tr>
<tr>
<td>E32LU003</td>
<td>HOST0001</td>
<td>4</td>
</tr>
</tbody>
</table>
Communications Server/2 OS/2 Access Feature

Communications Server/2 (CS/2) is similar to Communications Manager/2, except that CS/2 does not include any terminal emulation. If you need operator terminal sessions as well as DirectTalk/2 LUA sessions, you must also install Personal Communications for OS/2 (for 3270 sessions), or TCP/IP for OS/2 (for Telnet 3270 sessions). If you use Personal Communications, the 3270 sessions can share the LUA Host link, and will share the same set of NAU addresses.

ASCII Terminal Emulation Using TCP/IP for OS/2 Telnet

1. Use LAPS to configure the communications adapter as described in the communications product and adapter documentation.
2. Install the TCP/IP for OS/2 program product and configure it to use the adapter as described in the product documentation.
3. Ensure the ASCII host system is configured as a Telnet server, is running a Telnet daemon, and that remote systems are allowed to connect to it. Test the connection by using Telnet to connect DirectTalk/2 to the ASCII host.

3270 Terminal Emulation Using ARTIC Portmaster Adapter/A or Multiport Model 2 Adapter

1. Install the Realtime Interface Co-Processor OS/2 Support software as described in the product documentation that came with it.
2. Create a one-line ASCII text file with the name ICAPARM.PRM containing the following line:
   
   `#aaaa 00 pp nn 10 F6 10 0F E010$
   
   where:
   
   aaaa is the card I/O address recorded previously when the card was installed.
   
   pp is the Page Value obtained from Table 3 on page 34. For Micro Channel personal computers, use the value of the Shared Storage Window, recorded when installing the Portmaster card earlier, as the Memory Address, and use the associated Page Value. For example, this will normally be 64 for a Memory Address of C8000-C9FFF if the adapter was installed without any memory conflicts.

   For ISA bus personal computers, it is necessary to determine where there is an 8KB (2000H) block of unused memory. This will normally be in the range C0000H to DFFFFH. Use this value to determine the Page Value from Table 3 on page 34.

Notes:

a. If your personal computer is using a high resolution display adapter such as XGA or SVGA, the address range C0000H to C7FFF is usually reserved by the display adapter. If in doubt, avoid using these addresses. If using a personal computer that supports a PnP BIOS, use the BIOS setup procedure to determine free memory addresses.
Table 3. Memory address and page values for Host Communications

<table>
<thead>
<tr>
<th>Memory Address</th>
<th>Page Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>C0000-C1FFF</td>
<td>60</td>
</tr>
<tr>
<td>C2000-C3FFF</td>
<td>61</td>
</tr>
<tr>
<td>C4000-C5FFF</td>
<td>62</td>
</tr>
<tr>
<td>C6000-C7FFF</td>
<td>63</td>
</tr>
<tr>
<td>C8000-C9FFF</td>
<td>64</td>
</tr>
<tr>
<td>CA000-CBFFF</td>
<td>65</td>
</tr>
<tr>
<td>CC000-CDFFF</td>
<td>66</td>
</tr>
<tr>
<td>CE000-CFFFF</td>
<td>67</td>
</tr>
<tr>
<td>D0000-D1FFF</td>
<td>68</td>
</tr>
<tr>
<td>D2000-D3FFF</td>
<td>69</td>
</tr>
<tr>
<td>D4000-D5FFF</td>
<td>6A</td>
</tr>
<tr>
<td>D6000-D7FFF</td>
<td>6B</td>
</tr>
<tr>
<td>D8000-D9FFF</td>
<td>6C</td>
</tr>
<tr>
<td>DA000-DBFFF</td>
<td>6D</td>
</tr>
<tr>
<td>DC000-DDFFF</td>
<td>6E</td>
</tr>
<tr>
<td>DE000-DFFFF</td>
<td>6F</td>
</tr>
</tbody>
</table>

b. If it is necessary to use a memory address that is not in the table, refer to the *Real-Time Co-Processor Operating System/2 Support User’s Guide*, which can be found on the diskette with the rest of the Operating System/2 support material.

**nn** is the number of tasks required by the IBM Realtime Control Microcode on the adapter. This should be a minimum value of 3 plus the number of host 3270 emulation sessions to be used, as a hexadecimal number. The maximum value will therefore be: $3 + 192 = C3$.

3. Place the file in the directory in which you installed the OS/2 Support software. Typically this is C:\ICA and the following examples in this section assume this drive and directory.

4. Install the Realtime Microcode as follows, using the Portmaster option diskette if you have a Micro Channel personal computer, or the Multiport diagnostics diskette for an ISA bus personal computer:

   Copy the file ICARCM.COM from the diskette to the directory where you installed the OS/2 Support software. For example from an OS/2 command line type the following and press Enter:

   ```
   COPY A:\ICARCM.COM C:\ICA
   ```

5. Update the CONFIG.SYS file to reflect the directory where the Realtime Co-Processor OS/2 Support software has been installed and to load the device driver for the adapter. The following steps assume that this is in C:\ICA; specify another drive and directory if you have installed this software elsewhere.
a. Add the drive and directory where the OS/2 Support software is installed, to the LIBPATH, DPATH, and PATH statements. For example:
   C:\ICA;

b. Add the following statement to the file:
   DEVICE=C:\ICA\ICARICIO.SYS C:\ICA\ICAPARM.PRM

6. Ensure the host is configured to communicate with DirectTalk/2 as discussed in "SNA Network Planning" on page 9.

7. Run the RTICTOUT -T1 program to verify your connection. The following is an example of the program output:

```
***** Status messages for task 0 on device 0 *****
10:45:54.00 GENPSDLC GEN72801 Largest storage block (in para) available=22568
   + Total number of paragraphs available=22568
10:45:54.00 GENPSDLC GEN72101 General Purpose SDLC Execution=2.00+-
10:45:54.00 GENPSDLC PSU15201 Registered PID - 222, TID - 15
10:45:54.00 GENPSDLC GEN72201 Createque qnbr=241
   + Associated lus= 0 Associated buffers=0 bufsize 0
10:45:54.00 GENPSDLC GEN71201 Mux Process ID set to 222
10:45:54.00 GENPSDLC GEN72201 Createque qnbr=244
   + Associated lus= 0 Associated buffers=0 bufsize 0
10:45:54.00 GENPSDLC GEN72201 Createque qnbr=243
   + Associated lus= 0 Associated buffers=64 bufsize 282
10:45:54.00 GENPSDLC GEN72201 Createque qnbr=242
   + Associated lus= 0 Associated buffers=64 bufsize 284
10:45:55.00 GENPSDLC GEN70001 Rs from task(2)=0 cmd=31 nrasap=0
10:45:55.00 GENPSDLC GEN72801 Largest storage block (in para)
   + Total number of paragraphs available=13985
10:45:55.00 GENPSDLC GEN72201 Createque qnbr=193
   + Associated lus= 0 Associated buffers=0 bufsize 282
10:45:55.00 GENPSDLC PSU52101 Freed TID # - 15
```

```
++ 2 discard ++
  0 1 2 3  4 5 6 7  8 9 A B C D E F
0000 00000000 04000000 C1000000 00000000 ............. ASCII
0010 00000000 00000000 00000000 ......... .... EBCDIC
```

```
10:46:07.00 GENPSDLC GEN70001 oafidx=0
10:46:07.00 GENPSDLC GEN80801 ActPU
10:46:07.00 GENPSDLC GEN81801 ActLU #02, owned by 0000
10:46:07.00 GENPSDLC GEN81801 ActLU #03, owned by 0000
10:46:07.00 GENPSDLC GEN81801 ActLU #04, owned by 0000
10:46:07.00 GENPSDLC GEN81801 ActLU #05, owned by 0000
10:46:07.00 GENPSDLC GEN81801 ActLU #06, owned by 0000
10:46:07.00 GENPSDLC GEN81801 ActLU #07, owned by 0000
10:46:07.00 GENPSDLC GEN81801 ActLU #08, owned by 0000
...
10:48:45.00 GENPSDLC PSU15201 Registered PID - 254, TID - 15
10:48:45.00 GENPSDLC GEN04001 session_status: lu num - 07, ...
10:48:45.00 GENPSDLC GEN70901 Opening lu-lu session with lu->lu7<-
10:48:45.00 GENPSDLC GEN71001 lulopen --- Stat=193 task_id=7
10:49:31.00 GENPSDLC GEN71301 Closing up lu 7 for Pid -254
10:49:31.00 GENPSDLC PSU52101 Freed TID # - 15
```

***** End of Status messages for task 1 on device 0 *****

The first section of the trace is internal information to GENPSDLC. The next section is two lines of 16 bytes of hexadecimal data. These lines will appear in the trace only if the connection to the host is good. If the connection has broken or is not working, then these two lines will not appear, which will indicate a host link problem.
APPC Using ARTIC Portmaster Adapter/A or Multiport Model 2

This configuration is the same as for “3270 Terminal Emulation Using ARTIC Portmaster Adapter/A or Multiport Model 2 Adapter” on page 33, except that the value of nn in the ICAPARM.PRM file is calculated as follows:

**nn** is the number of tasks required by the IBM Realtime Control Microcode on the adapter. This should be a value of 3 plus the number of APPC LU sessions configured on the host for use by DirectTalk/2, specified as a hexadecimal number. One APPC session is used for each APPC server path configured in DirectTalk/2. The number of APPC server paths required will depend on how many simultaneous requests you expect from DirectTalk/2 voice applications to the host APPC server. Each request uses an APPC path and hence an APPC session. In most circumstances, half the number of voice lines is enough.

Configuring the Remote Support Software

If you have installed remote support hardware, use the option diskette supplied with the card to install the required device drivers and other software.

For detailed installation and configuration information, refer to the documentation supplied with your remote support hardware.

Installing IBMREAD/2

If you do not already have a version of READ/2 or IBMREAD/2 on your machine you need to install IBMREAD/2 to be able to view the DirectTalk/2 manuals online.

The IBMREAD/2 files are in the READ2\ENU directory on the DirectTalk/2 CD-ROM. This directory contains a README file which contains the installation and configuration information for IBMREAD/2.
Chapter 5. Installing DirectTalk/2 Software

This chapter describes how to:

- Install DirectTalk/2 software for a new system
- Add optional features and otherwise update your system after initial installation
- Reinstall this version of DirectTalk/2 software
- Delete DirectTalk/2 from your system

Note: If you are migrating to DirectTalk/2 Version 2.1 from an earlier release, refer to Chapter 9, “Migrating to DirectTalk/2 Version 2.1” on page 67.

The installation process is as follows:

1. Run the Install program to install the DirectTalk/2 software on your system.
2. Run the License Use Management Nodelock Administration program to install the licenses for your system.
3. Use DirectTalk/2 Setup to configure your system.
4. Use Telephony Server Configuration to configure your telephony server components.
5. Check that your installed and configured system will start.

Before You Start

Before you install the DirectTalk/2 software, the following must be installed, configured, and running properly on your system:

- IBM OS/2 Warp Version 3.0
- All the hardware for your DirectTalk/2 system
- All the software associated with the Dialogic and Aculab hardware
- The hardware and software associated with any LAN and host connections you intend to use

To install DirectTalk/2 you need the DirectTalk/2 CD-ROM, or the following diskette images created from the CD-ROM:

- The DirectTalk/2 system diskette set
- The country parameters diskette
- At least one language diskette set

See Appendix A for details of how to create the disk images from the CD-ROM.

To enable your installed system to run, you will also need the License Diskettes which form part of your DirectTalk/2 package.
DirectTalk/2 Installation Procedure

Use the following procedure to install the DirectTalk/2 software:

1. If you have not restarted your system since installing and configuring the prerequisite hardware and software, restart it now to enable any changes to the CONFIG.SYS file to take effect.
   
   **Note:** If the CONFIG.SYS changes have not been enabled by a reboot, your configuration will fail.

2. Insert the DirectTalk/2 CD into your CD-ROM drive.

3. Open the CD-ROM drive window on your personal computer and double click on the INSTALL.EXE icon.
   
   If you are installing from diskette you should insert the DirectTalk/2 System Diskette 1 in your diskette drive, and open the diskette drive window. During the installation you should insert further diskettes as requested by the screen prompts.

   If you are installing from a LAN server, open the LAN server drive window.

   There is a short delay, while the initial installer files are loaded, and then the Instructions window is displayed.

   ![Instructions Window](image)

4. Select **Continue** to display the DirectTalk/2 Install window.
5. Check the Update CONFIG.SYS box in Options.
6. Select OK to display the DirectTalk/2 Component selection window.

7. Select Base System and any other components you want to install:
   - Runtime System, if you want to be able to run voice applications
   - IPF Books, if you want to install the online readable versions of the publications
   - Toolkit, if you want to use the DirectTalk/2 header and library files
- **Samples**, if you want to install the sample applications.

If you want more information about an installation option, select the option and click on the **Description** button.

8. Make any required changes to the **Main directory** field which specifies where the DirectTalk/2 system files will be installed.

If you are not sure how much space you have available, click on **Disk space** to display the **Disk space** window. This window shows you how much space you have on each of your connected disks, and how much space DirectTalk/2 requires. Decide which drive you want to use, and then press **OK** to return to the **Component selection** window and make any necessary changes.

9. Select **Install** to start the transfer of files.

The **Install-progress** window gives you information on the progress of the installation.

**Note:** If you press the **Stop** button the installation will be halted and you will not be able to continue. You will however be given the option to uninstall the files that have already been transferred so that you can start again from a clean system.

If you chose to install the **Runtime System**, the **Options and Features** window is displayed.

---

![Figure 5. Options and Features](image)

**Figure 5. Options and Features**

10. Select from the options provided in the drop-down lists and list boxes:

- The number of lines you want to use.
- The Country Parameters that you want the Telephony Server to use.
• The languages you want to use in your voice files.

  **Note:** If you want to use more than one language, hold down the `<Ctrl>` key while you click on each of the names you want.

• The optional features you want to install.

  11. When your selection is complete, select **Continue** to continue the file transfer and return to the **Install-progress** window.

    When the installation is complete, the **Install progress** window closes and a message is displayed indicating that the installation was successful and asking you to restart your system.

  12. Select **OK** to close the message window and complete the initial phase of the Installation procedure.

  13. Shutdown and restart your system.

    When your system is restarted, the DirectTalk/2 **Setup** window is displayed briefly while the default configuration files are created. If you have requested Runtime components the **Telephony Server Configuration** window is also displayed while the telephony server default configuration files are created.

    The installation of your DirectTalk/2 system is now complete.

The DirectTalk/2 installation creates a folder on your desktop. This folder contains objects which enable you to, configure and run your DirectTalk/2 system.

![Figure 6. DirectTalk/2 2.1 window](image)

You should now use the procedures described in "Enabling DirectTalk/2" on page 42 to install your DirectTalk/2 licenses.
Enabling DirectTalk/2

Before you can run your DirectTalk/2 software, it must be enabled by installing your DirectTalk/2 licenses.

If SystemView License Use Management is not already installed on your system, the necessary files are transferred during installation and a License Use Management folder is created. This folder contains the Nodelock Administration program which you use to install your DirectTalk/2 licenses.

Use the following procedure:

1. Open the License Use Management folder and double click on the Nodelock Administration Tool (NAT) icon to open the Nodelock Administration Tool Window

2. Select New from the Products menu to display the New Product window

![New Product Window](image)

3. Insert your DirectTalk/2 base system license diskette in the diskette drive of your machine and click on the Import button in the New Product window to display the Import window.
4. If the A drive is not already selected in this window, select A from the drive drop-down list to display your license files

5. Select your license file and select OK to return to the New Product window where your license information should now be displayed

6. Select OK to install your license information and enable your base DirectTalk system

7. Repeat the license install procedure for each License diskette in your DirectTalk/2 package

You should now be able to run your base system and any optional components and features that you have installed and enabled. See Chapter 6, “Running DirectTalk/2” on page 47 for detailed procedures.

You are advised to try running your default installation before making any configuration changes, but if you find it necessary to make some changes immediately, go to Chapter 7, “Configuring DirectTalk/2 Software” on page 51 for information on making system configuration changes, or to Chapter 8, “Configuring the Telephony Server” on page 57 for changes to the Telephony Server.

---

**Adding to or Reinstalling Your DirectTalk/2 System**

The method you should use to add to or reinstall your DirectTalk/2 components and features depends on the component. The two different procedures are described here. You must use the correct procedure for the component you are installing, otherwise the installation or reinstallation may not complete properly, or other components may be deleted.

**Adding or Reinstalling Non-Runtime Components**

Follow these procedures if you want to add any of the following:

- Base System
- IPF Books
1. Insert your DirectTalk/2 CD-ROM into your CD-ROM drive and open the CD-ROM drive window.

   or

   If you installed from diskettes, insert DirectTalk/2 System Diskette 1 into your diskette drive and open the diskette drive window.

   or

   If you installed from a LAN, open the LAN server drive window.

2. Double click on the INSTALL.EXE icon to start the Install program.

3. Choose Install additional components from the Installation Options.

4. Select the components you want to add and use the same procedures as for the initial installation. (See “DirectTalk/2 Installation Procedure” on page 38.) Use the online help if you need assistance.

   If you want to reinstall a component, use the procedures described in “Deleting All or Part of DirectTalk/2” on page 46 to remove the component first.

   **Note:** When reinstalling the DirectTalk/2 Base system, any Node passwords that have been set will be cleared. This is the only way to reset your password.

**Adding or Reinstalling Runtime Components**

Follow these procedures if you want to do any of the following:

- Add or reinstall optional features
- Change your telephone line support
- Change your country support
- Change your language support

**Note:** If your system upgrade requires additional cards to be installed, complete the card installation and configuration as described in Chapter 3, “Installing the Hardware” on page 19 and Chapter 4, “Configuring the Non-DirectTalk/2 Components” on page 23 before starting the DirectTalk/2 software upgrade.

To make sure that adding or reinstalling these components completes properly, the installation program has to be provided with additional parameters when it is started. This means that it must be started from a command line (rather than directly from its icon) as follows:

1. Open an OS/2 command window.
2. Insert the DirectTalk/2 CD-ROM into your CD-ROM drive and change the command prompt to the CD-ROM drive.

   or

   If you installed from diskettes, insert DirectTalk/2 System Diskette 1 into your diskette drive and change the command prompt to the diskette drive.
or

If you installed from a LAN, change the command prompt to the LAN server drive.

3. Enter the following command:

   `Install /A:i`

4. When the install program starts, select the Runtime component or feature you want to install or reinstall using the same procedures as for the initial installation. (See “DirectTalk/2 Installation Procedure” on page 38.)

5. If any newly-installed components are optional features, you will also need to enable these new features as described in “Enabling DirectTalk/2” on page 42.

6. If you are installing lines and you have not previously installed a Lines License you also need to use the procedures described in “Enabling DirectTalk/2” on page 42 before you can use your telephone lines.

If you want to increase the number of lines you can use, you should purchase the license for the new lines before increasing your lines support.

---

### Updating DirectTalk/2 With a Service Pack

To update your DirectTalk/2 Version 2.1 system with a service pack, use the following procedure:

1. Insert the service pack into a suitable drive on your personal computer and open the drive window.

2. Click on the `INSTALL.EXE` icon to start the Install program.

3. Choose **Update the currently installed components** from the Installation Options.

4. Follow the screen prompts to complete the update. Use the online help if you need assistance.

**Note:** *Do not use the normal installation procedure* to restore backed up versions of DirectTalk/2. See “Restoring a Backup Version of DirectTalk/2” for the recommended restoration procedures.

---

### Restoring a Backup Version of DirectTalk/2

If you want to restore all or part of your DirectTalk/2 system from a backup version (after installing a service pack), follow the procedures described in “Adding to or Reinstalling Your DirectTalk/2 System” on page 43, but enter the following on the command line:

   `Install /A:r`

When the install program starts, follow any screen prompts to complete your restoration. Use the online help if you require assistance.
Deleting All or Part of DirectTalk/2

If you want to delete a component, or all of DirectTalk/2:

1. Follow the procedures described in “Adding or Reinstalling Non-Runtime Components” on page 43 to start the install program.

2. Select **Delete the installed components and reinstall** from the list of options.

3. Select the components to be deleted and follow the screen prompts to complete the deletion. Use the online help if you need assistance.

4. If the deletion does not require a system reboot, the **Install** window is displayed when the deletion is complete. If you do not want to install or reinstall any components, select the **Cancel** push button.

   **Do not use this window to reinstall Runtime system components**, but use the alternative procedure described in “Adding to or Reinstalling Your DirectTalk/2 System” on page 43.

**Notes:**

1. You cannot delete an individual optional feature but only the entire set of **Runtime system** components.

2. Deleting Runtime system components causes any rerecorded system voice segments to be deleted.
Chapter 6. Running DirectTalk/2

When you have completed the installation of your DirectTalk/2 system, you should try to start the various system components to check your installation before making any configuration changes. In most cases, if you have installed your hardware correctly, the default values will provide you with a working DirectTalk/2 system.

Once you have verified that your default system is working, you can use the information provided in Chapter 5, "Installing DirectTalk/2 Software" on page 37 and Chapter 8, "Configuring the Telephony Server" on page 57, to configure your system to meet your own requirements.

**Note:** There are some situations where you may need to change some of the Telephony Server defaults before your applications can run properly, for instance, if your system is attached through a PABX switch.

You start the DirectTalk/2 components as follows:

1. Open the DirectTalk/2 folder to display the icons of the DirectTalk/2 components you have installed

   ![DirectTalk/2 v2.1 - Icon View](image)

   *Figure 9. DirectTalk/2 2.1 window*

2. Double click on the icon to start the DirectTalk/2 program you require
Starting the Voice System

In most circumstances you will need to start the **Voice System** first, and, if you have configured to run voice application sessions, these will start at the same time. The default configuration is set up to start a single session called **DEMOAPPL** running the demonstration voice application **MENU**. When the system has successfully completed the startup procedures, the **Voice System** window contains the message:

```
Path0 to node<GSINodename> is ready
```

and says that the system started without error. **GSINodename** is GSSSN01 if you have not changed the default configuration.

If an error occurred, the Voice System window closes by default. In this case, check the GSI log file for errors.

You are advised to try using the MENU application, as described below, to check that your default installation is working.

Running the MENU Demonstration Application

If you have accepted the default configuration, the **MENU** application should be running on the telephone line that you have configured to be line 1.

To check that the application is working, and hence that you have a working voice system, dial the number for line 1 and listen for a voice prompt. If you hear the prompt, follow the instructions you are given and continue until the application says goodbye.

If you do not hear the voice prompt, check that:

- You dialled the number correctly.
- You have started DirectTalk/2.
- You chose to install the runtime system.
- You have installed your base license and lines license.
- You configured your system for at least one line.
- Your system is correctly connected to the telephone lines (or switch). The **TSTLINES** program is provided with DirectTalk/2 to assist with checking telephone lines. See the **IBM CallPath DirectTalk/2 Problem Solving Guide** for details of how to run and use this program.
- Check that your telephone system does not require some special configuration of the Telephony Server.

If these simple checks do not correct the problem, use the **IBM CallPath DirectTalk/2 Problem Solving Guide** to decide what to look for next.
Starting Other DirectTalk/2 Components

When you have verified that the default voice system is working, start the other components you have installed.

- Start the **Voice Application Developer (VAD)** if you want to develop new voice applications. The *IBM CallPath DirectTalk/2 Application Development User’s Guide* provides information on how to use the VAD.

- Start the **Node Manager** if you want to manage the running of voice applications and nodes. The *IBM CallPath DirectTalk/2 Administrator’s Guide* provides information on the use of the Node Manager.

- Start **Setup** if you want to reconfigure parameters of your existing system (other than the Telephony Server). Chapter 7, “Configuring DirectTalk/2 Software” on page 51 contains detailed information to assist with this task.

- Start **Telephony Server Configuration** if you want to change the configuration of your Telephony Server. Chapter 8, “Configuring the Telephony Server” on page 57 contains detailed information to assist with this task.

- Start the **Mailbox Manager** if you want to manage user mailboxes. The *IBM CallPath DirectTalk/2 Administrator’s Guide* provides information on the use of the Mailbox Manager.

Use the online help provided with each component, and the appropriate manuals, to enable you to accomplish your tasks.

Solving Problems

If any of the DirectTalk/2 components fail to start or do not run properly, use the following to track down your problem:

- The online help provided with the component.

- *IBM CallPath DirectTalk/2 Problem Solving Guide*.

- Dialogic and Aculab documentation and the card configuration information provided in this book.

- Your IBM technical support contact.

Stopping DirectTalk/2

DirectTalk/2 needs to be closed down carefully to prevent problems and loss of data when you restart your system. The actual procedure you should use is dependent on your system and what you are running. See the *IBM CallPath DirectTalk/2 Administrator’s Guide* for details of the various recommended shutdown procedures.
Chapter 7. Configuring DirectTalk/2 Software

When DirectTalk/2 installation is complete, you have a system that is configured with initial DirectTalk/2 settings. You should be able to run your system using these values, but you also have the option to change some, or all of them to make your system meet your specific requirements. DirectTalk/2 Setup is used to change system settings, other than those associated with the Telephony Server. (You change the Telephony Server settings using the procedures described in Chapter 8, “Configuring the Telephony Server” on page 57.)

You can change your system settings at any time, but most of the changes do not come into effect until the voice system is restarted.

**Note:** If you install another language after the initial installation, it is not necessary to change the settings in order to use that language.

This chapter describes how to use Setup and provides additional information which may not be in the online help.

For explanations of the settings and their associated fields, use the online Help provided with Setup.

### Changing System Settings

If you want to change your system settings some time after installation:

1. Open the DirectTalk/2 folder.
2. Double click on DirectTalk/2 Setup icon to display the DirectTalk/2 Setup - Settings window (see Figure 10 on page 52).

This window contains a number of pages on which you can set the values you want to use to create your customized DirectTalk/2 system.

The pages are divided into groups, each group covering a specific aspect of your system. These groups are listed on the tabs at the right of the window, and you can move directly to a specific group of pages by clicking on the appropriate tab.

Some tabs lead to a single page, but others contain several pages (indicated at the bottom right of each page in the group). If there is more than one page you can move between the pages by clicking on the arrows at the bottom right of the window. You can also use these arrows to pass from one group to the next when you get to the last or first page of a group.
To change a setting value:

1. Click on the tab for the aspect you want to configure.

2. If there is more than one page, move to the page that contains the item you want to change.

3. Enter or choose the new value or state.

Use the online Help if you are not sure what the settings mean, or what values you can use. When you have completed your changes, you can save them by choosing either **Save** or **Save and Close** from the **Setup** menu. If you try to close Setup before you have saved your changes, a message is displayed, asking if you want to save your changes or if you want to leave the settings as they were before.

You can also back out of any changes you have made since opening the Setup-Settings window by choosing **Reset** from the **Setup** menu.
Where to Find a Setting

The following list briefly describes the settings to be found under each tab of DirectTalk/2 Setup - Settings:

Node
Settings associated with the node including:

- The Node name and description
- Whether this node is part of a voice system network
- Capabilities of this node
- Network servers associated with this node
- The maximum number of DirectTalk/2 remote clients that can simultaneously request the use of the servers on this node
- The number of the LAN adapter that is used by this voice system
- The remote and local voice systems that can be managed by the Node Manager on this node

Sessions
- The Voice applications sessions that should be started when the Voice Application Monitor is started
- The maximum size of the application log files
- The default Application Manager
- The voice programs that should be preloaded when the Voice Application Monitor is started

Logs
The items that you want to log and the Log Filenames

Cards
This displays details of the telephony cards that Setup has identified on your personal computer and allows you to enable and disable the cards. DirectTalk/2 tries to determine which ports VR and TTS cards are physically connected to, but sometimes this is not possible and you may need to correct the information on these panels.

3270 (CM/PC)
Settings associated with 3270 Terminal Emulation using Communications Manager/2 or Personal Communications, including:

- Enable or disable the emulation server
- The number of sessions
- The session short name
- The maximum size of session log files
- How long to wait before attempting a restart
• Whether to retry sending keys if the Host is not ready to receive them when they are initially sent
• The group that each session belongs to

5250 (CM/PC)
Settings associated with 5250 Terminal Emulation using Communications Manager/2 or Personal Communications, including:
• Enable or disable the emulation server
• The number of sessions
• The session short name
• The maximum size of session log files
• How long to wait before attempting a restart
• Whether to retry sending keys if the host is not ready to receive them when they are initially sent
• The group that each session belongs to

3270 (LUA)
Settings associated with 3270 Terminal Emulation using LUA attachment, including:
• Enable or disable the emulation server
• The number of sessions
• The session ID prefix
• The maximum size of session log files
• How long to wait before attempting a restart
• The default EBCDIC code page
• The group that each session belongs to

ASCII
Settings associated with ASCII Terminal Emulation including:
• Enable or disable the emulator
• The number of sessions
• Default TCP/IP host name
• Default host terminal definition
• Default emulator terminal type
• The maximum size of session log files
• How long to wait before attempting a restart
• The group that each session belongs to

ARTIC
Settings associated with 3270 Terminal Emulation Server (ARTIC) or APPC communications, including:
• SDLC Link parameters
• Enable or disable the emulation server
• The number of sessions
• Initial LU number
• The maximum size of session log files
• How long to wait before attempting a restart
• The default EBCDIC code page
• The group that each session belongs to
• Enable or disable the APPC host user servers
• The APPC host user server details

Alerts
Settings associated with NetView alerts including:
• Enable or disable alerts
• Select which communications method is to be used
• The NMVT Service Point name

Mailbox Server
Enable or disable Mailbox Server Paging and select the line to be used to dial the paging request.

Extensions
Provide details of:
• Extra Client paths
• Extra Server paths
• User Servers to be started when the Voice System starts
Chapter 8. Configuring the Telephony Server

When you first install DirectTalk/2 you are recommended to accept the default values provided for the Telephony Server. In most cases, if you have installed your hardware correctly, the default values will provide you with a working DirectTalk/2 system. As you become more familiar with your DirectTalk/2 system, spend some time reading the help screens of Telephony Server Configuration. In this way you can take advantage of the flexibility of the system to fine tune your configuration for particular applications and needs.

Note: There are some situations where you may need to change some of the Telephony Server defaults before your applications can run properly, for instance, you may need to define the T1 protocol being used, or the tone generated when a caller disconnects (the hangup tone).

Changing Telephony Server Parameter Values

If you want to change some of the default values of the Telephony Server, double click on the Telephony Server Configuration icon in the DirectTalk/2 folder to display the Telephony Server Configuration window.

The Telephony Server Configuration window contains a list of different groups of parameters that can be configured. If you have not installed all the DirectTalk/2 optional features, some of the items shown in Figure 11 may be missing.

To set a parameter:
1. Double click on the appropriate item in the Telephony Server Configuration window.
2. The window that you see depends on the item that you chose. It may be a parameter list, or you may have further sets to choose from. For some of the more
complex sets of parameters you will eventually see a notebook with a number of pages to complete. Follow the instructions given on the notebook pages.

3. When you reach a specific parameter the current settings are displayed in a dialog box. Enter your new values by overtyping, or by selecting from drop down lists.

4. If there is an OK button on the dialog, press it to register your changes.

5. Select Save and close from the Ports, Parameter Set, or Definitions drop down menu to complete the changes.

Use the online help if you need more information about the parameters and the values they can take.

Where to Find a Setting

The following list briefly describes the parameters to be found in each parameter group of the Telephony Server. The Overview panel of the online help gives more information on the various parameter types, and detailed lists of the parameters for each currently-supported card are included in Appendix E, “Telephony Card Configuration Parameters” on page 113.

Ports

The telephone number and resources assigned to each port are displayed, but only the telephone number can be changed.

This window is a good summary of the hardware and software resources available to your DirectTalk/2 system. From it, you can see whether resources are shareable or non-shareable across channels.

Network Interface (NIF)

Parameters associated with Network Interface cards and channels.

Voice Processing (VP)

Parameters associated with Voice Processing cards and channels.

Voice Recognition (VR)

Parameters associated with the optional Voice Recognition cards and channels.

Text-to-Speech (TTS)

Parameters associated with the optional Text-to-Speech cards and channels.

Telecommunication Devices for the Deaf (TDD)

Parameters associated with the optional Telecommunication Devices for the Deaf feature.

Analog Display Service Interface (ADSI)

Parameters associated with the optional ADSI feature.

Voice Function (VF)

Parameters associated with Integrated Voice Functions which are provided by the Voice Function subserver. These include control of the Voice Segment cache and monitoring of the free disk space available for voice recording.
Voice Segment Sampling Rate
Set the sampling rate used when playing and recording voice segments. A single rate is used throughout the system.

Tone Definitions
The definition of tones that can be detected including:

- Dialtone
- Hangup
- Busy
- Ringback
- Modem/Fax

Card and Channel Parameters for NIF, VP, VR, TTS, and TDD
The parameters available vary from card to card and the list of parameters you are shown when you open the channel parameter set, are those relating to the specific card.

Some parameters apply to all the channels on a card and are designated Card parameters. Other parameters can be set differently on one or more channels on the card and these are designated Channel parameters.

The main configuration window for each of these card types also enables you to divide the channels on each card into several groups allowing you to set different channel parameter values for each group.

Port to Channel Connections
The way you can connect ports to channels depends on the card type:

Port to Channel Connections for NIF and VP
Each channel on these card types is only available to a single port.

Port to Channel Connections for VR TTS and TDD
A channel on these card types can be made available to a single port or to many ports. This makes it possible to share resources between a number of ports and to make several resources available on a specific port. During telephony configuration you should make sure that you have associated each resource with all the ports on which you may want to use it.

Note: The resources you want to share on a port, or number of ports, must be connected to the appropriate NIF cards through a PEB or SCbus cable.

Homologation and Switch-Specific Considerations
If some of the DirectTalk/2 functions or features do not appear to be operating correctly, you may find that you need to change some of the parameters you have configured. This situation is most likely to occur when your DirectTalk/2 system is not connected directly to a Central Office (CO) or the public network. For example, if it is connected
through a PABX, some of the telephony interface parameter settings might not match the PABX definitions.

DirectTalk/2 is shipped with country parameter files supplied on the CD-ROM (or Country Parameters Diskette). Your default country parameter file contains settings for the various telephony interface parameters for your country. The settings were defined based on requirements by your country’s laws and regulations for connecting equipment to a public telephone network.

When connected through a PABX, determine the values that the PABX is expecting and change the DirectTalk/2 parameters accordingly.

Note: DirectTalk/2 will not allow you to change those parameter settings that are specified by your country’s laws or network regulations. You should carefully read the appropriate appendix for your country in the IBM CallPath DirectTalk/2 Application Development User’s Guide to determine your responsibility in conforming to your country’s public network access regulations. Also, be aware that being connected through a PABX does not necessarily remove your obligation to conform to network access laws and regulations.

---

**T1 Telephony Connections**

This section contains information which may be of use if you are using T1 connections.

DirectTalk/2 supports the four following T1 protocols:

- E&M signalling
- FXS loop start
- FXS ground start
- SAS loop start

You must configure your system for the protocol you want to use.

**T1 Connection Start Types**

T1 connections are usually one of three types:

- Immediate
- Delayed Start
- Wink Start

(Delayed and wink apply only to E&M (Ear and Mouth) signalling).

When DirectTalk/2 is connected to a T1 trunk, it must be configured for the start type of the T1 service. There are five configuration parameters, but the four relating to wink only apply to E&M signalling.

- Wink Delay
- Wink Length
- Minimum Wink
- Maximum Wink
• ANI/DNIS Wait Time

Wink Delay and Wink Length are used for receiving winks; Minimum Wink and Maximum Wink are used for transmitting winks. You can find these parameters in the T1 Network Interface (NIF) section of the Telephony Server configuration.

Figure 12 illustrates the start types for receiving a call.

![Figure 12. T1 Connection Start Types](image)

In Figure 12, point 1 is when the switch starts “ringing” (the appropriate signalling bit state changes from IDLE to SEIZURE). Point 2 is the end of the Wink Delay and the start of the Wink. Point 3 is the end of the Wink and the start of a short delay. At any time after Point 3, the terminating equipment (DirectTalk/2) must be ready to receive any data. Point 4 is the start of the data signalling. Data is normally sent via inband signalling, or DTMF tones.

From these timing diagrams, it is clear that Wink and Delayed Start are very similar. For Wink Start, the switch allows a variable delay between the ringing state and the wink. The wink must then be a fixed length as defined by the switch. For Delayed Start, the switch looks for a fixed delay time and the start of wink. The terminating equipment (DirectTalk/2) then issues a wink until it is ready to receive data. In the case of DirectTalk/2, it is immediately ready so the wink can be short. The primary difference between Wink and Delayed Start is which time is fixed and which is variable. The start type is defined by the switch requirements, as are the durations involved.

For Immediate Start, once the switch starts ringing, it begins sending the data at some short delay without any signalling from the terminating equipment. This delay is typically between 60ms and 70ms. In effect, the Wink Delay and Wink Length are zero.

The ANI/DNIS Wait Time parameter controls the collection by DirectTalk/2 of any data sent. This is the amount of time that DirectTalk/2 waits from Point 3 for the first digit to be sent. If no digit is received, DirectTalk/2 continues with its call processing. Once the first digit arrives, DirectTalk/2 waits the ANI/DNIS Wait Time for each successive digit. If the time expires without a digit, DirectTalk/2 assumes that it has received the
end of the data string and continues with its call processing. Any received information is stored in an application variable called ANI_DNIS_data.

See Table 4 for a summary of the Start Type parameter settings.

**Note:** It is important that the configuration of the DirectTalk/2 T1 NIF matches the configuration expected by the switch. If the T1 trunk expects a Wink Start, the parameters must reflect this including the timings expected and defined by the switch or exchange.

<table>
<thead>
<tr>
<th>Start Type (10 ms)</th>
<th>Wink Delay (10 ms)</th>
<th>Wink Length (10 ms)</th>
<th>ANI/DNIS Wait Time (10 ms)</th>
<th>Minimum Wink (10 ms)</th>
<th>Maximum Wink (10 ms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wink</td>
<td>0</td>
<td>*</td>
<td>50</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Delay</td>
<td>*</td>
<td>15</td>
<td>50</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Immediate</td>
<td>0</td>
<td>0</td>
<td>50</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Notes:**
1. * means as defined by the switch
2. All nonzero times are the DirectTalk/2 defaults. You might need to adjust for your particular site and installation.

**T1 Connections Using the DTI/101**

DirectTalk/2 Version 2.1 continues to support T1 connections using the DTI/101(“) adapter. As in previous versions of DirectTalk/2 this support has the following considerations:

1. The only T1 protocol supported in this configuration is E&M signalling.
2. The support is provided via the Analog Network Interface (NIF).
3. Set the Loop Start Line Protocol to either T1-Immediate (2) or T1-Wink Start (3). The value is determined by the protocol used by the T1 provider (switch or CO) to provide ANI or DNIS information.
4. You must set the following parameters in the analog NIF using the Telephony Server configuration:
   - Interring Delay = 1
   - Minimum Ring Off= 1
   - Minimum Ring On = 1
   - Ring Edge = 1

For more information, see the Dialogic Application Note 17 (AN017) Ordering Service and Installing Equipment for T-1 Applications.

The other T1 protocols, FXS and SAS, are fully supported via the DTI/211 and D/240SC-T1.
Some Information About Hangup Detection

DirectTalk/2 uses five ways to detect that a caller has hung up when connected using telephone lines. They are discussed in the order of preference, from most desirable to least desirable:

**Loop Current Interruption (Wink)**
When the caller hangs up, the switch momentarily interrupts loop current on the line. This method is the most positive method for DirectTalk/2 to detect hangup, but many switches cannot provide this. Typically, office switches can provide this only if the telephone extensions are configured as off-premise extensions. Most central office switches do provide loop current interruption. The length of the wink can vary and DirectTalk/2 can be configured to look for winks of a certain minimum duration. When DirectTalk/2 detects such a wink, it will return the caller hung up (HUP) return code at the next action.

This method of detection is enabled by specifying a nonzero value for the Minimum Loop Current Off parameter during NIF channel configuration.

**Hangup Tone Detection**
When the caller hangs up, the switch will generate some tone or tones (either continuous or in a pattern) for a period of time. The exact tones and pattern will depend on the switch, but typically they are the same as dial tone or busy signal. You may specify the frequency or frequencies and pattern (if any) to DirectTalk/2 as part of Tone definition during configuration. DirectTalk/2 will monitor the line for your defined hangup tones by checking both the pattern or cadence (if any) and the defined frequency or frequencies that make up your defined hangup tone. If it detects a match, DirectTalk/2 will return the caller hung up (HUP) return code at the next action.

**Hangup Pattern**
When the caller hangs up, the switch may send some type of tone or tones that are broken in a defined cadence or pattern. DirectTalk/2 can monitor and measure periods of silence and nonsilence, and thus determine if there is a pattern or cadence. If it matches a configured pattern, DirectTalk/2 will return the caller hung up (HUP) return code. DirectTalk/2 does not check the frequencies of the tone or tones making up the cadence, only its timing.

This method of detection is enabled by specifying values for the following parameters during NIF channel configuration:

- Hangup Minimum Nonsilence
- Hangup Maximum Nonsilence
- Hangup Minimum Silence
- Hangup Maximum Silence
- Hangup Repeat Count

**Continuous Nonsilence**
Many switches return a dial tone or some other continuous tone when the caller hangs up. DirectTalk/2 can monitor and measure the length of all periods of nonsilence or noise. When it hears a period of nonsilence that exceeds a configurable value, it assumes it is hearing such a tone from the switch and will
return the caller hung up (HUP) return code at the next action. The amount of continuous nonsilence before assuming a hangup is set in seconds. Sometimes, usually when the specified time is too short, you can experience false hang up detection, that is, the system hangs up unexpectedly. Increasing the time will help prevent this.

DirectTalk/2 does not check the frequencies present in the nonsilence, only the duration of each period. Since DirectTalk/2 is only listening for and timing any nonsilence periods, it is always possible to have false hangups using this method. Callers on extremely noisy lines or calling from a very noisy location (such as a cellular phone in a moving vehicle) may be incorrectly detected by DirectTalk/2 as a caller hang up. You should also avoid using this method in conjunction with TDD because TDD transmits long bursts of data which could be detected as hangups.

This method of detection is enabled by specifying values for the Nonsilence Before Hangup parameter during NIF channel configuration.

Continuous silence
Sometimes, the switch does nothing at all when the caller hangs up. DirectTalk/2 can be configured to listen for and measure periods of silence. If a timed period of silence exceeds a predefined value, DirectTalk/2 returns the caller hung up (HUP) return code at the next action.

This method is not very desirable, because it interacts with the timeout parameter on voice logic modules. If the continuous silence figure is greater than the timeout value on the voice logic module, a caller hang up will not be detected because DirectTalk/2 automatically plays the voice logic module again when the timeout is reached. When the playback starts, there is no longer silence on the line and timing of that period of silence stops. Since the silence period is less than the defined value, caller hang up is not assumed. On the other hand, if the continuous silence value is less than the timeout value on voice logic modules, DirectTalk/2 will assume the caller has hung up when the period of silence exceeds the defined value and return the caller hung up (HUP) return code, rather than the timeout or last repeat return codes.

This method of detection is enabled by specifying values for the Silence Before Hangup parameters during NIF channel configuration.

Note: If you are recording, and the hangup detection is by continuous silence or continuous nonsilence, the silence or nonsilence is in the recording.

Voice Segment Sampling Rate
DirectTalk/2 systems can operate at one of the following voice sampling rates:

- 24KB per second
- 32KB per second
- 48KB per second
- 64KB per second

A DirectTalk/2 system is initially installed to operate at a voice sampling rate of 24KB per second. This provides sufficient quality for most applications, while minimizing the
use of disk space. As the voice sampling rate is increased, the quality of the recorded
voice segments increases, but so does disk usage.

All DirectTalk/2 applications running on a particular DirectTalk/2 system must operate at
the same voice sampling rate. The system voice segments that are supplied with
DirectTalk/2 are recorded at 24KB per second. Therefore, if you change the voice
sampling rate, you must also rerecord the system voice segments. It is recommended
that this be done by the person who will provide the voice for the application to be
developed. In this way, the voice spoken to the people who call your system will be
uniform.

**Note:** If you are using a DirectTalk/2 system with a combination of 30-line digital E1
interfaces and other (analog or 24-line T1) interfaces, do not select 48KB per
second or 64KB per second rates due to the different digitization methods used.
Similarly, do not copy voice files recorded at 48KB per second or 64KB per
second from a system using E1 interfaces to a system using analog or T1
interfaces (or vice versa). There is no conflict if you select 24KB per second or
32KB per second sampling rates.
Chapter 9. Migrating to DirectTalk/2 Version 2.1

This chapter contains information on the differences between DirectTalk/2 Version 2.1 and previous releases of DirectTalk/2 that you need to be aware of during installation. If you are migrating from a previous release of DirectTalk/2 to DirectTalk/2 Version 2.1 you should read this chapter carefully to make sure that your migration is successful.

Before you start the installation of DirectTalk/2 Version 2.1 make backup copies of the following files:

- Your voice applications (*.su and *.ctl files)
- Your voice programs (*.st and *.trx files)
- Voice logic modules used by your voice programs
- Voice segments you have recorded, including system segments that you have rerecorded
- User action DLLs and the user action definition file (useract.tbe)
- User Server DLLs
- User defined messages for application session logs (usrlogms.ere file)

You should also back up any other DirectTalk/2 related files that you may want to use with the new release. You can then follow the installation procedures described in Chapter 5, “Installing DirectTalk/2 Software” on page 37.

When the new files have been installed, make any changes to your system that are necessary as a result of the version differences described in the rest of this chapter.

The items marked with a * require you to make changes which are not made automatically by the DirectTalk/2 installation and configuration programs.

Versions Supported For Migration

You can migrate to DirectTalk/2 Version 2.1 from DirectTalk/2 Version 2.0 or later using the procedures described above.

You can still migrate from DirectTalk/2 Version 1.x systems, but you will need to re-compile any user actions that you have as DLLs (see the DirectTalk/2 Application Programmer’s Guide Chapter 3 for details), and define the user actions using the User Action Editor of the Voice Application Developer. You should also check your application for undefined return codes as several system actions changed between version 1.x and 2.0.

Hardware and Software Requirements *

The enhanced function of DirectTalk/2 Version 2.1 may require more processor power and memory than your current system. See IBM CallPath DirectTalk/2 General
Information and Planning for more details of the hardware and software you require to make a successful migration.

Directory changes *

All sub-directories off the main DTALK directory are now fixed and are as follows:

- `\DTALK` base code and DLLs
- `\DTALK\DATA` all DirectTalk/2 database files
- `\DTALK\HELP` online documentation (new in Version 2.1)
- `\DTALK\TOOLKIT` API headers and libraries (new in Version 2.1)

Other directory related changes:

1. The DirectTalk/2 DLLs are now in the base directory. You must delete old product DLLs from your current DLL directory (usually `\DTALK\DLL` or `\OS2\DLL`).
2. If you have a data directory other than DATA, you can rename your directory to DATA using the OS/2 RENAME command on any OS/2 command line.
3. The libraries and header files used to be stored in the base directory but they now have their own directory named TOOLKIT. You must delete the old libraries and headers (usually these files have extensions of .DLL and .H) from the base directory and use the new ones in the TOOLKIT directory. Remember to change the file paths in any makefiles that you have created. Your INCLUDE and LIB statements in CONFIG.SYS are automatically updated with the new path by the Install program.

Executable file name changes *

The following executable file names have changed:

1. The configuration program has changed from VSCFG.EXE to SETUP.EXE.
2. The node manager has changed from TMSV2.EXE to VSNMUI.EXE.

The old programs cannot be used with DirectTalk/2 Version 2.1.

Language codes *

Language codes 1-5 are now reserved and are no longer available for customer use.

License management.

DirectTalk/2 now uses the License Use Management in place of the Lines and Feature diskettes of previous releases. You will have a new license diskette for each DirectTalk/2 component. Use the diskettes to install component licenses (see “Enabling DirectTalk/2” on page 42 for details). You must install the licenses before DirectTalk/2 will run.
PEB/SCbus differences

DirectTalk/2 Version 2.1 supports the SCbus for connecting Dialogic cards that support the SCbus as well as the previously supported PEB bus. The SCbus is different from the PEB in that it does not have the limitation of 24 (u-law) or 32 (A-law) channels. You can therefore connect more cards to an SCbus than to a PEB.

The cable is the same for both PEB and SCbus systems and you still plug the ribbon cable into the same connector but you don't need to terminate the cable for SCbus cards.

Notes:
1. You cannot have both PEB and SCbus connections in the same system.
2. Most SCbus cards will run in PEB mode for compatibility if you are upgrading your hardware. If they are used in this mode the restrictions for PEB cards apply.

Node Manager

The DirectTalk/2 Version 2.1 node manager cannot manage nodes from earlier releases of DirectTalk/2. If you have a networked system you should carefully consider how you plan to upgrade your systems so that there are no node management conflicts between systems installed at different releases. Also, a Node Manager from a previous release of DirectTalk/2 cannot manage a DirectTalk/2 Version 2.1 system.

Note: A DirectTalk/2 Version 2.1 node manager can show the status of a pre-2.1 node (whether it is Available, Unavailable or Suspended), but it cannot show the details of any servers or clients running on that system (such as application sessions or log files).

Base Operating System

DirectTalk/2 Version 2.1 runs on the IBM OS/2 Warp Version 3.0 base operating system.

Configuration changes

The following configuration files have been renamed in DirectTalk/2 Version 2.1:

<table>
<thead>
<tr>
<th>Old name</th>
<th>New name</th>
</tr>
</thead>
<tbody>
<tr>
<td>VS3270.CFG</td>
<td>VS3270MX.CFG</td>
</tr>
<tr>
<td>VS3270CM.CFG</td>
<td>VS3270EH.CFG</td>
</tr>
<tr>
<td>VS5250CM.CFG</td>
<td>VS5250EH.CFG</td>
</tr>
<tr>
<td>VSAERT.CFG</td>
<td>VSAERTS.CFG</td>
</tr>
</tbody>
</table>

If found, these files are automatically renamed by Setup.
Emulator session names have been changed as follows:

<table>
<thead>
<tr>
<th>Old name</th>
<th>New name</th>
</tr>
</thead>
<tbody>
<tr>
<td>EASCInnn</td>
<td>EASCInnn</td>
</tr>
<tr>
<td>E3270nnn</td>
<td>E32MXnnn</td>
</tr>
<tr>
<td>ECM32nnn</td>
<td>E32EHnnn</td>
</tr>
<tr>
<td>E5250nnn</td>
<td>E52EHnnn</td>
</tr>
</tbody>
</table>

These names are changed automatically.

The following server names in SSGSI.CFG have been changed as follows:

<table>
<thead>
<tr>
<th>Old name</th>
<th>New name</th>
</tr>
</thead>
<tbody>
<tr>
<td>VS3270</td>
<td>VS3270MX</td>
</tr>
<tr>
<td>VS3270CM</td>
<td>VS3270EH</td>
</tr>
<tr>
<td>VS5250CM</td>
<td>VS5250EH</td>
</tr>
</tbody>
</table>

These servers are automatically renamed by Setup.

The format of some configuration files has changed. Some changes are minor, others are more significant. **Setup** converts the files formats automatically during an upgrade. You should not use configuration files from older versions of DirectTalk/2 with DirectTalk/2 Version 2.1 until you have run Setup.

The backing up of configuration files has now been automated and the old files are stored in the CFG subdirectory. You should not use the .BAK backup files generated by the old configuration program at any time.

**Language DLLs**

16-bit language DLLs from DirectTalk/2 Version 2.0.1 or earlier can no longer be used on this version. If you have any language DLLs that are not supplied with DirectTalk/2 Version 2.1 you should contact the supplier of your DLL for an updated copy.

**Dialogic Software**

Use the version of Dialogic software that is provided with your DirectTalk/2 Version 2.1 software. Other versions of Dialogic software may not work and cannot be supported by IBM.

**Telephony Server Tone Definitions**

These are now supported in the Telephony Server Configuration. Any existing definitions in the file VSTS.CFG will be preserved.
**Batch Node Manager**

The following Batch Node Manager related changes have been made:

1. The format of output from the batch node manager has been changed. See the *IBM CallPath DirectTalk/2 Administrator’s Guide* for an example of the new format. Users who rely on the format of this output should be aware of the new format and make adjustments accordingly.

2. Batch node manager commands must be changed to use the new emulator names. You need to make changes if you use any of the following Task names in your command files:
   - QUERY xxxx EMULATORS
   - START xxxx EMULATORS
   - STATUS xxxx EMULATORS
   - STOP xxxx EMULATORS
   where XXXX is the emulator type.

**DirectTalk/2 Folder**

A new DirectTalk/2 folder called ‘DirectTalk/2 v2.1’ is created on your desktop. Your old folder should be deleted automatically, but if this fails, you should use the new folder and delete the old one manually.

**Host Communications**

The code page for the Portmaster/Multiport 3270 emulators defaults to US EBCDIC: 037. The code page can be changed to another of your choice during configuration with Setup. In previous versions of DirectTalk/2 a fixed EBCDIC to ASCII translate table was used.

**Alerts**

An alert is now sent when DirectTalk/2 completes initialization to indicate that DirectTalk/2 is ready to receive input from applications or callers.

**User Actions and User Servers**

For DirectTalk/2 Version 2.1 you are recommended to develop actions and servers as 32-bit instead of 16-bit. The DirectTalk/2 Version 2.01 published APIs are still available for 16-bit actions and servers, but new APIs are only available as 32-bit.

**Key Retry Option**

The default value of this option for 3270/5250 via EHLLAPI has changed from enabled to disabled. Applications which set the state of this option are unaffected.
System variables

Where the string “CM” is used (for example, as part of a variable name) it does not imply that it is only applicable to host sessions via OS/2 Communications Manager/2. These variables apply to host session access using EHLLAPI through either Communications Manager/2 or Personal Communications (PCOMM).

Voice Messaging Database Filenames

Voice messaging database filenames are now fixed at their default values:

- DIRECTRY.DIR
- MAILBOX.MBX
- MAILNAME.VDB
- MAILMSGS.VDB.

name_3270_emul Variable*

The variable "name_3270_emul" has been dropped from the file VSGLBL.CFG. Any application using this variable should use the correct alternative which is "3270_server".

New Variables in Control Files*

The file DEMOAPPL.CTL will show the correct contents for an application control file when Setup has been run. Make sure that any user application control files are updated to reflect the values in the sample file. Note that this procedure is no different from previous releases, but there are some new variables that have been added in this release (and in previous releases) which should be reflected in all control files.

Command Files Removed

The command files RUNNMGR.CMD, RUNVAD.CMD and MBOXMGR.CMD are no longer used in this version. You should use the icons in the product folder on the desktop to start the Node Manager, VAD and Mailbox Manager respectively. The files RUNGSI.CMD and VSINIT.CMD are still valid.

Default Log File Size Changes

Some of the log files may have had their default filesize automatically changed by the configuration program to make them all a multiple of 1024 bytes. If this happens, the GSI startup will issue a message about the filesize changing. You should then backup the contents of the file (if you need to) and erase the file. The GSI startup will then build a new file of the correct size.
Maximum Voice Recording Time

The maximum recording time when doing a Record_Voice action is now variable depending on the voice recording rate. The limits are set such that the amount of data recorded will not exceed the maximum size of a voice segment (4,096,000 bytes). The limits are as follows:

<table>
<thead>
<tr>
<th>Recording rate</th>
<th>Time limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 kbs</td>
<td>22min (1320s)</td>
</tr>
<tr>
<td>32 kbs</td>
<td>16min (960s)</td>
</tr>
<tr>
<td>48 kbs</td>
<td>11min (660s)</td>
</tr>
<tr>
<td>64 kbs</td>
<td>8min (480s)</td>
</tr>
</tbody>
</table>

This is different from previous releases in that the maximum recording time used to be 10 minutes at all recording rates. If you want to record the maximum time at any recording rate, then set the maximum time to 30 minutes, say, and the action will limit the time automatically to the correct value depending on the recording rate. The action returns the Max Time return code if the limit is reached.

Voice Recognition Vocabulary Templates

The format of the voice recognition vocabulary templates has changed. If you have made modifications to the previously supplied templates, or if you are using any vocabularies that are not shipped with DirectTalk/2, you will need to make some changes to your files. The new format is described in the IBM CallPath DirectTalk/2 Application Development User’s Guide.
Appendix A. Making Installation Diskettes from the CD-ROM

This appendix tells you how to create DirectTalk/2 installation diskettes so that you can install DirectTalk/2 on machines that do not have access to a CD-ROM drive.

Before you start the diskette creation procedure, prepare your diskettes to receive the DirectTalk/2 files. The diskettes must be blank 2.0 MB diskettes formatted as 1.44 MB. If you are using new diskettes, you will need to go through the format procedure. If the diskettes have been used before we recommend that you reformat them to make sure that they contain no hidden files. (The normal OS/2 Format procedure creates the format you require.)

The number of diskettes you need depends on the components of DirectTalk/2 you want to install. Table 5 shows approximate numbers of diskettes required for each component. This table is provided to give an indication of the number of blank diskettes you will need. When you start the diskette creation program, the menus show the exact number of diskettes required for each selection.

To install a working DirectTalk/2 system you need:
- The system diskette set
- The country parameters diskette sets
- At least one language diskette
- The software diskettes for your installed hardware

![Table 5. DirectTalk/2 Diskettes](image)

<table>
<thead>
<tr>
<th>Component</th>
<th>Diskettes</th>
</tr>
</thead>
<tbody>
<tr>
<td>System</td>
<td>9</td>
</tr>
<tr>
<td>Country Parameters</td>
<td>1</td>
</tr>
<tr>
<td>Language (per language)</td>
<td>2-6</td>
</tr>
<tr>
<td>Non-IBM software</td>
<td>10</td>
</tr>
</tbody>
</table>

Note: The license diskettes which you also require for your installation are supplied with your DirectTalk/2 package.

**Disk Creation Procedure**

When you have prepared your blank diskettes, use the following procedure to transfer the disk images from the DirectTalk/2 CD-ROM to your diskettes. If you require further assistance, or more detailed information, use the online help provided with the disk creation program.

1. Insert the DirectTalk/2 CD into your CD-ROM drive.
2. Open the CD-ROM drive window on your personal computer and double click on the VSDISKS.EXE icon to display the Diskette Image Sets window.
3. Select a diskette set that you want to create, either from the Diskette Set box, or from the Language Set box.

4. Select the Unpack to Diskette button to display the Diskette Create window.

5. Insert one of your prepared diskettes into the diskette drive of your personal computer and follow the rest of the instructions on the screen.

   When the diskette image has been transferred, you are requested to remove the diskette.

6. Remove the diskette and label it carefully with the set name and the number within the set.

7. Select OK to remove the message box and return to the Diskette Create window.

8. Repeat the creation procedure until you have created the complete set of diskettes.
When the set is complete the **Diskette Create** window closes and you are returned to the **Diskette Image Sets** window.

9. Choose a new set of diskettes to create, or close the window if you have all the diskettes you require.

Your diskettes are now ready for use in the installation procedures described in Chapter 4, “Configuring the Non-DirectTalk/2 Components” on page 23 and Chapter 5, “Installing DirectTalk/2 Software” on page 37.

**Note:** When you first create your diskettes, you should create complete sets, but if you need to recreate a particular diskette for some reason, you can use the **Next** and **Previous** buttons in the **Diskette Create** window to reach the one you require.
Appendix B. Configuring Aculab cards

Before you can use your Aculab cards you need to configure them to work with DirectTalk/2. To do this, you must set switches and jumpers on the cards, and configure other software parameters as described in the following sections. Use this appendix as a guide for the settings that are required.

Refer to “Installing and Configuring the Aculab E1 Adapter Card Software” on page 23 for installation and configuration procedures.

Note: Configuration of the hardware is critical to successful operation of DirectTalk/2. If you do not configure your voice cards as described in this appendix, DirectTalk/2 might not work correctly.

Configuring the E1 Card

Refer to your Aculab Device Driver Installation Reference Manual for detailed instructions and the locations of the switches and jumpers on your cards.

Hardware Configuration

The E1 card has jumpers and switches to set the following parameters:

- Card address
- Interrupt request level

The rest of this section describes how to set these parameters. You should keep a note of the card addresses and interrupt levels that you set up as you need to enter the same values when you install the software.

Setting the Port Address

The port address is set by using different combinations of the eight position DIP switch. A switch in the off position corresponds to a binary 1 and switch 8 controls the most significant address. The E1 card occupies 64KB of memory space and the port address must be chosen so as not to conflict with any other cards or devices in your system.

The default setting is 11100000 (x380).

Setting the Interrupt Request Level (IRQ)

The interrupt request level is set with a jumper and should be left at the default of Interrupt Level 10 unless this clashes with another device in your system. If you have more than one Aculab E1 card installed, they should share the same interrupt level, but this should be different from that used by any other cards or devices in your system.

The interrupt levels which can be set are shown in Table 6 on page 80. The jumper positions are listed from the top of the card.
Table 6. IRQ settings

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>IRQ</td>
<td>12</td>
<td>11</td>
<td>3</td>
<td>10</td>
<td>15</td>
<td>5</td>
</tr>
</tbody>
</table>

**Interrupt Terminator**

The first jumper position is for the Interrupt terminator (JP40). If you only have one E1 card in your system, this jumper should be installed. If you have more than one E1 card installed, and they are sharing the same interrupt level, the terminator should be installed on only one card.

**Hardware Related Software Configuration**

If you are not using the default configuration, you must modify the Aculab device driver statements in your `CONFIG.SYS`. You should do this using your normal text editor. The parameters are added to either or both of the device driver statements, depending on the option. See “Installing and Configuring the Aculab E1 Adapter Card Software” on page 23 for details of the device drivers. They are entered as a simple string with spaces as delimiters, and each parameter starts with the ‘-’ character.

For example:

```
device=mclv1tr6.sys -i15 -p390
```

**Interrupt Vector -i**

The level you set must match the level you have set with the card jumpers. See “Setting the Interrupt Request Level (IRQ)” on page 79. The required interrupt level should be added to the ‘-i’, as in the example above.

The default setting is 10.

This parameter is added to the call control device driver statement.

**Port Address -p**

The port address you enter for each card must match the address you have set with the card switches. See “Setting the Port Address” on page 79. Add the three or four digit hex value of the port address to the ‘-p’ as in the example above.

The default setting is 380.

This parameter is added to both the device driver statements.

**Card Memory Window -w**

The E1 card uses a 64K dual port memory window which is set with this option. Add the four digit hex value of the window segment to the ‘-w’ as in the example below. This memory window should be different from that used by any other device in your system and it must start on a 64K boundary.

The default setting is D000:0000.
This parameter is added to both the device driver statements. For example, to set a memory window of E000:0000 enter:

```bash
device=mvswdev.sys -wE000
device=mvc1ltr6.sys -wE000
```

**Dialogic D/81 or VR/160 Card Option -d**

The Aculab E1 card can occupy the same memory window as the Dialogic D/81 and VR/160 cards (D000:0000). If you choose to share this memory window, you must specify the port addresses of the Dialogic cards to prevent conflict when the cards are in use. Attach the port address of each Dialogic card to the '-d' as follows:

```bash
device=mvswdev.sys -d340 -d344 -d348
device=mvc1ltr6.sys -d340 -d344 -d348
```

This indicates that there are three Dialogic cards with port addresses 340, 344, and 348.

This parameter is added to both device driver statements.

**Dialogic D/320 Card -dh**

The Aculab E1 card can occupy the same memory window as the Dialogic D/320 cards (D000:0000). If you choose to share this memory window, you must add the '-dh' parameter to prevent conflict when the cards are in use.

**Switch Protocol Related Software Configuration**

There are a number of configurable options that are dependent on the signal protocol you are using. Table 7 on page 83 shows which options are supported by the various protocols. The parameters are added to the call control device driver statement in your CONFIG.SYS file as described in "Hardware Related Software Configuration" on page 80. Each parameter will configure both ports unless the port number is added. For example:

- `-cNE` configure both port 0 and port 1
- `-cNEn0` configure port 0 only
- `-cNEn1` configure port 1 only

**Network End Configuration -cNE**

This option sets the device driver for network end working. For correct network end operation the network end firmware for the particular protocol is also required.

**Default Clearing Cause -cRn**

This option allows the default clearing cause to be configured, where n is the clearing cause code you want to configure. The values you can use depend on the protocol you are using.

**1TR6 Time Extension -cTE**

This option applies only to 1TR6 and extends the default 10 seconds allowed for the detection of an incoming call, to 1 minute.
CAS Backbusy Control -cBB, xxxxxxxx
This option applies only to CAS. It instructs the CAS thin layer, and the signalling system, to use Backbusy on the indicated time slots. xxxxxxxx is an optional mask to indicate which time slots should be configured. If the mask is omitted, all time slots are configured. The mask is an 8-bit hexadecimal representation of the 32 available time slots. A '1' in the mask enables Backbusy on the equivalent time slot.

If the mask is used together with a port number, the port number is appended to the end of the mask.

CAS Configuration -cCn, cDn
This option applies only to CAS and enables the number of DDI and CLI digits that are supported by the trunk to be indicated to the device driver and signalling firmware. The 'D' option indicates the number of DDI digits, and the 'C' option indicates the number of CLI digits. n is a two digit decimal value indicating the actual number of digits supported in each case.

DPNSS A/B and X/Y Bit Configuration -cnm
This option allows the DPNSS A/B and X/Y bits to be configured for layers 2 and 3 to enable DPNSS to DPNSS configuration. n can be either 'A' or 'B', and m can be either 'X' or 'Y'.

The default setting is AX.

ETS300 -cSW
This option modifies the ETS300 driver for use in Sweden where a 'call_proceeding' message is required instead of the 'setup_acknowledge' message.

ETS300 -cEx
This option modifies the ETS300 Advice of Charging to take account of national differences in the way the charging information is presented. x is a one or two digit country code. The current codes available are:

- 0 default
- 1 Switzerland
- 2 Germany

ETS300 -cCA
Some equipment requires that a CONNECT_ACKNOWLEDGE be sent from the user end of the protocol after receipt of the CONNECT message. This option provides for this behavior.

VN3 -cVN2
This option enables the protocol specific layer of the device driver to accept some VN2 messages when using the VN3 protocol.
DASS2/DPNSS -cMC

DASS2 and DPNSS normally send the ISMRI message for call setup. Some equipment expects to receive the ISMRC message instead and this option causes ISMRC to be sent.

AT&T /NI2 -cSO

This option disables the transmission of the 'service message' by the protocol stack. The service message brings the time slot into service and this may cause problems with some equipment.

Table 7. Configurable Options for Signaling Protocols

<table>
<thead>
<tr>
<th>Option</th>
<th>1br</th>
<th>autol</th>
<th>cas</th>
<th>dass</th>
<th>dpnss</th>
<th>stx300</th>
<th>fetsx</th>
<th>tnx_n2</th>
<th>VN3</th>
<th>at&amp;t</th>
<th>idap</th>
<th>ni2</th>
</tr>
</thead>
<tbody>
<tr>
<td>-cNE</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>-cTn</td>
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<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
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<td>-cBB</td>
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<td>N</td>
<td>N</td>
<td>N</td>
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<td>N</td>
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<td>N</td>
<td>N</td>
</tr>
<tr>
<td>-cDn</td>
<td>N</td>
<td>N</td>
<td>Y</td>
<td>N</td>
<td>N</td>
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<tr>
<td>-cEn</td>
<td>N</td>
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<td>Y</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
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<tr>
<td>-cAX B/Y</td>
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<td>N</td>
<td>N</td>
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<tr>
<td>-cVn2</td>
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<tr>
<td>-cIO</td>
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<tr>
<td>-cCA</td>
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<tr>
<td>-cSW</td>
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<td>N</td>
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</tr>
</tbody>
</table>

Note: special switches for R2T1 are listed in "Special Parameters for R2T1 Protocols".

Special Parameters for R2T1 Protocols

The following parameters all apply specifically for R2T1 protocols. The parameters are added to the call control device driver statement in your CONFIG.SYS file as described in "Hardware Related Software Configuration" on page 80. Each parameter will configure both ports unless the port number is added (as described in "Switch Protocol Related Software Configuration" on page 81). All the parameters are optional but you are recommended to use those marked with *.

- **s0** allows backward release of incoming calls. **Check that this action is allowed in your country before using this option.**

- **s1** on incoming calls, causes request of Group II/Group B signals on completion of tone signalling. This option can usually be used freely, and is in fact often mandatory.

  **Note:** The use of call progress (Group B) signals depends upon the use of this switch.

- **s2,x** on incoming calls, causes a single (-s2,1) or dual (-s2,2) ring back cadence to be generated as a result of call Incoming_ringing().

- **s3,x** if CLI/ANI is requested, causes signal A-x rather than A-5 (the default) to be generated and recognized as a CLI request.
-s4* on incoming calls, strips off the 1st digit (caller category digit) from the returned CLI value (for the sake of compatibility with the API for other signalling systems), otherwise the category digit is returned preceding the first CLI digit.

-s5,x caller category (Group II) signal control for outgoing calls. Without setting this switch, the default is to send the caller category before CLI, and to use the default value of II-1, or as set by -s7.

-s5,1 do not prefix CLI with the caller category; caller category is as set by -s7.

-s5,2 prefix CLI with the caller category; the caller category is provided by the first CLI digit.

-s5,3 do not prefix CLI with caller category; caller category is set by the first CLI digit, hence on CLI request send CLI starting at the second digit.

-s6 on outgoing calls, upon requests for CLI with no CLI digits available at the API, responds with an I-15 (end of CLI) rather than an I-12 (request not accepted).

-s7,x on outgoing calls, sets the value used for the group 2 signal to x, rather than II-1 (the default). This is national-implementation dependent. This value is ignored if -s5 is set to take the caller category from the CLI field, unless the CLI field is empty.

-s8,x on incoming calls, sets the group B free subscriber signal to x. The default if this switch is not explicitly used is -s8,6.

-s9 modifies the line signalling to change only one bit at a time. This only influences the response to forward clearing by clearing back via the Backbusy state in the same way as normal backwards clearing.

-s10,1 causes I-15 to be accepted as an 'End Of Pulsing' signal for DDI address on incoming calls, and prevents the 'F' that would otherwise be generated from being appended to the incoming destination address field.

-s10,2 causes I-15 to be accepted as an 'End Of Pulsing' signal for DDI address on incoming calls, and allows the 'F' to be appended to the incoming destination address field.

-s11 inhibits the generation of either the I-12 or I-15 signal as 'end of CLI'. Receiving CLI relies upon the -cCnn CLI count to determine the number of CLI digits.

-s12,2 produces China #1 R2 line signalling and register signal meanings, and hence always uses Group B signals (turns on -s1), sets the appropriate CLI request parameters (-s3,6, -s6 and s13,1), and sets modified line signalling (s9). The caller's category is left to default to II-1 (-s7,1) but the default free subscriber answer signal must be explicitly set to B-1 (-s8,1).

-s12,3 produces Brazil 5C MFC R2 signal meanings, and hence always uses Group B signals (turns on -s1), and sets the CLI request signal to A-5 (sets -s3,5). The caller's category is left to default to II-1 (-s7,1 which should be correct) and the default free subscriber answering should be set to B-1 (-s8,1).
-s12,4 produces Mexican R2. Always uses group B (-s1), sets CLI request to A-6 (-s3,6), subsequent CLI requests to A-1 (-s13,1), and no CLI to I-15 (-s6).

-s12,5 produces Columbian R2. Always uses group B (-s1), sets CLI request to A-6 (-s3,6), subsequent CLI requests to A-1 (-s13,1), with modified line signalling (-s9).

-s12,6 produces Australian P2 (AKA TS003 and R2D). Always uses group B (-s1), no CLI possible.

-s12,7 produces Indonesian SMFC R2 (semi-compelled R2). Always uses group B, sets CLI request to A-6, (-s3,6), and backwards signals to 150 mS fixed period (unless modified by -s27). Take care, as Indonesia sometimes uses E&M signalling for line signalling. Q421 line signalling is sometimes called 'Ericsson Loop Signalling'.

-s12,8 produces Croatian MFC R2 register signalling, and always uses group B for MFC.

-s12,9 produces MFC R2 register signalling for Singapore & Malaysia, sets CLI request to A-6, and always uses group B for MFC.

-s13,x sets a different value for CLI digit request signals subsequent to the first CLI request signal. The default is that all CLI request signals are the same as the default (or the value set using S3).

-s14,x on incoming calls, causes the CLI to be automatically requested after receiving x DDI digits. If this option is not selected (which is the default), CLI needs to be explicitly requested using call_get_originating_address.

-s15,x* during receipt of CLI, prevents recognition of ring and answer commands prior to receipt of the 'end of CLI' signal (usually I-15). If this switch is used to inhibit commands, the 'call_incoming_ringing' or 'call_accept' API call may be any time after the first CLI digit has been received. The value of x modifies the effect of this parameter as follows:

-s15,0 (the default) does not inhibit ring or answer, and does not show 'C' or 'F'

-s15,1 shows the I-12 signal as 'C', and I-15 as 'F' at the end of the CLI address, but does not inhibit ring or answer

-s15,2 inhibits ring and answer during CLI collection, without showing 'C' or 'F'

-s15,3 shows 'C' and 'F', and inhibits ring and answer

-s16 causes production of a 425Hz 'dialtone' on incoming calls, immediately upon seizing, which disappears upon detecting the first dialled digit.

-s17 allows receipt of register signalling via decadic (pulse) dialling on the A bit.

-s18 forces outgoing calls to use decadic (pulse) dialling on the A bit.

-s19 forces alternate meter pulse type.
-s20,x  sets time supervision while transmitting forward signals to x seconds. On timeout, will clear forward. Default is no time supervision.

-s21,x  sets time supervision while transmitting forward no tone signals to x seconds. On timeout, will clear forward. Default is no time supervision.

-s22,x  sets time supervision while receiving forward signals to x seconds. On timeout, will generate a pulsed A-4 (or B-4) congestion signal (or as set by -s30), which should result in the outgoing end clearing forwards. Default is no time supervision.

-s25,x  sets length of meter pulse to x*10 mS (default 150 mS).

-s26,x  sets the maximum period of time considered to be a meter pulse (prior to being regarded as clearing) to x*10 mS (default 350 mS).

-s27,x  enables semi-compelled signalling; sets backwards signals to fixed x*10 mS periods. A value frequently used is 150 mS (-s27,15). With the switch not set, the default is fully compelled signalling.

-s28,x  causes outgoing register signalling to be DTMF rather than MFC. As there is reduced information transfer when using DTMF, all the call progress and caller category information is absent, and The mark/space ratio of the DTMF tones is fixed at 1:1, with tone duration fixed at x*10 mS.

-s29  causes incoming register signalling to be assumed to be DTMF rather than MFC.

-s30  overrides the default value for the A or B backwards pulsed ‘congestion’ signal sent as a result of expiry of the time supervision of receiving forward signals. (Default is A-4 or B-4).

-s32  allows any signal to register as the first digit in the CLI field, except signal 15, which is universally used as end of CLI.

-s33,x  modifies the use of answer supervision line signalling for Croatian R2 (and may be applicable elsewhere) whereby upon recognition of seize, the incoming side goes immediately to conversational state. The various values of x shown below may be added together to produce an aggregate effect:

1  modifies outgoing line signalling on incoming calls, by going directly to answer upon seize.

2  copes with modified incoming line signalling on outgoing calls when the line signalling goes directly to answer.

16  on incoming calls with modified outgoing line signalling, automatically produces a single meter pulse upon call_accept(), which may be interpreted by the far end as indicating that the call has been answered.

32  on outgoing calls with modified signalling, causes return of EV_CALL_CONNECTED when a meter pulse has been seen.
-s34,x  on outgoing calls, causes the protocol to indicate movement to the
connected state x*100 mS after the last digit has been sent.

-s35,x  on incoming calls, this switch enables the 'clearback' feature, which in
some networks will reject collect calls and calls from pay phones. If this
switch is used, after call_accept() the answer line signalling will be sent for
x*100 mS, then the clearback signal for 2 seconds (or as set by -s36), then
answer signal again. A typical value would be 1 second (x = 10).

-s36,x  if -s35 is set, this switch overrides the default two second disconnect period
with a value of x*100 mS.

-s37,x  on incoming calls, when call_accept() is used, with or without a preceding
call_incoming_ringing(), this switch guarantees a minimum delay of x*10
mS between the end of the group B signal and the answer line signalling.

-s60 to -s74
these switch locations provide overrides to the mapping for outgoing calls,
between the received Group B signals and the answer or clearing cause
returned via the API. -s60 sets the returned value for B-1, -s61 the value
for B-2, and so on up to -s74 which sets the returned value for B-15.

To set a B-signal to return a clearing cause (LC_xxx) value, set the switch
to the enumerated value of the relevant LC_xxx code. To set a B-signal to
return an answer code, set it to the value of the answer code plus 16.
Thus to alter the mapping to return answer code 2 from B-6, set -s65,18.

-s75 to -s79
these switches provide overrides to the mappings between the five
available API answer codes and outgoing Group B signals for incoming
calls.

-s80 to -s95
these switches provide overrides to the mappings between clearing causes
and Group B signals for incoming calls.

-s98  informs the software on the card that no DSP is fitted, allowing the use of
both line signalling and decadic (pulse) register signalling without suffering
from problems due to absence of DSP hardware.

-s99,n  enables protocol trace generation by the software on the card. If n=1..31
the generated trace is enabled for channel n (except for n=16). If n=32,
trace is enabled for all channels (except 16). The left bit trace and tone
columns are the transmitted signals, and the right bit trace and tone
columns are the received signals. The characters 'f' and 'b' stand for
'forward' and 'backward'.

Only use this facility for debugging - do not leave it enabled in production
systems (unless absolutely necessary) as it affects the performance of the
protocol.

Auto Backbusy -cBBY,xxxxxxxx
see CAS Backbusy Control on page 82.
Special Parameters for R1/E&M Protocols

The following parameters all apply specifically to R1/E&M CAS protocols. The parameters are added to the call control device driver statement in your CONFIG.SYS file as described in “Hardware Related Software Configuration” on page 80. Each parameter will configure both ports unless the port number is added (as described in “Switch Protocol Related Software Configuration” on page 81).

- `-s1` informs the protocol that it must always send a wink on incoming calls, and must always wait for a wink before dialling on outgoing calls. The timing for sending the wink is as set by `-s3` and `-s4`.

- `-s2,1` enable generation of ringback on incoming calls as a result of calling the API function `call_incoming_ring-ing()`. The ringback cadence is a single cadence of 440Hz at -3.5 dBm0, 1S on and 3S off. No ringback is generated if `-s98` is used.

- `-s2,2` enables generation of ringback on incoming calls as a result of calling the API function `call_incoming_ring-ing()`. The ringback is a dual cadence of 440Hz at -3.5dBm0, .4S on, .2S off, .4S on, 2S off. No ringback is generated if `-s98` is used.

- `-s3,nn` if `-s1` is set, this switch overrides the default 100mS delay on incoming calls before sending the wink. The new delay will be nn*10 mS.

- `-s4,nn` if `-s1` is set, this switch overrides the default of 150mS for the duration of the wink on incoming calls. The new duration will be nn*10 mS.

- `-s5,nn` provides an override to the default delay of 135mS on outgoing calls waiting for the delay dial/PTS signal, and is effectively a pre-dial delay. The new delay will be nn * 10mS, so to produce a 500mS wait for PTS, set `-s5,50`.

- `-s6,nn` on outgoing calls, causes ST to be sent, and the event `EV_OUTGOING_RINGING` to be automatically generated nn * 100mS after the last digit has been sent, and the supply of further digits via `call_send_overlap()` is not possible. If this switch is not set, a default timeout of 10 seconds will exist (as a defense mechanism).

- `-s7` if this switch is used, ‘K’ for KP and ‘S’ for ST will be included in the incoming DDI digit string.

- `-s10` if this switch is set, it allows the incoming end to send ringing or to answer calls before an ST is received, although subsequent received digits will be lost.

- `-s16` generates dialtone on incoming calls, between the initial seize and recognition of KP. The dialtone is a constant mixture of 330Hz and 440Hz each at -1d8m0. No tones are generated if `-s98` is used.

- `-s25` enables the generation of meter pulses on incoming calls, which are otherwise not passed from the API.

- `-s25,nn` enables the generation of meter pulses, and overrides the default meter pulse length of 150mS. The new value set is x * 10mS.
-s26 enables the detection of meter pulses on outgoing calls, and considers that pulse lengths less than 350mS are meter pulses, and pulses over 350mS are clearing.

-s26,nn enables the detection of meter pulses on outgoing calls, and modifies the default detection period to nn*10mS.

-s28,nn overrides the default DTMF on/off time. The time is calculated as x * 5mS, and the default value is 70mS.

-s31 modifies the default delay (in 100mS increments) when a comma ',' is encountered in the destination address for dialling. To set a delay of 1.5 seconds, for example, use -s31,15. The default value for a single comma is 1 second.

-s98 prevents the firmware from accessing the DSP on the card, thereby making it safe to allow the use of the firmware on a card not fitted with a DSP. If this switch is used, the protocol will neither generate nor detect tones, so external tone signalling must be used.

Note: If there is no DSP present and this switch is not set, the card will not start, and device driver initialization will fail.

-s99,n enables protocol trace generation by the software on the card. If n=1..31 the generated trace is enabled for channel n (except when n=16), if n=32 trace is enabled for all channels (except 16). The left bit trace and tone columns are the transmitted signals, and the right bit trace and tone columns are the received signals.

Auto Backbusy -cBBY,xxxxxxx
see CAS Backbusy Control on page 82.

The following are some examples of switch settings for commonly encountered signalling systems:

<table>
<thead>
<tr>
<th>Always optional</th>
<th>-s2 -s6 -s7 -s16 -s25 -s26 -s28 -s31</th>
</tr>
</thead>
<tbody>
<tr>
<td>E&amp;M 'immediate start'</td>
<td>(none)</td>
</tr>
<tr>
<td>optional</td>
<td>-s5,nn</td>
</tr>
<tr>
<td>E&amp;M 'delay dial'</td>
<td>(none)</td>
</tr>
<tr>
<td>optional</td>
<td>-s5,nn</td>
</tr>
<tr>
<td>E&amp;M 'wink start'</td>
<td>-s1</td>
</tr>
<tr>
<td>optional</td>
<td>-s3,nn -s4,nn -s5,nn</td>
</tr>
</tbody>
</table>

Special Parameters for PD1 Protocols

The following parameters all apply specifically to PD1 protocols. The parameters are added to the call control device driver statement in your CONFIG.SYS file as described in “Hardware Related Software Configuration” on page 80. Each parameter will configure both ports unless the port number is added (as described in “Switch Protocol Related
Software Configuration" on page 81). All the parameters are optional but you are recommended to use those marked with *.

- **-s1** enables correct response to EARTH CALLING after incoming seize. On incoming seize, the protocol responds with ABCD==1111 as if it were a seize ack, for network end non-ddi only.

- **-s2** enables generation of ringback on incoming calls as a result of calling the API function call_incoming_ringing(). The ringback cadence is the UK standard dual cadence except on the non-ddi user end where the cadence is entirely determined by the incoming bit signalling. No ringback is generated if -s98 is used.

- **-s3, x** enables generation of 'disconnect clear' (ABCD=0001) signal on forward clearing. Total clear pulse time is x*10 mS, so for a 900 mS clear pulse, a value of x=90 must be used (maximum value is x=255). Default is x=0, idle clearing. Only available on the network end of the non-ddi protocol.

- **-s4, x** enables generation of call logger/meter pulse on answer of incoming calls. This causes a pulse on the C bit for x*10 mS, so for a 20 mS pulse x=2 must be used. Default is x=0, no pulse. Only available on the network end of the non-ddi protocol.

- **-s5, x** provides an override to the default value for the short delay on outgoing calls waiting for the delay dial/PTS signal on the ddi version of the protocol. The delay is programmed as x*10 mS, so to produce a 500 mS predial delay, set -s5,50. The default is 40 mS.

- **-s6, x** on outgoing calls, causes the event EV_OUTGOING_RINGING to be generated if an x*100 mS timer expires after the last digit sent (but subsequent digits will not cause further EV_OUTGOING_RINGING events). Available on the ddi and non-ddi user end only.

- **-s7, x** overrides the default value of the predial delay used on outgoing calls on the non-ddi user end protocol. The delay is programmed x*10 mS. The default value is 750 mS (this is different from s5, as PTS only exists on the ddi version).

- **-s8, 1** enables the network end of the non-ddi protocol for each channel NOT enabled as ddi protocol by -s20 to -s23. Without s8 being set, the default is the user end of the non-ddi version of the protocol.

- **-s8, 2** enables the ddi version of the protocol across all the channels, and overrides channel selection via -s20 to -s23.

- **-s9, x** overrides the default value of the inter-digit delay for decadic dialling. The delay is calculated as x*10 mS, and the default value is 750 mS.

- **-s10** prevents the generation of outgoing line signalling for the 'call established' state, which may be of use when used with certain analog multiplexers. Meter pulses should not be sent if this switch is used, as they are undefined.

- **-s11** prevents the detection of hashes on incoming calls.
-s16,1 generates dialtone on incoming calls, between the initial seize and recognition of the first dialled digit. Only available on the ddi and the non-ddi network end. No tones are generated if -s98 is used.

-s16,2 generates special dialtone on incoming calls, between the initial seize and recognition of the first dialled digit. Only available on the ddi and the non-ddi network end. No tones are generated if -s98 is used.

-s17 recognizes decadic dialling on incoming calls as well as DTMF digits. Only available on the ddi and the non-ddi network end (non-ddi user end does not receive dialled digits). Must be used if -s98 is used, otherwise no register signalling is possible.

-s18 forces decadic dialling on outgoing calls on all channels (overrides individual settings on s32 to s35). Only available on ddi and non-ddi user end (the network end does not dial). Should be used if -s98 is set, as otherwise no register signalling is possible.

-s20,x sets the ddi protocol for channels 1-7. Each bit represents one channel; bit 1 controls channel 1, and bit 7 controls channel 7 (bit 0 is not used as there is no channel 0). To set all channels 1-7 to ddi, use -s20,255.

-s21,x sets the ddi protocol for channels 8-15. Each bit represents one channel; bit 1 controls channel 8, and bit 7 controls channel 15. To set all channels 8-15 to ddi, use -s21,255.

-s22,x sets the ddi protocol for channels 17-23. Each bit represents one channel; bit 1 controls channel 17, and bit 7 controls channel 23 (bit 0 is not used as there is no channel 16). To set all channels 17-23 to ddi, use -s22,255.

-s23,x sets the ddi protocol for channels 24-31. Each bit represents one channel; bit 1 controls channel 24, and bit 7 controls channel 31. To set all channels 24-31 to ddi, use -s23,255.

-s25,x overrides the default meter pulse length of 150 mS for outgoing pulses on the 'C' bit. The new value set is x*10 mS.

-s28,x overrides the default DTMF on/off time. The time is calculated as x*5 mS, and the default value is 70 mS.

-s31 modifies the default delay (in 100 mS increments) when a comma ',' is encountered in the destination address for dialling. To set a delay of 1.5 seconds, for example, use -s31,15. The default value for a single comma is 1 second.

-s32,x sets decadic outbound dialling for channels 1-7. Each bit represents one channel; bit 1 controls channel 1, and bit 7 controls channel 7 (bit 0 is not used as there is no channel 0). To set all channels 1-7 to decadic, use -s32,255.

-s33,x sets the decadic outbound dialling for channels 8-15. Each bit represents one channel; bit 1 controls channel 8, and bit 7 controls channel 15. To set all channels 8-15 to decadic, use -s33,255.
-s34,x  sets decadic outbound dialling for channels 17-23. Each bit represents one channel; bit 1 controls channel 17, and bit 7 controls channel 23 (bit 0 is not used as there is no channel 16). To set all channels 17-23 to decadic, use -s34,255.

-s35,x  sets decadic outbound dialling for channels 24-31. Each bit represents one channel; bit 1 controls channel 24, and bit 7 controls channel 31. To set all channels 24-31 to ddi, use -s35,255.

-s98  prevents the firmware from accessing the DSP on the card, thereby making it safe to allow the use of the firmware on a card not fitted with a DSP. If this switch is used, the protocol will neither generate nor detect tones, so decadic dialling is the only option. If there is no DSP and this switch is not set, the card will not start, and device driver initialization will fail.

-s99,x  enables protocol trace generation by the software on the card. If x=1..31 the generated trace is enabled for channel x (except when x=16). If x=32, trace is enabled for all channels (except 16). The left bit trace and tone columns are the transmitted signals, and the right bit trace and tone columns are the received signals.

Auto Backbusy -cBBY,xxxxxxxx  see CAS Backbusy Control on page 82.

**Special Parameters for DPNSS Enhanced Protocols**

The following parameters all apply specifically to DPNSS enhanced protocols. The parameters are added to the call control device driver statement in your CONFIG.SYS file as described in “Hardware Related Software Configuration” on page 80. Each parameter will configure both ports unless the port number is added. All the parameters are optional.

-fDIB  enable immediate and busy diversion.

-fDR  enable diversion on no reply.

-fDV  enable diversion validation.

-fHD  enable call hold.

-fNSx  enable non-specified information. x is the manufacturer's identity as defined in BTNR 188 Section 15.

-fEN  enable enquiry call.

-fTR  enable call transfer.
Appendix C. Configuring Dialogic ISA Cards

Before you can use your Dialogic cards you need to configure them to work with DirectTalk/2. To do this, you must set switches and jumpers on the cards, and configure other software parameters as described in the following sections. Refer to your Dialogic documentation for detailed instructions and the locations of the switches and jumpers on your cards. Use this appendix as a guide for the settings that are required.

Refer to “Installing and Configuring the Dialogic Card Software” on page 25 for installation and configuration procedures.

**Note:** Configuration of the hardware is critical to successful operation of DirectTalk/2. If you do not configure your voice cards as described in this appendix, DirectTalk/2 might not work correctly.

For the purposes of this appendix, the cards which are supported by DirectTalk/2 Version 2.1 have been divided into groups where the cards in a group have similar configuration requirements.

**Group A - D/xxD and D/42x-xx Cards**

The following cards in this group are supported by DirectTalk/2 Version 2.1:

- D/21D(**)
- D/41D(**)
- D/42-NS(**)
- D/42-NE2(**)
- D/42D-SL(**)
- D/42D-SX(**)

**Hardware Configuration**

These card types have jumpers and switches to set the following parameters:

- Card address (I/O Port)
- Interrupt request level (IRQ)
- Interrupt terminator
- Default line state

The rest of this section describes how to set these parameters. You should keep a note of the card addresses and interrupt levels that you set up as you will be asked to enter the values during software installation.

**Setting the Card Memory Address**

The card memory address consists of a base address and an offset. The combined address of each card must be unique and different from the address of any other device on the expansion bus.
The base address is set by using different combinations of the jumpers JP5 and JP6 as defined in Table 8 on page 94. The default address is D000H and this should not be changed unless you have more than 8 cards of this type installed, or the address D0000H is required for another device.

### Table 8. Base address settings

<table>
<thead>
<tr>
<th>JP5</th>
<th>JP6</th>
<th>Base address</th>
</tr>
</thead>
<tbody>
<tr>
<td>out</td>
<td>out</td>
<td>D0000H</td>
</tr>
<tr>
<td>in</td>
<td>out</td>
<td>A0000H</td>
</tr>
<tr>
<td>out</td>
<td>in</td>
<td>C0000H</td>
</tr>
<tr>
<td>in</td>
<td>in</td>
<td>B8000H</td>
</tr>
</tbody>
</table>

**Note:** For most personal computers memory addresses below C8000H are not valid. This means that you should not use addresses below this value unless you are certain that your personal computer does not have this restriction.

The offset from the base address is set with the switch SW1 which has three toggles. The first card you configure should be left at the default offset value of 0000H (unless the base address is required by another device in your system). For each subsequent card you must change the setting of this switch to create a different offset address which is unique within your system. The addresses of the cards in your system do not have to be contiguous. The addresses you can configure are shown in Table 9.

### Table 9. Offset Address settings

<table>
<thead>
<tr>
<th>SW 1.1</th>
<th>SW 1.2</th>
<th>SW 1.3</th>
<th>Offset address</th>
</tr>
</thead>
<tbody>
<tr>
<td>off</td>
<td>off</td>
<td>off</td>
<td>0000H</td>
</tr>
<tr>
<td>off</td>
<td>off</td>
<td>on</td>
<td>2000H</td>
</tr>
<tr>
<td>off</td>
<td>on</td>
<td>off</td>
<td>4000H</td>
</tr>
<tr>
<td>off</td>
<td>on</td>
<td>on</td>
<td>6000H</td>
</tr>
<tr>
<td>on</td>
<td>off</td>
<td>off</td>
<td>8000H</td>
</tr>
<tr>
<td>on</td>
<td>off</td>
<td>on</td>
<td>A0000H</td>
</tr>
<tr>
<td>on</td>
<td>on</td>
<td>off</td>
<td>C0000H</td>
</tr>
<tr>
<td>on</td>
<td>on</td>
<td>on</td>
<td>E000H</td>
</tr>
</tbody>
</table>

**Setting the Interrupt Request Level (IRQ)**

The interrupt request level should be set to be the same for all the cards in this group, and should be the same level as that set for cards in the Group B. The level is set with the jumper JP1 and should be left at the default of Interrupt Level 3 unless this clashes with another device in your system.

**Note:** IRQ3 is typically used by COM2. Make sure that your personal computer does not use COM2, before you decide to use IRQ3.

The interrupt levels which can be set are shown in Table 10 on page 95.
### Interrupt Terminator

One, and only one, Group A or Group B card in your voice system should have the interrupt terminator JP1 installed. This single termination is shared by the cards in this group and those in Group B. Leave this terminator in one card in your system and remove it from all others.

**Note:** Ideally the terminator should be installed on the card which is physically furthest from your PC’s 8259 Interrupt Controller chips.

### Setting the Default Line State

The default line state determines whether a card shows ‘off-hook’ or ‘on-hook’ when the card is inactive. Cards do not have to all be set to the same state. Set the default line state with SW1.4 as shown in Table 11.

#### Table 11. Default Line State settings

<table>
<thead>
<tr>
<th>SW 1.4</th>
<th>Line State</th>
<th>Card’s response to Incoming Call</th>
</tr>
</thead>
<tbody>
<tr>
<td>off (default)</td>
<td>on-hook</td>
<td>Ringing, no answer</td>
</tr>
<tr>
<td>on</td>
<td>off-hook</td>
<td>Busy signal</td>
</tr>
</tbody>
</table>

### Software Configuration

The following parameters are entered or set during software installation. For the parameters that have already been set up with switches on the card, make sure that your entry in the software installation matches the value you have set on the card.

#### Interrupt Request Level (IRQ)

The level you set during Software Installation must match the level you have set with the card jumpers. See “Setting the Interrupt Request Level (IRQ)” on page 94.

#### Card Memory Address

The memory address you enter for each card during Software Installation must match the address you have set with the card jumpers. See “Setting the Card Memory Address” on page 93.

### Group B - Resource Cards with Hardware Set IRQ

The following cards in this group are supported by DirectTalk/2 Version 2.1:

- D/81A(**)
- D/121(**)
- D/121A(**)
- D/121B(**)
Note: The VR cards in this group cannot be used in the same personal computer as Antares cards running voice recognition firmware.

Hardware Configuration

These card types have jumpers and switches to set the following parameters:

- Card address (I/O Port)
- Interrupt request level (IRQ)
- Interrupt terminator
- Bus mode
- VR/160 daughter module base address

The rest of this section describes how to set these parameters. You should keep a note of the I/O port ranges and interrupt levels that you set up as you will be asked to enter the values during software installation.

Setting I/O Port Ranges

Each card in your system must have a unique I/O port range which is set with SW1 as shown in Table 12.

<table>
<thead>
<tr>
<th>SW 1.1</th>
<th>SW 1.2</th>
<th>SW 1.3</th>
<th>SW 1.4</th>
<th>SW 1.5</th>
<th>SW 1.6</th>
<th>SW 1.7</th>
<th>SW 1.8</th>
<th>I/O Port Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>off</td>
<td>off</td>
<td>on</td>
<td>off</td>
<td>on</td>
<td>on</td>
<td>on</td>
<td>on</td>
<td>340H - 343H</td>
</tr>
<tr>
<td>off</td>
<td>off</td>
<td>on</td>
<td>off</td>
<td>on</td>
<td>on</td>
<td>on</td>
<td>off</td>
<td>344H - 347H</td>
</tr>
<tr>
<td>off</td>
<td>off</td>
<td>on</td>
<td>off</td>
<td>on</td>
<td>on</td>
<td>off</td>
<td>on</td>
<td>348H - 34BH</td>
</tr>
<tr>
<td>off</td>
<td>off</td>
<td>on</td>
<td>off</td>
<td>on</td>
<td>off</td>
<td>on</td>
<td>off</td>
<td>34CH - 34FH</td>
</tr>
<tr>
<td>off</td>
<td>off</td>
<td>on</td>
<td>off</td>
<td>on</td>
<td>off</td>
<td>on</td>
<td>off</td>
<td>350H - 353H</td>
</tr>
<tr>
<td>off</td>
<td>off</td>
<td>on</td>
<td>off</td>
<td>on</td>
<td>off</td>
<td>on</td>
<td>off</td>
<td>354H - 357H</td>
</tr>
<tr>
<td>off</td>
<td>off</td>
<td>on</td>
<td>off</td>
<td>on</td>
<td>off</td>
<td>off</td>
<td>on</td>
<td>358H - 35BH</td>
</tr>
<tr>
<td>off</td>
<td>off</td>
<td>on</td>
<td>off</td>
<td>on</td>
<td>off</td>
<td>off</td>
<td>off</td>
<td>35CH - 35FH</td>
</tr>
</tbody>
</table>

Setting the Interrupt Request Level (IRQ)

The interrupt request level must be set to be the same for all the cards in this group, and must be the same as that set for any cards in Group A. The level is set with the jumper JP1 and should be left at the default of Interrupt Level 3 unless this clashes with another device in your system.

The interrupt levels which can be set are shown in Table 13 on page 97.
Note: If any cards from Group A are installed, the range of the interrupts is restricted to those in Table 10 on page 95.

Interrupt Terminator
See “Interrupt Terminator” on page 95.

Setting the Bus Mode
The bus mode for Dialogic cards can be set to either 8-bit or 16-bit. The mode you should use is determined by the memory address that you set for your cards and for other devices in your system. ISA requires that all devices installed within a memory segment pair (A0000H/B0000H, C0000H/D0000H, E0000H/F0000H) must have the same bus mode. The default mode for Dialogic cards is 8-bit and this should be left unless you can be sure that no other 8-bit mode device is running in the same memory segment pair.

Note: Cards in Group A can only operate in 8-bit bus mode and if you have any of these cards in your system all your cards should be set to 8-bit mode.

Set the bus mode with jumpers JP168 and JP16 as shown in Table 14.

<table>
<thead>
<tr>
<th>JP168</th>
<th>JP16</th>
<th>Bus Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>in.</td>
<td>out</td>
<td>8-bit (default)</td>
</tr>
<tr>
<td>out</td>
<td>in</td>
<td>16-bit</td>
</tr>
</tbody>
</table>

Notes:
1. If JP16 has 4 pins, put the jumper on the lower pair.
2. The VR160 card does not have the JP16 jumper. The bus mode is set with JP168 alone.

Setting VR/160 Daughter Module Base Addresses
Up to four VRM/40 (discrete voice recognition) or VRM/2C (continuous voice recognition) daughter modules can be plugged into each VR/160 card. Each daughter module must have a different base address which is set with SW1 in the daughter module. The default address which should be used for the first module is 8000H and the address for each subsequent module should be set according to Table 15 on page 98. Each module should be installed on the card in the connector shown in Table 15 on page 98.
Table 15. Daughter module settings for VR/160

<table>
<thead>
<tr>
<th>SW 1.1</th>
<th>SW 1.2</th>
<th>SW 1.3</th>
<th>SW 1.4</th>
<th>SW 1.5</th>
<th>SW 1.6</th>
<th>SW 1.7</th>
<th>SW 1.8</th>
<th>Base address</th>
<th>VR/160 connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>on</td>
<td>on</td>
<td>on</td>
<td>on</td>
<td>on</td>
<td>on</td>
<td>off</td>
<td></td>
<td>8000H</td>
<td>P05</td>
</tr>
<tr>
<td>off</td>
<td>on</td>
<td>on</td>
<td>on</td>
<td>on</td>
<td>on</td>
<td>on</td>
<td>off</td>
<td>8100H</td>
<td>P06</td>
</tr>
<tr>
<td>on</td>
<td>off</td>
<td>on</td>
<td>on</td>
<td>on</td>
<td>on</td>
<td>on</td>
<td>off</td>
<td>8200H</td>
<td>P07</td>
</tr>
<tr>
<td>off</td>
<td>off</td>
<td>on</td>
<td>on</td>
<td>on</td>
<td>on</td>
<td>on</td>
<td>off</td>
<td>8300H</td>
<td>P08</td>
</tr>
</tbody>
</table>

Note: If you are installing a Dialogic VR/160 adapter card with a mixture of Dialogic VRM/40 and VRM/2C modules, you must install the VRM/40s in the lowest numbered daughter-card slots.

Software Configuration

The following parameters are entered or set during software installation. For the parameters that have already been set up with switches on the card, make sure that your entry in the software installation matches the value you have set on the card.

Interrupt Request Level (IRQ)

The level you set during software installation must match the level you have set with the card jumpers. See “Setting the Interrupt Request Level (IRQ)” on page 96.

I/O Port Address Range

The level you set during software installation must match the level you have set with the card jumpers. See “Setting I/O Port Ranges” on page 96.

Setting the Card Memory Address

Most cards in this group can share the same base address, but they are not required to. This is known as Flexible Board Address Management (FBAM). Any addresses used must not overlap the address space of any other card group or non-Dialogic devices. See also the note on PC memory restrictions on page 94.

The valid addresses depend on the specific card type within this group:

VR/xxx

Any address in the D0000H and A0000H segments that is divisible by 2000H. The default value is D6000.

Notes:

1. VR/40 daughter cards must be assigned the same address as the D/41 card on which they are installed.
2. VR/160 cards cannot share the same base address with each other, but they can share base addresses with other cards in this group.

Other cards in this group

Valid addresses for each card are shown in Table 16 on page 99. The default address is D6000.
### Table 16. Group B valid card address ranges

<table>
<thead>
<tr>
<th>Base address</th>
<th>Ending Address [&amp; Wrapping Address]</th>
<th>D/121B</th>
<th>D/121</th>
<th>D/121A</th>
<th>D/81A</th>
</tr>
</thead>
<tbody>
<tr>
<td>EA000</td>
<td>EFFFF</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>E4000</td>
<td>E9FFF</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>DE000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>DC000</td>
<td>DFFFF [A0000-A1FFF]</td>
<td>DFFFF</td>
<td>[A0000-A1FFF]</td>
<td>DFFFF</td>
<td></td>
</tr>
<tr>
<td>DA000</td>
<td>-</td>
<td>DFFFF</td>
<td>-</td>
<td>-</td>
<td>DCFFFF</td>
</tr>
<tr>
<td>D8000</td>
<td>DFFFF</td>
<td>DFFFF</td>
<td>-</td>
<td>-</td>
<td>DAFFF</td>
</tr>
<tr>
<td>D6000</td>
<td>D8FFF</td>
<td>D8FFF</td>
<td>-</td>
<td>-</td>
<td>D9FFF</td>
</tr>
<tr>
<td>D4000</td>
<td>-</td>
<td>D9FFF</td>
<td>-</td>
<td>-</td>
<td>D7FFF</td>
</tr>
<tr>
<td>D2000</td>
<td>D7FFF</td>
<td>D7FFF</td>
<td>-</td>
<td>-</td>
<td>D5FFF</td>
</tr>
<tr>
<td>D0000</td>
<td>D5FFF</td>
<td>D5FFF</td>
<td>-</td>
<td>-</td>
<td>D3FFF</td>
</tr>
<tr>
<td>CE000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>CC000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>CFFFF</td>
</tr>
<tr>
<td>CA000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>C8000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>CBFFF</td>
</tr>
<tr>
<td>C6000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>C4000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>C2000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>C0000</td>
<td>C5FFF</td>
<td>C5FFF</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>BE000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>B000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>BA000</td>
<td>BFFFF</td>
<td>BFFFF</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>B8000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>AE000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>AC000</td>
<td>AFFFF [D0000-D1FFF]</td>
<td>AFFFF</td>
<td>[D0000-D1FFF]</td>
<td>AFFFF</td>
<td></td>
</tr>
<tr>
<td>AA000</td>
<td>-</td>
<td>AFFFF</td>
<td>-</td>
<td>-</td>
<td>ADFFFF</td>
</tr>
<tr>
<td>A8000</td>
<td>ADFFFF</td>
<td>ADFFFF</td>
<td>-</td>
<td>-</td>
<td>ABFFFF</td>
</tr>
<tr>
<td>A6000</td>
<td>ABFFFF</td>
<td>ABFFFF</td>
<td>-</td>
<td>-</td>
<td>A9FFF</td>
</tr>
<tr>
<td>A4000</td>
<td>-</td>
<td>A9FFF</td>
<td>-</td>
<td>-</td>
<td>A7FFF</td>
</tr>
<tr>
<td>A2000</td>
<td>A7FFFF</td>
<td>A7FFF</td>
<td>-</td>
<td>-</td>
<td>A5FFF</td>
</tr>
<tr>
<td>A0000</td>
<td>A5FFFF</td>
<td>A5FFF</td>
<td>-</td>
<td>-</td>
<td>A3FFF</td>
</tr>
</tbody>
</table>

**Group C - Network Cards with Hardware Set IRQ**

The following cards in this group are supported by DirectTalk/2 Version 2.1:

- DTI/101
- DTI/211
Hardware Configuration

These card types have jumpers and switches to set the following parameters:

- I/O Port range
- Interrupt Request level
- Interrupt terminator
- Remote Loopback switch
- Channel bank mode setting for DTI/101

The rest of this section describes how to set these parameters for the two cards. You should keep a note of the I/O port ranges and interrupt levels that you set for the DTI/211 as you will be asked to enter the values during software installation.

**Note:** The DTI/101 card should only be used in Channel Bank Mode where it is not required to respond to any I/O addressing or to generate interrupts. To configure this mode see “Channel Bank Mode Settings for DTI/101” on page 101.

Setting I/O Port Address Range for DTI/211

Each card of this type in a system must have a unique address in the range 100H to 3F8H. The address is set with the switches 1 - 7 of switch block SW1 which allows increments of 8 bytes. Table 17 shows some example switch settings. Intermediate values can be obtained by changing the position of the appropriate switch. Switch 7 is the most significant digit, OFF=1 and ON=0. The default value is 320H-327H.

<table>
<thead>
<tr>
<th>SW 1.1</th>
<th>SW 1.2</th>
<th>SW 1.3</th>
<th>SW 1.4</th>
<th>SW 1.5</th>
<th>SW 1.6</th>
<th>SW 1.7</th>
<th>I/O Port Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>on</td>
<td>on</td>
<td>on</td>
<td>on</td>
<td>on</td>
<td>off</td>
<td>on</td>
<td>100H - 107H</td>
</tr>
<tr>
<td>on</td>
<td>on</td>
<td>on</td>
<td>on</td>
<td>on</td>
<td>on</td>
<td>off</td>
<td>200H - 207H</td>
</tr>
<tr>
<td>on</td>
<td>on</td>
<td>on</td>
<td>on</td>
<td>on</td>
<td>off</td>
<td>off</td>
<td>300H - 307H</td>
</tr>
<tr>
<td>off</td>
<td>on</td>
<td>on</td>
<td>on</td>
<td>on</td>
<td>off</td>
<td>off</td>
<td>308H - 30FH</td>
</tr>
<tr>
<td>on</td>
<td>off</td>
<td>on</td>
<td>on</td>
<td>on</td>
<td>off</td>
<td>off</td>
<td>310H - 317H</td>
</tr>
<tr>
<td>on</td>
<td>on</td>
<td>off</td>
<td>on</td>
<td>on</td>
<td>off</td>
<td>off</td>
<td>320H - 327H</td>
</tr>
<tr>
<td>off</td>
<td>off</td>
<td>off</td>
<td>off</td>
<td>off</td>
<td>off</td>
<td>off</td>
<td>3F8H - 3FFH</td>
</tr>
</tbody>
</table>

Setting the Interrupt Request Level (IRQ) for DTI/211

The interrupt level for this card type is set with jumper JP1. Table 10 on page 95 shows the possible range of interrupts for DTI/211 if it is installed in an 8-bit slot. If DTI/211 is installed in a 16-bit slot it has the extra possible interrupt levels shown in Table 13 on page 97.

The default value for DTI/211 is Level 4. This default should be used unless it clashes with other devices in your system.
Interrupt Terminator
One, and only one, card on each interrupt level should have the interrupt terminator JP2 installed. This single termination is shared by any other cards on the interrupt level.

Note: Ideally the terminator should be installed on the card which is physically furthest from your PC’s 8259 Interrupt Controller chips.

Setting the Loopback Test Switch
A loopback test switch is provided by SW101 on the DTI/211 card. This switch should be set to OFF for normal operation.

Channel Bank Mode Settings for DTI/101
This card should be installed in Channel Bank Mode where it is a passive device which does not respond to I/O addressing and does not generate interrupts. Configure the switches as follows.

- Remove the jumper from JP1 (IRQ level)
- Remove the jumper from JP2 (Interrupt Terminator)
- Set SW1.1, SW1.2, SW1.3, and SW1.4 to ON

Software Configuration for DTI/211

Note: There is no software configuration for DTI/101. During Dialogic installation you should not indicate that any DTI/101s are installed.

The following parameters are entered or set during software installation. For the parameters that have already been set up with switches on the card, make sure that your entry in the software installation matches the value you have set on the card.

Interrupt Request Level (IRQ)
The level you set during software installation must match the level you have set with the card jumpers. See “Setting the Interrupt Request Level (IRQ) for DTI/211” on page 100.

I/O Port Address Range
The port address range you set during software installation must match the range you have set with the card jumpers. See “Setting I/O Port Address Range for DTI/211” on page 100.

Group D - Board Locator Technology (BLT) Cards
This group contains D/41Exx cards and high density cards. The following cards in this group are supported by DirectTalk/2 Version 2.1:

- D/21E(**)
- D/41E(**)
- D/41ESC(**)
- D/160SC-LS(**)
Hardware Configuration

For most of these cards the only parameter that is set by hardware switches is a unique card identification number. Keep a note of the numbers you set as these will need to be entered during software installation.

Some other switches and jumpers that are unique to particular cards are described after the Card Identifier setting instructions.

Setting the Card Identifier (Except D/x1Exx)

BLT cards have a rotary switch which enables 16 different addresses to be set with values from 0-9 and A-F. Set these switches to give each card a unique number.

Setting the Card Identifier for D/x1Exx

This card type can have one of 32 identification numbers which are set by a combination of SW1 and SW2.2. SW1 provides 16 different values of 0-9 and A-F. These are interpreted as 0-15 when SW2.2 is OFF and as 16-31 when SW2.2 is ON.

D/240SC-T1 Remote Loopback Test Switch

This switch should be set to OFF.

D/x1Exx Default Line State

This is similar to the Default Line State described in “Setting the Default Line State” on page 95 and is set by SW2.1. The ON and OFF states of SW2.1 give the same result as those shown for SW1.4 in Table 11 on page 95.

PEB Terminator

If you are running your system in PEB mode, and a card from this group is one of the terminal cards, insert the PEB terminator into the terminator socket. The terminator must be inserted in the resource (RES) position of the socket. You do not need a terminator if running in SCbus mode. (See “Connecting Ribbon Cables” on page 20 for more information on connecting PEBs and SCbuses.)

Software Configuration

All the installed cards in this group must share a common base memory address and a common IRQ level, both of which must be different from the values used by any other devices in your system. The memory address and IRQ are set during the installation of the Dialogic software.

Setting the Base Memory Address

The base memory address range depends on the card type within this group.

D/xxE

Any address from 80000H to FE000H that is divisible by 2000H
High density
Any address from 80000H to F8000 that is divisible by 8000H

Notes:
1. As you have to set a single base memory address for all cards in this group, if you have mixed D/xxE and high density cards in your system you must choose an address that is divisible by 8000H.
2. See also the note on PC memory restrictions on page 94.

Setting the Interrupt Request Level (IRQ)
The interrupt request levels available depend on the card type within this group. The default level is 5 for all cards and you should not change this unless this level is required by some other device in your system.

D/xxE
The following are valid IRQ levels:
3,4,5,7,9,10,11,12

High density
The following are valid IRQ levels:
3,4,5,6,7,9,10,11,12,14,15

Note: As you have to set a single IRQ level for all cards in this group, if you have mixed D/xxE and high density cards in your system you must choose an IRQ from the D/xxE list.

Setting the Bus Mode
The Bus Mode information in “Setting the Bus Mode” on page 97 applies to all Dialogic cards.

Card Identifier
The card identifier numbers you enter during software Installation must match the values you have set with the card switches. See “Setting the Card Identifier for D/x1Exx” on page 102.

Setting PEB Module Type
If you are connecting your cards to a PEB, set the ‘module type’ and ‘clock source’ to enable each card to be used as a resource module. The exception to this is if you only have one telephony card in your machine, in which case the card should be configured as standalone.

Group E - Loop Start Interface Cards
The following cards in this group are supported by DirectTalk/2 Version 2.1:
- LSI/80
- LSI/120(“)
Hardware Configuration

These card types have switches to set the following parameters:

- Time slot assignment
- Timing clock source
- Default line state
- Loopback mode

The rest of this section describes how to set these parameters.

Setting Time Slot Assignment

There are three possible time slots which can be assigned and each card in this group must be allocated to a different time slot. The default is ‘1’ and this should be used if you only install one LSI/nn card. For each subsequent card change the positions of SW1.1 and SW1.2 as indicated in Table 18.

<table>
<thead>
<tr>
<th>SW 1.1</th>
<th>SW 1.2</th>
<th>Time slot</th>
</tr>
</thead>
<tbody>
<tr>
<td>off</td>
<td>off</td>
<td>1</td>
</tr>
<tr>
<td>on</td>
<td>off</td>
<td>9 / 13</td>
</tr>
<tr>
<td>off</td>
<td>on</td>
<td>17</td>
</tr>
</tbody>
</table>

Timing Clock Source

The timing clock source is set by SW1.3. The OFF position indicates that the card is generating timing signals. The ON position indicates that timing is taken from the PEB. At least one board on each PEB in a system must be set to generate timing signals.

Setting the Default Line State

This is similar to the default line state described in “Setting the Default Line State” on page 95 and is set by SW1.4. as shown in Table 11 on page 95.

Setting the Loopback Test Switch

A loopback test switch is provided by SW1.6. This switch should be set to OFF for normal operation.

Software Installation

There are no software installation settings for cards in this group.

Antares Cards

The Dialogic Antares card can be used as either a Text-to-Speech card, or as a Voice Recognition card. This section describes the installation and configuration of the Antares cards to perform the functions you require. Full details of the installation procedures are provided in the documentation you receive with the card, and in Getting Started with a Technology on Antares under OS/2.
Note: Antares cards running voice recognition firmware cannot be used in the same personal computer as other Dialogic voice recognition cards.

Hardware Configuration

There are three hardware settings on the Antares Card:

- Port Address
- PEB termination
- The security key (dongle)

Setting I/O Port Address

Each Antares card needs to be configured with a port address that is unique within the system. The address for each card is set using the SW1 switch block. Table 19 lists the addresses that can be used and the switch settings that determine the addresses.

<table>
<thead>
<tr>
<th>SW 1.1</th>
<th>SW 1.2</th>
<th>SW 1.3</th>
<th>SW 1.4</th>
<th>Port Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>on</td>
<td>on</td>
<td>on</td>
<td>on</td>
<td>200</td>
</tr>
<tr>
<td>off</td>
<td>on</td>
<td>on</td>
<td>on</td>
<td>208</td>
</tr>
<tr>
<td>on</td>
<td>off</td>
<td>on</td>
<td>on</td>
<td>210</td>
</tr>
<tr>
<td>off</td>
<td>off</td>
<td>on</td>
<td>on</td>
<td>218</td>
</tr>
<tr>
<td>on</td>
<td>on</td>
<td>off</td>
<td>on</td>
<td>220</td>
</tr>
<tr>
<td>off</td>
<td>on</td>
<td>off</td>
<td>on</td>
<td>228</td>
</tr>
<tr>
<td>on</td>
<td>off</td>
<td>off</td>
<td>on</td>
<td>230</td>
</tr>
<tr>
<td>off</td>
<td>off</td>
<td>off</td>
<td>on</td>
<td>238</td>
</tr>
<tr>
<td>on</td>
<td>on</td>
<td>on</td>
<td>off</td>
<td>240</td>
</tr>
<tr>
<td>off</td>
<td>on</td>
<td>on</td>
<td>off</td>
<td>248</td>
</tr>
<tr>
<td>on</td>
<td>off</td>
<td>on</td>
<td>off</td>
<td>250</td>
</tr>
<tr>
<td>off</td>
<td>off</td>
<td>on</td>
<td>off</td>
<td>258</td>
</tr>
<tr>
<td>on</td>
<td>on</td>
<td>off</td>
<td>off</td>
<td>260</td>
</tr>
<tr>
<td>off</td>
<td>on</td>
<td>off</td>
<td>off</td>
<td>268</td>
</tr>
<tr>
<td>on</td>
<td>off</td>
<td>off</td>
<td>off</td>
<td>270</td>
</tr>
<tr>
<td>off</td>
<td>off</td>
<td>off</td>
<td>off</td>
<td>278</td>
</tr>
</tbody>
</table>

PEB Terminator

If you are running your system in PEB mode, and the Antares card is one of the terminal cards, insert the PEB terminator into the socket P3. The terminator must be inserted in the resource (RES) position of the socket. If you are running your system in SCbus mode, ensure that there are no terminators installed. (See “Connecting Ribbon Cables” on page 20 for more information on connecting PEBs and SCbuses.)

Security Key (Dongle)

To enable your Antares card to operate with a specific technology package, a security key, also known as a dongle, has to be installed. The dongle should be plugged into
connector U34 on the Antares card. If a dongle is already installed, remove it and insert the new one supplied with your technology package.

Software Configuration
The Antares configuration details are specified in the ANTARES.CFG file which can be found in the CONFIG subdirectory of the main Dialogic installation directory. To perform the Antares configuration, this file has to be edited using any text editor you choose.

The configuration file is divided into three sections:
- Antares System
- Antares Board
- Antares Host Driver

You need to check or modify values within each of these sections. Some lines may be commented out by default. If you need to make changes to these lines, make sure you also remove the comment tags. Parameters that are not listed here should normally be left with their default values. For more information on the Antares software configuration, see Getting Started with a Technology on Antares under OS/2.

Antares System Configuration
Check the following in this section, and change if necessary:

Hardware Interrupt
Choose a value that does not conflict with any other cards or devices in your system. Choose from:

2/9, 3, 4, 5, 7, 10, 11, 12, 13, 14 or 15

Antares Boards Configuration
The following values need to be set for each Antares board in your system. The value set for each board is headed by an Antares_Board= statement showing which board they relate to (see the Antares BOARD Configuration Example on page 108). The first board should always be equated to 0 and subsequent boards should be equated to 1, 2, . . . . 15.

Port
Set to the port number specified on the Antares Board switches

PCMConfig
Set to:

- PEBSW if you are using PEB
- SCSA if you are using SCSA

Encoding
Set to Mu_Law or A_Law, depending on how your network cards are configured.

LineConfig
Set to E1 if you’re using SCbus. If you’re using PEB, set to T1 if you’re using 24 channels on the bus (T1 or Analog), or E1 if you’re using 32 channels on the bus.
DSP=0 1 2 3

Edit this to indicate which of the possible four DSPs are installed on the Antares card, and are to be loaded with the files defined in the COFF parameter. If the card is being used for L&H TTS, the same download file must be used for all the DSPs that are installed on a card. If the card is being used for VCS VR, each DSP may be loaded with a different vocabulary. To achieve this, multiple DSP statements are used, each with a different COFF value (see the Antares BOARD Configuration Example on page 108).

When installing L&H TTS, you must install the language file for all your DSPs. DirectTalk/2 will share the channels authorized by the dongle between the DSPs.

When installing VCS VR, install only the number of channels authorized by the dongle. This may mean not using all the DSPs. In this case, use the higher numbered DSPs; no COFF files will be installed on the lower numbered DSPs.

The number of channels supported on a DSP for the different vocabulary types is:

- **discrete**
  - 8
- **discrete with cut-through**
  - 4
- **continuous**
  - 2

COFF

This should eventually be set to the name of the file which contains the firmware that is to be downloaded to the card, but, until the files are installed (during DirectTalk/2 software installation) the value should be left as the default RECPLAY2.COF.

When DirectTalk/2 software installation is complete, the default should be replaced with the full name and pathnames for the firmware download files that are to be used. The files that are provided with DirectTalk/2 are listed in Table 20 on page 109 and Table 21 on page 109.

PARAMFILE

This is not usually needed and can be commented out.

If you are installing L&H TTS in PEB mode, add the following line to the Antares Boards Configuration section, after the ClockMode line:

```
ExtTS=1
```
Antares Host Driver Configuration
Check the following in this section, and change if necessary:

**Max_Rcus**
To be equal to, or greater than, the number of Antares channels required for all
the Antares cards in the system

**Max_opened_Rcus**
To be equal to, or greater than, the number of Antares channels required for all
the Antares cards in the system

**Max_bulk_data**
To be equal to, or greater than, the number of Antares channels required for all
the Antares cards in the system

Antares BOARD Configuration Example
# SAMPLE for Antares system using SCbus

Antares_Board = 0
{
  Port = 0x0200
  MessageSize = 0x80
  maxMessageSize = 0x100
  maxMessages = 32
  maxRouteList = 32
  maxMapList = 32
  maxBDstreams = 32
  PCMConfig = SCSA
  LineConfig = E1
  ClockMode = SYNC
  Encoding = Mu_Law
  MaxSCSAslots = 1024

  # Load DSPs 0 and 1 with the firmware from file RECPLAY2.COF
  DSP = 0 1
  {
    COFF = RECPLAY2.COF
    # PARAMFILE = RECPLAY2.PRM
  }

  # Load DSPs 2 and 3 with the firmware from file RECPLAY3.COF
  DSP = 2 3
  {
    COFF = RECPLAY2.COF
    # PARAMFILE = RECPLAY3.PRM
  }
}
### Table 20. Language files for L&H TTS

<table>
<thead>
<tr>
<th>Language</th>
<th>File name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dutch</td>
<td>LHTTSDUT.COF</td>
</tr>
<tr>
<td>English</td>
<td>LHTTSENG.COF</td>
</tr>
<tr>
<td>French</td>
<td>LHTTSFRE.COF</td>
</tr>
<tr>
<td>German</td>
<td>LHTTSGER.COF</td>
</tr>
<tr>
<td>Italian</td>
<td>LHTTSSITA.COF</td>
</tr>
<tr>
<td>Spanish</td>
<td>LHTTSSPA.COF</td>
</tr>
</tbody>
</table>

### Table 21. Language files for VCS Voice Recognition

<table>
<thead>
<tr>
<th>Language</th>
<th>Discrete</th>
<th>Discrete with Cut-Thru</th>
<th>Continuous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afrikaans</td>
<td>AFSAD82A</td>
<td>AFSAU42A</td>
<td></td>
</tr>
<tr>
<td>Cantonese</td>
<td>CNHKD82A</td>
<td>CNHKU42A</td>
<td>CNHKW23A</td>
</tr>
<tr>
<td>Catalan</td>
<td>CASPD82A</td>
<td>CASPU42A</td>
<td></td>
</tr>
<tr>
<td>Danish</td>
<td>DADED82A</td>
<td>DADEU42A</td>
<td></td>
</tr>
<tr>
<td>Dutch</td>
<td>DUNED82A</td>
<td>DUNEU42A</td>
<td></td>
</tr>
<tr>
<td>English -Australian</td>
<td>ENAUD82A</td>
<td>ENAUU42A</td>
<td>ENAUD83A³</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ENAUU43A³</td>
</tr>
<tr>
<td>English -British</td>
<td>ENBRD82A</td>
<td>ENBRU42A</td>
<td>ENBRW23A</td>
</tr>
<tr>
<td></td>
<td>ENBRD84A³</td>
<td>ENBRU44A³</td>
<td></td>
</tr>
<tr>
<td>English -Canadian</td>
<td>ENCAD82A</td>
<td>ENCAU42A</td>
<td>ENCAW23A</td>
</tr>
<tr>
<td>English -Hong Kong</td>
<td>ENHKD82A</td>
<td>ENHKU42A</td>
<td>ENHKW23A</td>
</tr>
<tr>
<td>English -Singapore</td>
<td>ENSND82A</td>
<td>ENSNU42A</td>
<td>ENSNW23A</td>
</tr>
<tr>
<td>English -South African</td>
<td>ENSAD82B</td>
<td>ENSAU42a</td>
<td>ENSAD82B</td>
</tr>
<tr>
<td>English -US</td>
<td>ENUSD82A</td>
<td>ENUSU42A</td>
<td>ENUSW23A</td>
</tr>
<tr>
<td></td>
<td>ENUSD84A³</td>
<td>ENUSU44A³</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ENUSD84B³</td>
<td>ENUSU44B³</td>
<td></td>
</tr>
<tr>
<td>Finnish</td>
<td>FIFID82A</td>
<td>FIFIU42A</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FIFID82B</td>
<td>FIFIU42B</td>
<td></td>
</tr>
<tr>
<td>Flemish</td>
<td>FLBED82A</td>
<td>FLBEU42A</td>
<td></td>
</tr>
<tr>
<td>French -Canadian</td>
<td>FRMXD42A</td>
<td>FRMXU82A</td>
<td>FRMXW23A</td>
</tr>
<tr>
<td>French¹</td>
<td>FRMXD42B</td>
<td>FRMXU82B</td>
<td></td>
</tr>
<tr>
<td>French -Swiss</td>
<td>FRSZD82A</td>
<td>FRSZU42A</td>
<td></td>
</tr>
<tr>
<td>German</td>
<td>GEGED82A</td>
<td>GEGEU42A</td>
<td>GEGEW23A</td>
</tr>
<tr>
<td>German -Swiss</td>
<td>GESZD82A</td>
<td>GESZU42A</td>
<td></td>
</tr>
</tbody>
</table>

**Important:** You must add the extension .VB4 to all the file names listed below to complete the file name. For example, for discrete Afrikaans, the complete file name is AFSAD82A.VB4.
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**Notes:**
1. Includes Belgian and Canadian
2. Includes North, Central, and South-American
3. These vocabularies are included for backwards compatibility only and should not be used in new applications
Appendix D. Configuring Dialogic Micro Channel Cards

Before you insert your Dialogic cards into your personal computer, you need to configure them to work with DirectTalk/2. To do this, you must set switches on any Loop Standard Interface (LSI) cards, as described in “Group E - Loop Start Interface Cards” on page 103. Refer to your Dialogic documentation for detailed instructions and the locations of the switches on your cards.

Refer to “Configuring Micro Channel Cards” on page 23 for installation and configuration procedures.

Micro Channel cards are connected to a PEB and a PEB terminator must be installed on the cards at each end of each PEB.

Note: Configuration of the hardware is critical to successful operation of DirectTalk/2. If you do not configure your voice cards as described in this appendix, DirectTalk/2 might not work correctly.

Supported Cards

The following Dialogic Micro Channel cards are supported by DirectTalk/2

- LSI/40-MC
- LSI/80-MC
- D/41-MC
- D/81-MC
- VR/41-MC
- VR/81-MC
- TTS/40-MC
- TTS/80-MC
Appendix E. Telephony Card Configuration Parameters

This appendix provides details of the configurable parameters for currently supported telephony cards.

NIF Board and Channel Parameters for Dialogic Analog Interface Cards

The following supported cards are included in this type:

- LSI/40-MC
- LSI/80-MC
- D/2x
- D/4x
- LSI/80
- LSI/120
- D/160SC-LS
- DTI/101

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<td>PR_T_PATMAXSIL</td>
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<td>&quot;Hangup Min. Nonsilence&quot;</td>
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<td>PR_T_PATMINSIL</td>
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**Note:** Even though the DTI/101 provides a T1 interface, it is represented to the system as if it were an analog line.
NIF Board and Channel Parameters for Dialogic T1 Cards

The following supported cards are included in this type:

DTI/211  D/240SC-T1

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<td>&quot;Ring Edge&quot;</td>
<td>BD</td>
<td>BD_R_EDGE</td>
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<td>SBNC</td>
<td>&quot;Silence Debounce&quot;</td>
<td>BD</td>
<td>BD_S_BNC</td>
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<tr>
<td>TIDD</td>
<td>&quot;DTMF Interdigit Delay&quot;</td>
<td>BD</td>
<td>BD_T_IDD</td>
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<td>TDEB</td>
<td>&quot;DTMF Debounce Time&quot;</td>
<td>CH</td>
<td>CH_DTMFDEB</td>
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<td>&quot;DTMF Gain Boost&quot;</td>
<td>CH</td>
<td>CH_DTMFGAIN</td>
</tr>
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<td>TTLK</td>
<td>&quot;DTMF Anti-Talkoff&quot;</td>
<td>CH</td>
<td>CH_DTMFTLK</td>
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<td>TEDG</td>
<td>&quot;DTMF Edge Detection&quot;</td>
<td>CH</td>
<td>CH_TRAILEDGE</td>
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<td>&quot;A Low Maximum&quot;</td>
<td>CH</td>
<td>CPC_ALOWMAX</td>
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<td>&quot;Answer Deglitcher&quot;</td>
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<td>CPC_CNOSIL</td>
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<td>&quot;Dial Tone off Debounce&quot;</td>
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<td>CPC_DTNDEBOFF</td>
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<td>HEDG</td>
<td>&quot;Hello Edge&quot;</td>
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<td>CPC_HEDGE</td>
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<td>&quot;High 1 Tolerance Above&quot;</td>
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<td>HIGL</td>
<td>&quot;High Glitch&quot;</td>
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<td>&quot;High Size&quot;</td>
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**Table 23 (Page 2 of 3). Board and channel parameters for Dialogic DTI cards**

Appendix E. Telephony Card Configuration Parameters 117
Table 23 (Page 3 of 3). Board and channel parameters for Dialogic DTI cards

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<th>class</th>
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<td>PR_T_PHMINSIL</td>
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NIF Board and Channel Parameters for Aculab E1 Cards

The following supported cards are included in this type:

- ACU/30
- ACU/60
- ACU/60-network

Table 24 (Page 1 of 3). Board and channel parameters for Aculab E1 cards

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<td>&quot;Intercept Flag&quot;</td>
<td>CH</td>
<td>CPC_INTFLG</td>
</tr>
<tr>
<td>L1BX</td>
<td>&quot;Low 1 Busy Maximum&quot;</td>
<td>CH</td>
<td>CPC_LO1BMAX</td>
</tr>
<tr>
<td>L1CL</td>
<td>&quot;Low 1 Ceiling&quot;</td>
<td>CH</td>
<td>CPC_LO1CEIL</td>
</tr>
<tr>
<td>L1RX</td>
<td>&quot;Low 1 Ring Maximum&quot;</td>
<td>CH</td>
<td>CPC_LO1RMAX</td>
</tr>
<tr>
<td>L1TA</td>
<td>&quot;Low 1 Tolerance Above&quot;</td>
<td>CH</td>
<td>CPC_LO1TOLA</td>
</tr>
<tr>
<td>L1TB</td>
<td>&quot;Low 1 Tolerance Below&quot;</td>
<td>CH</td>
<td>CPC_LO1TOLB</td>
</tr>
<tr>
<td>L2BX</td>
<td>&quot;Low 2 Busy Maximum&quot;</td>
<td>CH</td>
<td>CPC_LO2BMAX</td>
</tr>
<tr>
<td>L2RN</td>
<td>&quot;Low 2 Ring Minimum&quot;</td>
<td>CH</td>
<td>CPC_LO2RMIN</td>
</tr>
<tr>
<td>L2TA</td>
<td>&quot;Low 2 Tolerance Above&quot;</td>
<td>CH</td>
<td>CPC_LO2TOLA</td>
</tr>
<tr>
<td>L2TB</td>
<td>&quot;Low 2 Tolerance Below&quot;</td>
<td>CH</td>
<td>CPC_LO2TOLB</td>
</tr>
<tr>
<td>LOGL</td>
<td>&quot;Low Glitch&quot;</td>
<td>CH</td>
<td>CPC_LOGLCH</td>
</tr>
<tr>
<td>LFQ1</td>
<td>&quot;First Freq. Lower Bound&quot;</td>
<td>CH</td>
<td>CPC_LOWERFRQ</td>
</tr>
<tr>
<td>LFQ2</td>
<td>&quot;Second Freq. Lower Bound&quot;</td>
<td>CH</td>
<td>CPC_LOWER2FRQ</td>
</tr>
<tr>
<td>LFQ3</td>
<td>&quot;Third Freq. Lower Bound&quot;</td>
<td>CH</td>
<td>CPC_LOWER3FRQ</td>
</tr>
<tr>
<td>XANS</td>
<td>&quot;Maximum Answer&quot;</td>
<td>CH</td>
<td>CPC_MAXANSR</td>
</tr>
<tr>
<td>MXT1</td>
<td>&quot;First Tone Maximum Time&quot;</td>
<td>CH</td>
<td>CPC_MXTIMEFRQ</td>
</tr>
<tr>
<td>MXT2</td>
<td>&quot;Second Tone Maximum Time&quot;</td>
<td>CH</td>
<td>CPC_MXTIME2FRQ</td>
</tr>
<tr>
<td>MXT3</td>
<td>&quot;Third Tone Maximum Time&quot;</td>
<td>CH</td>
<td>CPC_MXTIME3FRQ</td>
</tr>
<tr>
<td>NRBG</td>
<td>&quot;Number Before Beginning&quot;</td>
<td>CH</td>
<td>CPC_NBRBEG</td>
</tr>
<tr>
<td>NDNA</td>
<td>&quot;Rings Before No Answer&quot;</td>
<td>CH</td>
<td>CPC_NBRDNA</td>
</tr>
<tr>
<td>NBSY</td>
<td>&quot;Nonsilence Busy&quot;</td>
<td>CH</td>
<td>CPC_NSBUSY</td>
</tr>
<tr>
<td>PFTM</td>
<td>&quot;PAMD/PVD Wait Time&quot;</td>
<td>CH</td>
<td>CPC_PAMDFAILTIME</td>
</tr>
<tr>
<td>PRGN</td>
<td>&quot;Minimum Ring Duration&quot;</td>
<td>CH</td>
<td>CPC_PAMDMINRING</td>
</tr>
<tr>
<td>PSVL</td>
<td>&quot;PAMD Quick Decision&quot;</td>
<td>CH</td>
<td>CPC_PAMDSPDVAL</td>
</tr>
<tr>
<td>PQT M</td>
<td>&quot;PAMD Qual. Template&quot;</td>
<td>CH</td>
<td>CPC_PAMDQTEMP</td>
</tr>
<tr>
<td>PNAS</td>
<td>&quot;No Answer After 1st Ring&quot;</td>
<td>CH</td>
<td>CPC_NOANSWER</td>
</tr>
<tr>
<td>PXIR</td>
<td>&quot;Max. Interring to Connect&quot;</td>
<td>CH</td>
<td>CPC_MAXINTERING</td>
</tr>
</tbody>
</table>
### Table 24 (Page 3 of 3). Board and channel parameters for Aculab E1 cards

<table>
<thead>
<tr>
<th>parm_id</th>
<th>name</th>
<th>class</th>
<th>parm</th>
</tr>
</thead>
<tbody>
<tr>
<td>STDY</td>
<td>&quot;Start Delay&quot;</td>
<td>CH</td>
<td>CPC_STDELY</td>
</tr>
<tr>
<td>TMF1</td>
<td>&quot;First Tone Minimum Time&quot;</td>
<td>CH</td>
<td>CPC_TIMEFRQ</td>
</tr>
<tr>
<td>TMF2</td>
<td>&quot;Second Tone Minimum Time&quot;</td>
<td>CH</td>
<td>CPC_TIME2FRQ</td>
</tr>
<tr>
<td>TMF3</td>
<td>&quot;Third Tone Minimum Time&quot;</td>
<td>CH</td>
<td>CPC_TIME3FRQ</td>
</tr>
<tr>
<td>UPF1</td>
<td>&quot;First Freq. Upper Bound&quot;</td>
<td>CH</td>
<td>CPC_UPPERFRQ</td>
</tr>
<tr>
<td>UPF2</td>
<td>&quot;Second Freq. Upper Bound&quot;</td>
<td>CH</td>
<td>CPC_UPPER2FRQ</td>
</tr>
<tr>
<td>UPF3</td>
<td>&quot;Third Freq. Upper Bound&quot;</td>
<td>CH</td>
<td>CPC_UPPER3FRQ</td>
</tr>
<tr>
<td>ADWT</td>
<td>&quot;ANI/DNIS Wait Time&quot;</td>
<td>CH</td>
<td>PR_ANI_DNIS_WAIT</td>
</tr>
<tr>
<td>ANID</td>
<td>&quot;ANI/DNIS Interdigit Time&quot;</td>
<td>CH</td>
<td>PR_ANI_DNIS_IDD</td>
</tr>
<tr>
<td>INHK</td>
<td>&quot;Initial Hookstate&quot;</td>
<td>CH</td>
<td>PR_INIT_HOOK</td>
</tr>
<tr>
<td>INDT</td>
<td>&quot;Initial Tone Type&quot;</td>
<td>CH</td>
<td>PR_INIT_TONETYPE</td>
</tr>
<tr>
<td>CLWT</td>
<td>&quot;Wait for Call Timeout&quot;</td>
<td>CH</td>
<td>PR_WAIT_CALL</td>
</tr>
<tr>
<td>OUTB</td>
<td>&quot;Outbound Calls Allowed&quot;</td>
<td>CH</td>
<td>PR_OUTBOUND</td>
</tr>
<tr>
<td>CLAN</td>
<td>&quot;Type of Call Progress&quot;</td>
<td>CH</td>
<td>PR_CPA</td>
</tr>
<tr>
<td>ANSM</td>
<td>&quot;Answering Machine Time&quot;</td>
<td>CH</td>
<td>PR_ANSMACH_TIME</td>
</tr>
<tr>
<td>DTVP</td>
<td>&quot;Dial Tone Presence Valid&quot;</td>
<td>CH</td>
<td>PR_DIALTONE_OK</td>
</tr>
<tr>
<td>DTWP</td>
<td>&quot;Dial Tone Presence Wait&quot;</td>
<td>CH</td>
<td>PR_DIALTONE_WAIT</td>
</tr>
<tr>
<td>WHAT</td>
<td>&quot;Wait for Hangup Ack Time&quot;</td>
<td>CH</td>
<td>PR_HANG_ACK</td>
</tr>
<tr>
<td>TNSL</td>
<td>&quot;Nonsilence Before Hangup&quot;</td>
<td>CH</td>
<td>PR_T_NONSIL</td>
</tr>
<tr>
<td>PCNT</td>
<td>&quot;Hangup Repeat Count&quot;</td>
<td>CH</td>
<td>PR_T_PATCNT</td>
</tr>
<tr>
<td>PXNS</td>
<td>&quot;Hangup Max. Nonsilence&quot;</td>
<td>CH</td>
<td>PR_T_PATMAXNSIL</td>
</tr>
<tr>
<td>PXSL</td>
<td>&quot;Hangup Maximum Silence&quot;</td>
<td>CH</td>
<td>PR_T_PATMAXSIL</td>
</tr>
<tr>
<td>PNNS</td>
<td>&quot;Hangup Min. Nonsilence&quot;</td>
<td>CH</td>
<td>PR_T_PATMINNSIL</td>
</tr>
<tr>
<td>PNSL</td>
<td>&quot;Hangup Minimum Silence&quot;</td>
<td>CH</td>
<td>PR_T_PATMINSIL</td>
</tr>
<tr>
<td>TSL</td>
<td>&quot;Silence Before Hangup&quot;</td>
<td>CH</td>
<td>PR_T_SILNC</td>
</tr>
</tbody>
</table>

### VP Channel Parameters for Dialogic Dxxx Cards

The following supported cards are included in this type:

- D/41-MC
- D/21E
- D/41ESC
- D/42D-SL
- D/121
- D/240SC
- D/160SC-LS
<table>
<thead>
<tr>
<th>parm_id</th>
<th>name</th>
<th>class</th>
<th>parm</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGC</td>
<td>&quot;Automatic Gain Control&quot;</td>
<td>CH</td>
<td>CH_AGCC</td>
</tr>
<tr>
<td>PLRT</td>
<td>&quot;Play Digitization Rate&quot;</td>
<td>CH</td>
<td>CH_PLAYDRATE</td>
</tr>
<tr>
<td>PLMD</td>
<td>&quot;Play Mode&quot;</td>
<td>CH</td>
<td>CH_PLAYMODE</td>
</tr>
<tr>
<td>RCRT</td>
<td>&quot;Record Digitization Rate&quot;</td>
<td>CH</td>
<td>CH_RECDRATE</td>
</tr>
<tr>
<td>RCMD</td>
<td>&quot;Record Mode&quot;</td>
<td>CH</td>
<td>CH_RECRODE</td>
</tr>
<tr>
<td>TITM</td>
<td>&quot;DTMF Interdigit Timeout&quot;</td>
<td>CH</td>
<td>PR_ITONE_TIMEOUT</td>
</tr>
<tr>
<td>TTMO</td>
<td>&quot;DTMF Tone Timeout&quot;</td>
<td>CH</td>
<td>PR_TONE_TIMEOUT</td>
</tr>
<tr>
<td>RSIL</td>
<td>&quot;Amount Silence to End Rec&quot;</td>
<td>CH</td>
<td>PR_REC_END_SIL</td>
</tr>
</tbody>
</table>

**VR Channel Parameters for Dialogic (VCS) VR/40 Cards**

The following supported cards are included in this type:

**VR/40**

<table>
<thead>
<tr>
<th>parm_id</th>
<th>name</th>
<th>class</th>
<th>parm</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPDR</td>
<td>&quot;Prompt Tone Duration&quot;</td>
<td>CH</td>
<td>VR_CHBEEPDU</td>
</tr>
<tr>
<td>XSCR</td>
<td>&quot;Acceptance Threshold&quot;</td>
<td>CH</td>
<td>VR_CHMAXSCORE</td>
</tr>
<tr>
<td>MNDF</td>
<td>&quot;Minimum Difference&quot;</td>
<td>CH</td>
<td>PR_VRMINDIFF</td>
</tr>
<tr>
<td>TCNT</td>
<td>&quot;No. of Returned Responses&quot;</td>
<td>CH</td>
<td>VR_CHTCOUNT</td>
</tr>
<tr>
<td>IRGN</td>
<td>&quot;Receive Gain&quot;</td>
<td>CH</td>
<td>VR_IRXGAIN</td>
</tr>
<tr>
<td>TXGN</td>
<td>&quot;Transmit Gain&quot;</td>
<td>CH</td>
<td>VR_TXGAIN</td>
</tr>
</tbody>
</table>

**VR Channel Parameters for Dialogic (VCS) VR/160 Cards**

The following supported cards are included in this type:

**VR/160**

<table>
<thead>
<tr>
<th>parm_id</th>
<th>name</th>
<th>class</th>
<th>parm</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPDR</td>
<td>&quot;Prompt Tone Duration&quot;</td>
<td>CH</td>
<td>VR_CHBEEPDU</td>
</tr>
<tr>
<td>XSCR</td>
<td>&quot;Acceptance Threshold&quot;</td>
<td>CH</td>
<td>VR_CHMAXSCORE</td>
</tr>
<tr>
<td>MNDF</td>
<td>&quot;Minimum Difference&quot;</td>
<td>CH</td>
<td>PR_VRMINDIFF</td>
</tr>
<tr>
<td>TCNT</td>
<td>&quot;No. of Returned Responses&quot;</td>
<td>CH</td>
<td>VR_CHTCOUNT</td>
</tr>
<tr>
<td>INSL</td>
<td>&quot;Initial Silence Duration&quot;</td>
<td>CH</td>
<td>VR_INITSDUR</td>
</tr>
<tr>
<td>FNSL</td>
<td>&quot;Final Silence Duration&quot;</td>
<td>CH</td>
<td>VR_FINSUDUR</td>
</tr>
<tr>
<td>VSPT</td>
<td>&quot;Cutthrough Time Delay&quot;</td>
<td>CH</td>
<td>VR_VSP_TD</td>
</tr>
</tbody>
</table>
Table 27 (Page 2 of 2). Board and channel parameters for Dialogic (VCS) VR cards

<table>
<thead>
<tr>
<th>parm_id</th>
<th>name</th>
<th>class</th>
<th>parm</th>
</tr>
</thead>
<tbody>
<tr>
<td>LMSC</td>
<td>&quot;Cutthrough Gain&quot;</td>
<td>CH</td>
<td>VR_LMS_CT</td>
</tr>
<tr>
<td>THRC</td>
<td>&quot;Cutthrough Threshold&quot;</td>
<td>CH</td>
<td>VR_THR_CT</td>
</tr>
<tr>
<td>CMAX</td>
<td>&quot;Continuous Accept Thresh.&quot;</td>
<td>CH</td>
<td>VR_CACCEPT</td>
</tr>
</tbody>
</table>

VR Board and Channel Parameters for Dialogic (Scott) VR/121 Cards

The following supported cards are included in this type:

VR/121          VR/41-MC          VR/81-MC

Table 28. Board and channel parameters for Dialogic (Scott) VR cards

<table>
<thead>
<tr>
<th>parm_id</th>
<th>name</th>
<th>class</th>
<th>parm</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSDR</td>
<td>&quot;Beginning Silence Dur.*&quot;</td>
<td>BD</td>
<td>VR_BDBEGSDUR</td>
</tr>
<tr>
<td>ESDR</td>
<td>&quot;Ending Silence Duration&quot;</td>
<td>BD</td>
<td>VR_BDENDSDUR</td>
</tr>
<tr>
<td>XESL</td>
<td>&quot;Maximum Embedded Silence&quot;</td>
<td>BD</td>
<td>VR_BDMAXESIL</td>
</tr>
<tr>
<td>MNDF</td>
<td>&quot;Minimum Difference&quot;</td>
<td>CH</td>
<td>PR_VRMINDIFF</td>
</tr>
<tr>
<td>NUPK</td>
<td>&quot;Minimum Utterance Peak&quot;</td>
<td>BD</td>
<td>VR_BDMINUTTPK</td>
</tr>
<tr>
<td>NVDR</td>
<td>&quot;Minimum Voice Duration&quot;</td>
<td>BD</td>
<td>VR_BDMINVDUR</td>
</tr>
<tr>
<td>SLCL</td>
<td>&quot;Silence Threshold Ceiling&quot;</td>
<td>BD</td>
<td>VR_BDSILCEIL</td>
</tr>
<tr>
<td>SLTH</td>
<td>&quot;Silence Threshold&quot;</td>
<td>BD</td>
<td>VR_BDSILTHRSH</td>
</tr>
<tr>
<td>BPDR</td>
<td>&quot;Prompt Tone Duration&quot;</td>
<td>CH</td>
<td>VR_CHBEEPDUR</td>
</tr>
<tr>
<td>XSCR</td>
<td>&quot;Acceptance Threshold&quot;</td>
<td>CH</td>
<td>VR_CHMAXSCORE</td>
</tr>
<tr>
<td>TCNT</td>
<td>&quot;No. of Returned Responses&quot;</td>
<td>CH</td>
<td>VR_CHTCOUNT</td>
</tr>
</tbody>
</table>

Board and Channel Parameters for Dialogic TTS Cards

The following supported cards are included in this type:

TTS/40-MC       TTS/80-MC       TTS/20
TTS/40          TTS/80

Currently there are no configurable board or channel parameters for these cards.

Board and Channel Parameters for Antares (VCS) VR Cards

The following supported cards are included in this type:

Antares with VCS Voice Recognition firmware
Table 29. Board and channel parameters for Antares (VCS) VR cards

<table>
<thead>
<tr>
<th>parm_id</th>
<th>name</th>
<th>class</th>
<th>parm</th>
</tr>
</thead>
<tbody>
<tr>
<td>XSCR</td>
<td>&quot;Acceptance Threshold&quot;</td>
<td>CH</td>
<td>VR_CHMAXSCORE</td>
</tr>
<tr>
<td>MNDF</td>
<td>&quot;Minimum Difference&quot;</td>
<td>CH</td>
<td>PR_VRMINDIFF</td>
</tr>
<tr>
<td>INSL</td>
<td>&quot;Initial Silence Duration&quot;</td>
<td>CH</td>
<td>VR_INITSDUR</td>
</tr>
<tr>
<td>FNSL</td>
<td>&quot;Final Silence Duration&quot;</td>
<td>CH</td>
<td>VR_FINSDUR</td>
</tr>
<tr>
<td>CMAX</td>
<td>&quot;Continuous Accept Thresh.&quot;</td>
<td>CH</td>
<td>VR_CACCEP</td>
</tr>
</tbody>
</table>

Board and Channel Parameters for Antares (L&H) TTS Cards

The following supported cards are included in this type:

Antares with L&H Text-to-Speech firmware

Currently there are no configurable board or channel parameters for these cards.

IV Board Parameters

The following functions are included in this type:

Interactive Voice

Table 30. Integrated voice functions parameters

<table>
<thead>
<tr>
<th>parm_id</th>
<th>name</th>
<th>class</th>
<th>parm</th>
</tr>
</thead>
<tbody>
<tr>
<td>VCHM</td>
<td>&quot;Max. Voice Cache Memory&quot;</td>
<td>BD</td>
<td>PR_VCACHE_MEM</td>
</tr>
<tr>
<td>VCHS</td>
<td>&quot;Max. Voice Cache Segments&quot;</td>
<td>BD</td>
<td>PR_VCACHE_SEGS</td>
</tr>
<tr>
<td>SPMG</td>
<td>&quot;Space Exhaustion Message&quot;</td>
<td>BD</td>
<td>PR_SPACE_MSG</td>
</tr>
<tr>
<td>SPTM</td>
<td>&quot;Recording exhaustion time&quot;</td>
<td>BD</td>
<td>PR_SPACE_TIME</td>
</tr>
<tr>
<td>SPWN</td>
<td>&quot;Disk Full Warning Thresh.&quot;</td>
<td>BD</td>
<td>PR_SPACE_WARN</td>
</tr>
</tbody>
</table>

TDD Channel Parameters

The following functions are included in this type:

TDD support

Table 31 (Page 1 of 2). Board and channel parameters for TDD software emulation

<table>
<thead>
<tr>
<th>parm_id</th>
<th>name</th>
<th>class</th>
<th>parm</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPED</td>
<td>&quot;Line speed&quot;</td>
<td>CH</td>
<td>PR_TDD_SPEED</td>
</tr>
<tr>
<td>TXDB</td>
<td>&quot;Transmit volume&quot;</td>
<td>CH</td>
<td>PR_TDD_VOLUME</td>
</tr>
<tr>
<td>INVC</td>
<td>&quot;Receive char substitution&quot;</td>
<td>CH</td>
<td>PR_TDD_CHAR</td>
</tr>
</tbody>
</table>
**Table 31**. Board and channel parameters for TDD software emulation

<table>
<thead>
<tr>
<th>parm_id</th>
<th>name</th>
<th>class</th>
<th>parm</th>
</tr>
</thead>
<tbody>
<tr>
<td>ETHI</td>
<td>&quot;Energy threshold high&quot;</td>
<td>CH</td>
<td>PR_TDD_THRESHHI</td>
</tr>
<tr>
<td>ETLO</td>
<td>&quot;Energy threshold low&quot;</td>
<td>CH</td>
<td>PR_TDD_THRESHLO</td>
</tr>
</tbody>
</table>

**ADSI Channel Parameters**

The following functions are included in this type:

ADSI telephone support

**Table 32**. Board and channel parameters for ADSI phone support

<table>
<thead>
<tr>
<th>parm_id</th>
<th>name</th>
<th>class</th>
<th>parm</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOXR</td>
<td>&quot;Num voice mode retries&quot;</td>
<td>CH</td>
<td>PR_ADS_VOXR</td>
</tr>
<tr>
<td>DATR</td>
<td>&quot;Num data mode retries&quot;</td>
<td>CH</td>
<td>PR_ADS_DATR</td>
</tr>
<tr>
<td>ALEN</td>
<td>&quot;Alert tone length&quot;</td>
<td>CH</td>
<td>PR_ADS_ALEN</td>
</tr>
<tr>
<td>AAMP</td>
<td>&quot;Alert tone amplitude&quot;</td>
<td>CH</td>
<td>PR_ADS_AAMP</td>
</tr>
<tr>
<td>ACKT</td>
<td>&quot;Max ACK wait time&quot;</td>
<td>CH</td>
<td>PR_ADS_ACKT</td>
</tr>
<tr>
<td>ACKL</td>
<td>&quot;Min ACK length&quot;</td>
<td>CH</td>
<td>PR_ADS_ACKL</td>
</tr>
<tr>
<td>ACKP</td>
<td>&quot;Pause after ACK&quot;</td>
<td>CH</td>
<td>PR_ADS_ACKP</td>
</tr>
</tbody>
</table>
Glossary of Terms and Abbreviations

This glossary defines all important terms and abbreviations used in this book that might be new or unfamiliar to you. If you do not find the term you are looking for, refer to the index or to the IBM Dictionary of Computing, New York: McGraw-Hill, 1994.

This glossary includes terms and abbreviations from:

- The Information Technology Vocabulary, developed by Subcommittee 1, Joint Technical Committee 1, of the International Organization for Standardization and the International Electrotechnical Commission (ISO/IEC JTC1/SC1). Definitions of published parts of this vocabulary are identified by the symbol (I) after the definition. Definitions taken from draft international standards, committee drafts, and working papers being developed by ISO/IEC JTC1/SC1 are identified by the symbol (T) after the definition, indicating final agreement has not yet been reached among the participating National Bodies of SC1.

A

action. (1) A DirectTalk/2 function that performs an activity in a voice application. DirectTalk/2 provides a set of actions which can be extended by creating your own actions. (2) In SAA Common User Access, one of the defined tasks that an application performs.

advanced program-to-program communications (APPC). An implementation of the SNA protocol that allows interconnected systems to communicate and share the processing of programs.

AEB. Analog Expansion Bus

Analog Expansion Bus (AEB). A method of connecting ISA telephony cards together to enable resources to be shared between several ports.

APPC. advanced program-to-program communications.

application control file. A file containing all of the parameters required to run a voice application in production mode.

Application Manager. The program that runs a voice application in a production environment after it has been created through the Voice Application Developer.

ARTIC. Real-Time Interface Co-Processor

ASCII. American National Standard Code for Information Interchange. The standard code, using a coded character set consisting of 7-bit coded characters (8 bits including parity check), that is used for information interchange between data processing systems, data communication systems, and associated equipment. The ASCII set consists of control characters and graphic characters. A busy tone implies a busy condition.

C

CICS. Customer Information Control System.

Customer Information Control System (CICS). An IBM-licensed program that enables transactions entered at remote terminals to be processed concurrently by user-written application programs. It includes facilities for building, using, and maintaining databases.

D

DCAF. Distributed Console Access Facility.

Distributed Console Access Facility (DCAF). An IBM-licensed program product that allows the user to have complete access to a remote system including control of the keyboard and display of the target system.

Dongle. A security key that has to be installed on an Antares card before the card can be used.

DTMF. Dual tone multifrequency.

dual tone multifrequency (DTMF). A generic term used to describe an acoustic signal from the key pad of a telephone to the serving switching equipment. Two combining analog tones are used to represent digits (0-9) and characters (#, *).
**G**

**General Server.** A DirectTalk/2 system server that manages all the communications between requesters and servers, including routing requests and controlling the paths over which the requests are sent.

**General Server Interface (GSI).** A DirectTalk/2 interface that provides the means of enabling communications between requesters and servers.

**I**

**Industry Standard Architecture (ISA).** Standard name for the IBM Personal Computer AT architecture.

ISA. Industry Standard Architecture.

**L**

**LAN Adapter and Protocol Support (LAPS):** The package of LAN drivers that is shipped with Extended Services for OS/2, and with LAN Server V2.0.

**LAPS.** LAN Adapter and Protocol Support.

**logical unit (LU).** In SNA, a port through which an end user accesses the SNA network in order to communicate with another end user and through which the end user accesses the functions provided by system services control points (SSCPs).

LU. Logical unit.

**M**

**mailbox.** A DirectTalk/2 file that holds the telephone messages of a recipient.

**Mailbox Manager.** The DirectTalk/2 program used to create and maintain the directory of users who have mailboxes that can be accessed using the voice messaging feature. In previous versions of DirectTalk/2, this was called the Directory Manager.

**Micro Channel Architecture (MCA).** A bus architecture consisting of 32-bit address and data buses, an arbitration bus, a set of interrupt and support signals, and support of automatic configuration and interrupt sharing. It uses synchronous and asynchronous procedures for data transfers between memory, I/O devices, and a controlling master. The controlling master can be the system master, the DMA controller, or a bus master. Optional features include streaming data transfers and address and data parity.

**MPTS.** Multiple Protocol Transport Services.

**Multiple Protocol Transport Services (MPTS):** A program used to install and configure network adapters and protocols.

**N**

**Node Manager.** A DirectTalk/2 menu-driven program used to monitor the status of system resources, including applications and phone lines in a production environment, and to issue commands to alter the status of resources, and to start and stop application sessions and phone lines.

**O**

**offhook.** The state of a telephone line when in use. When a telephone is answered on a public switched system, it is said to go offhook. Contrast with onhook.

**onhook.** The state of a telephone line when not in use. Contrast with offhook.

**P**

**PCM.** Pulse Code Modulation.

**PEB.** Pulse Code Modulation (PCM) Expansion Bus.

**personal computer.** An IBM Personal Computer, Personal System/2, or other personal computer system used with DirectTalk/2.

**physical unit (PU).** In SNA, the component that manages and monitors the resources of a node, such as attached links and adjacent link stations, as requested by an SSCP via an SSCP-SSCP session.

**PU.** Physical unit.

**Pulse Code Modulation.** In data communications, the variation of a digital signal to represent information.

**Pulse Code Modulation Expansion Bus (PEB).** A method of connecting ISA telephony cards so that resources can be shared between several ports.
**R**

**Real-Time Interface Co-Processor (ARTIC).** A card that serves as an input/output adapter for the system unit, and provides communications to both an S/370 or S/390 host system. For DirectTalk/2, this generally refers to either a Portmaster or Multiport, Model 2 card.

**S**

**SCBus.** System Computing Bus

**SDLC.** Synchronous Data Link Control.

**SNA.** Systems Network Architecture.

**Synchronous Data Link Control (SDLC).** A discipline conforming to subsets of the Advanced Data Communication Control Procedures (ADCCP) of the American Standards Institute (ANSI) and High-level Data Link Control (HDLC) of the International Organization for Standardization, for managing synchronous, code-transparent, serial-by-bit information transfer over a link connection. Transmission exchanges may be duplex or half-duplex over switched or nonswitched links. The configuration of the link connection may be point-to-point, multipoint, or loop. (I)

**System Computing Bus (SCBus).** A method of connecting ISA telephony cards together to enable resources to be shared between several ports.

**Systems Network Architecture (SNA).** The description of the logical structure, formats, protocols, and operational sequences for transmitting information units through, and controlling the configuration and operation of, networks.

**T**


**Telephony Server.** A DirectTalk/2 system server that supplies telephony processing services. This processing includes playing and recording voice, tone generation, voice recognition, and text-to-speech.

**V**

**Virtual Telecommunications Access Method (VTAM).** A set of programs that control communications between nodes and application programs running on a host (System/370) system.

**voice application.** An application that receives or places calls, plays recorded voice segments, and responds to the person's input. An application is made up of one or more voice programs.

**Voice Application Developer.** The DirectTalk/2 component that provides the environment for implementing voice-processing applications. An application developer is guided through menu-driven screens with online help to record and edit the greetings and menus that will be played to the caller, define the logic for the interaction with the caller, and debug the application.
voice logic module. A combination of voice logic statements of two types, IF and PLAY.

voice program. A DirectTalk/2 program that contains the steps, actions, voice logic modules, and voice segments that perform some or all of the functions of a voice application.

voice segment. The words and phrases you record to play to a caller using the voice application. A voice segment can consist of the phrases you record and the system voice variables.

VTAM. Virtual Telecommunications Access Method.

W

wink. A short interruption of loop current on the line, generated by a telephone switch.
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