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**Software Installation  
Reference Guide  
for  
Digi DataFire and PC IMAC  
Windows NT 3.5x  
92000204B**

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# Preface

## Conventions Used in this Manual

Certain conventions are used in this manual with respect to keyboard entry, quotation marks and typefaces:

### Keyboard Entry

- Single keystrokes are enclosed in angle brackets (e.g. <Enter>, <Esc>, etc.)
- Control keys (i.e. keys which are struck while holding down the <Ctrl> key) are shown as single keystrokes. For example, “<Ctrl-A>” means hold down the <Ctrl> key while striking the <A> key. Similarly, “<Alt-A>” means hold down the <Alt> key while striking the <A> key.
- “Arrow keys” refers to the up, down, right and left arrow keys (<↑>, <↓>, <→>, <←>).
- When you are asked to *enter* a command, type the text shown, then press <Enter>.

### Quotation Marks

- Standard American practice is to include commas and periods *inside of* closing quotation marks: The diplomat said “Good evening.”
- This manual will follow that standard *except* where the final period or comma might be confused with a command to be typed in: When the computer prompts, type “exit”.

## Typefaces

- Examples of Windows output to your computer screen are shown in **sans-serif** characters. Examples of DOS output to your computer screen are shown in `mono-spaced` characters.
- Commands and data that you are to enter via your keyboard are shown in `mono-spaced` characters.
- Variable information within a typed entry is shown in italics. For example, if you are asked to enter `copy file_name path`, type “copy”, followed by a space, then the name of the file to be copied, another space, and the directory path to which the file is to be copied.

## Introduction

This booklet will assist you in installing your Digi International Inc. PC IMAC, PC IMAC/4 or DataFire ISDN adapters for use under Microsoft Windows NT 3.5x. The driver software works with both the Workstation and Server versions of NT 3.5x.

Connecting a Workstation to a remote site with Digi ISDN adapters is similar in concept to adding an Ethernet card and configuring the computer as part of a LAN. The Digi adapter is added as a Network Adapter, Network protocols and permissions must be selected and configured *on both sides of the connection*. There are, of course, additional parameters related to ISDN itself that need to be configured.

The Digi ISDN adapters connect a Calling machine (generally a Workstation) to a Receiving machine (generally a Server). While you can use the Digi ISDN adapters to connect two Windows NT 3.5x Workstations, a Workstation is limited to only one ISDN “receive” connection. (A Windows NT 3.5x Server, on the other hand, can be set up for as many ISDN “receive” connections as desired.)

All connections require that one machine be set up for Calling, and another be set up for Receiving calls.

Installing the drivers requires working with Microsoft’s RAS (Remote Access Service) and Network Setup. The instructions in this manual assume that neither is installed; because of this, your system’s RAS and Network Setup screens may appear different from the examples.

This booklet does not duplicate the board installation instructions that came with your PC IMAC or DataFire adapter; you will still need that User Guide to set jumpers and physically install your adapter.

## ISDN Information Needed

You must get the following information from your provider for each ISDN BRI line you order. It is important to note that this information will be different for each line—even the switch type(s) may vary between lines and/or locations.

- Switch type (AT&T 5E, etc.) and Protocol. Make sure your provider gives you *explicit* information regarding National ISDN-1. It is not uncommon for the provider to identify the switch type according to manufacturer & model number (Northern TeleCom DMS-100), but neglect to mention that National ISDN-1 software is running on the switch.
- If it is a Northern TeleCom switch, your provider should verify that EKTS is **disabled** (=No).
- If it is a National ISDN-1 switch, your provider should verify that EKTS is set to **Basic** or **None**.
- Number of Logical Terminals (typically 1 or 2).
- Multipoint or Point-to-Point service; multiple Logical Terminal & SPIDs per BRI line usually indicates Multipoint service.
- The “DN” Directory (phone) Number assigned to each Logical Terminal.
- The SPID assigned to each Logical Terminal.
- The protocol subscribed to on each B Channel (B1 and B2). This will be Circuit Switched Data (CSD) and/or Circuit Switched Voice (CSV) on either or both channels.

## Installing the Digi Windows NT 3.5x Driver Software



These installation instructions also assume that you have already set the DIP switches on the board(s) to *unique* I/O port addresses, installed the board(s) in the server, and have connected the board(s) to NT1(s) that are connected to ISDN lines that are configured and in service.

See the Users' Guide that came with your Digi International Inc. PC IMAC or DataFire ISDN board.

The driver software must be installed on the same machine as the adapter board or boards.

The PC IMAC/DataFire for Windows NT software is installed using the Network Settings Control Panel. The board(s) can be installed in either a Server or a Workstation. The driver software must be installed on the same machine as the adapter board or boards.

Begin the installation of the software by booting Microsoft Windows NT 3.5x and logging in as Administrator. These instructions assume that your server already has Windows NT 3.5x loaded and configured, and that the server or workstation is bootable.

---

## **Installation Differences**



Because individual systems vary greatly in their installed adapters and software, the installation process described here may not be exactly the same that you see on your machine.

The installation described assumes that the Digi ISDN adapter is being installed in a Windows NT workstation with no other networking installed, and without RAS or the MS Loopback Adapter installed.

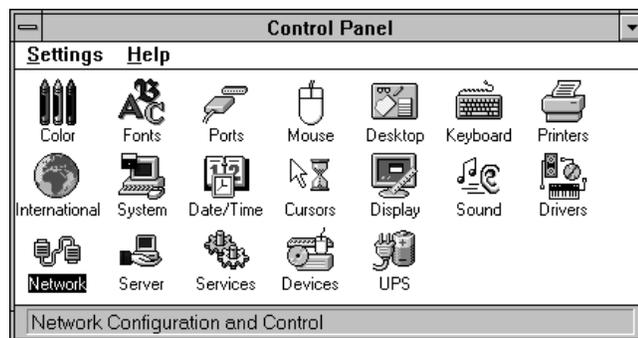
If you have already installed RAS, an Ethernet or other network card, or the MS Loopback Adapter, you will not see some of the screens described in this installation. In this case, you can skip over the parts you have already installed, although it is strongly suggested that you read through the installation procedure for those parts and check for any special requirements that the Digi ISDN adapters may need.

## Installing the MS Loopback Adapter

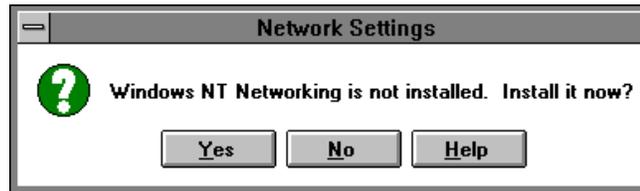
**Note:** Installing Microsoft's Loopback Adapter is only necessary if you do not already have an Ethernet or other network interface card installed. If you *do* have a "NIC" already installed, you can proceed with "Installing the Digi Adapter" on page 10.

You must install the Microsoft Loopback Adapter software before the Digi ISDN adapter can be installed. The Loopback Adapter allows the computer to connect to network resources that are actually local. Note that while this is entirely a software package, it pretends to be a hardware network adapter—after installation, you will actually see MS Loopback Adapter under Installed Adapter Cards in the Network Settings window.

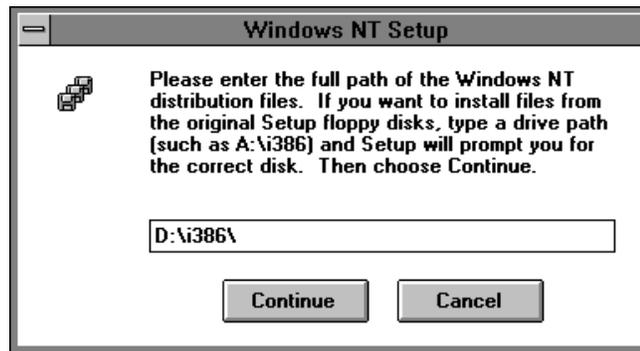
Step 1. While logged in as the Administrator, double-click on the Control Panel program group icon to open the Control Panel window:



- Step 2. From the Control Panel, double-click on the Network icon. Assuming you have no network installed, you will see:

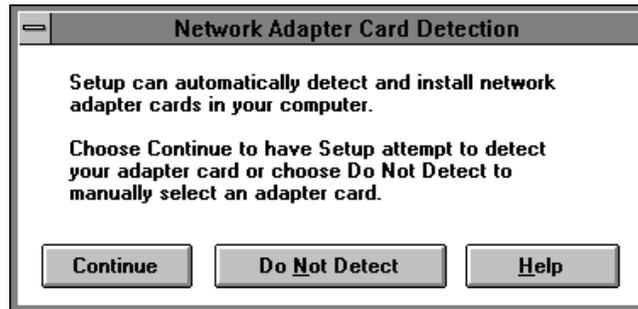


- Step 3. Click on the Yes button. Windows NT will now ask you to confirm where its source CD-ROM or floppies are loaded from:



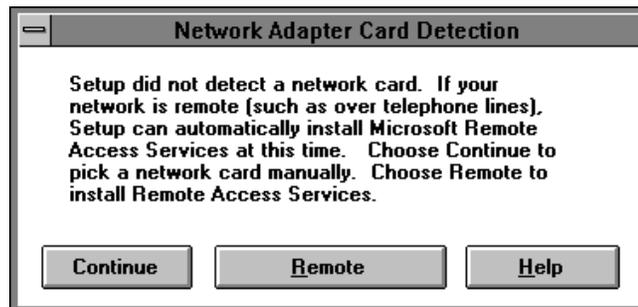
Assuming for this installation that our computer has an Intel processor and that our CD-ROM drive is D:, we enter D:\i386\ as shown, then press the Continue button.

- Step 4. Windows NT next asks if we want it to try and detect the network card automatically:



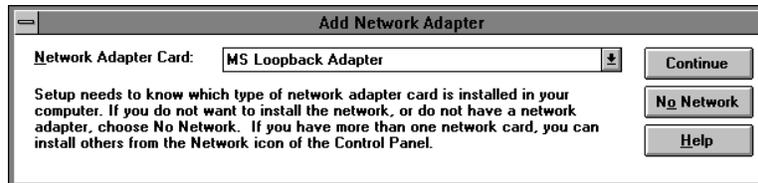
We do not, so press the center Do Not Detect button.

- Step 5. Next, Windows NT tells us that it did not detect a network card:

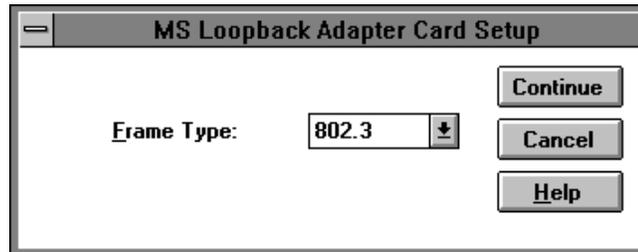


At this point, press the left Continue button.

- Step 6. Press the  control to open the list box, then select MS Loopback Adapter so that it appears in the selection box as shown. When ready, press the Continue button on the right.

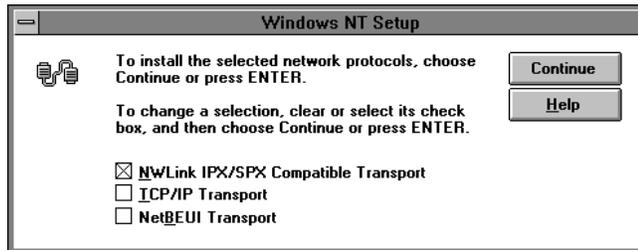


- Step 7. Windows NT asks for the Frame Type:



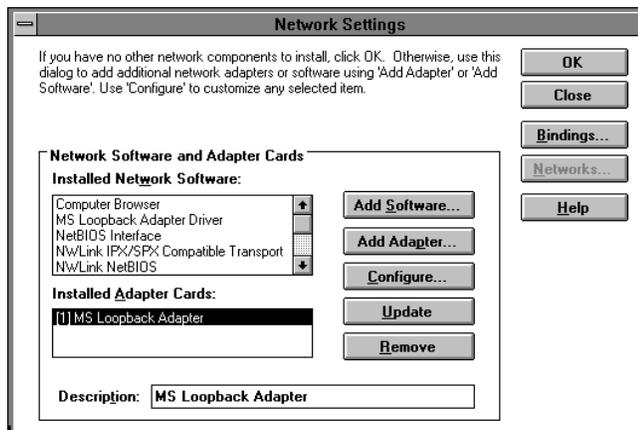
If the default 802.3 is not correct, change it to one of the other choices. When finished, press the Continue button.

- Step 8. Windows NT gives you a chance to select one or more network protocols.



Check the ones you are going to be using, then press the Continue button. (You will have to wait a bit while NT copies files.) If you are to be accessing another Windows NT machine only, you may wish to select NetBEUI Transport and de-select all other choices.

- Step 9. The main Network Settings window appears:

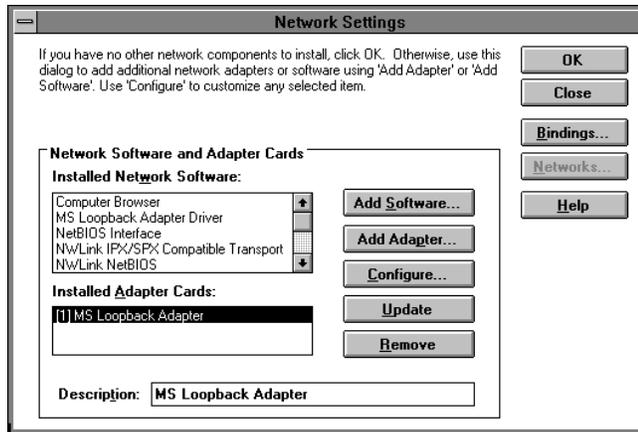


Note how the software-only MS Loopback Adapter shows up both as Installed Network Software and as an Installed Adapter Card.

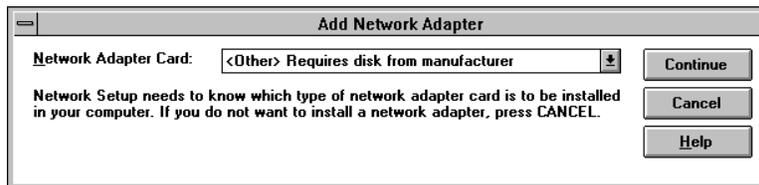
## Installing the Digi Adapter

- Step 1. (If you're continuing from the previous "Installing the MS Loopback Adapter" procedure, you can skip this step.)

While logged in as the Administrator, double-click on the Control Panel program group icon to open the Control Panel window. From the Control Panel, double-click on the Network icon to open the Network Settings window:

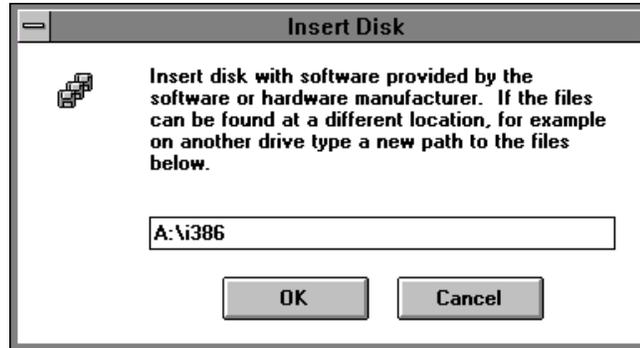


- Step 2. Press the Add Adapter button to add your Digi ISDN adapter. The Add Network Adapter window shown in the following figure will be opened:



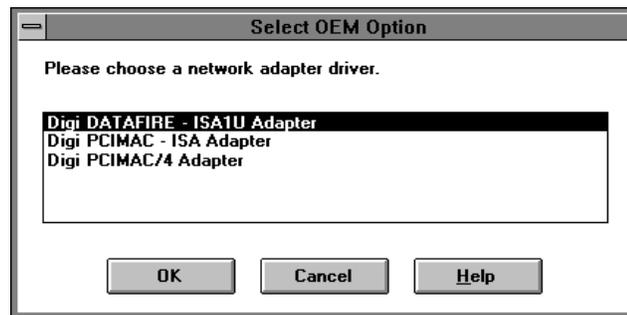
- Step 3. Open the Network Adapter Card selection box by pressing the  control. Use the vertical scroll bar to scroll down the list of installable adapter cards until you can select <Other> Requires disk from manufacturer.

At this point, press the Continue button; you will see:



Assuming for this installation that our computer has an Intel processor and that our floppy drive is A:, we enter A:\i386 as shown, insert the Digi distribution disk in drive A, then press the Continue button.

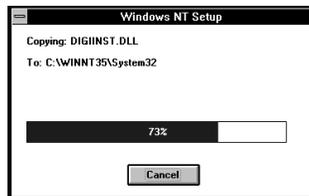
- Step 4. The Select OEM option window appears:



Select the type of PC IMAC or DataFire adapter you have installed in your server by highlighting its entry in the

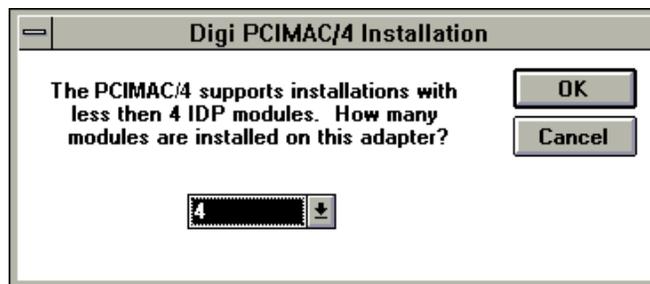
selection box. The examples in the rest of these instructions assume it to be a DataFire adapter. Do not worry if you're installing a PC IMAC or PC IMAC/4; notes included will alert you to variations in the installation procedure relative to those boards.

Once you have selected your ISDN Adapter Type, press the OK button. Windows NT will search the path you specified. If the path is valid, the Digi software files will be copied from the distribution media into the Windows NT directories. As the files are copied, you will see the usual progress screen:



**PC IMAC/4 note:**

If you specified the Digi PC IMAC/4, you will be asked:



Answer with the number of modules (1–4) that you have installed on the PC IMAC/4 board you are configuring.

- Step 5. When Setup has successfully copied the PC IMAC or DataFire files into the server's system directories, the appropriate setup window will be displayed:

**Digi PCIMAC ISDN Adapter Card Setup**

<b>IRQ Level:</b>	11	↓	OK
<b>I/O Base Address:</b>	0x320	↓	Cancel
<b>Memory Base Address:</b>	0xD0000	↓	Help
<b>Switch Type:</b>	AT&T	↓	LineOptions...

or:

**Digi DataFire ISDN Adapter Card Setup**

<b>I/O Base Address:</b>	0x350	↓	OK
			Cancel
<b>Switch Type:</b>	AT&T	↓	Help
			LineOptions...

Note that the PC IMAC or DataFire setup window displays the *default* IRQ Level, I/O Base Address, Memory Base Address and Switch Type settings for the card. (The DataFire has no Memory Base address to set, and does not use IRQs.)

If you have set your Digi ISDN adapter(s) to settings other than these defaults, you will have to use the following steps as appropriate to change the settings in the setup window.

Step 6. **Setting the IRQ Level**

(PC IMAC or PC IMAC/4 only; DataFire users can skip to Step 7, “Setting the I/O Base Address.”)

This one is easy: leave the IRQ Level for the PC IMAC card at its default setting (Disabled). The current version of the PC IMAC Windows NT 3.5x software does not require a hardware IRQ, or use it if you select one.

Future versions of the software may use and/or require a Hardware IRQ to be selected.

Step 7. **Setting the I/O Base Address**

**Note:** The I/O Base Address initially displayed is the *default* address, which is not necessarily the address you set on the board with the I/O Base Address DIP switches. The I/O Base Address in this Setup window must match the address set on the board.

To select an I/O Base Address (that matches the address you set with the DIP switches), simply open the I/O Base Address selection box, and select the appropriate address by clicking on it. Valid PC IMAC addresses are (in hex) 0x100, 0x110, 0x120, 0x200, 0x220, 0x300, and 0x320. Valid DataFire addresses are (in hex) 0x110, 0x140, 0x150, 0x300, 0x310, 0x340, and 0x350. Note that these are *starting* addresses, and that eight bytes are used starting at this address.

A final reminder: The I/O Base Address set for the PC IMAC card *must not conflict* with any other card in the system. If multiple PC IMAC cards are installed in an individual machine, each PC IMAC card installed must be assigned a *unique, non-conflicting* I/O Base Address.

## Step 8. **Setting the Memory Base Address**

(PC IMAC or PC IMAC/4 only; DataFire users can skip to Step 9, “Setting the Switch Type.”)

The Memory Base Address initially displayed, 0xD0000, is the *default* start address for the 16 KB Dual-ported Memory Window address used by the PC IMAC card.

You must choose a start address for the PC IMAC’s 16 KB Dual-ported Memory Window that *does not conflict* with other cards or devices installed in the system that may also be using memory in the 0xC0000 to 0xEFFFF range. Some Network and SCSI adapters use memory in this range.

**Note:** Multiple PC IMAC cards installed in the same machine *may* share the same Dual-ported Memory Window / Memory Base Address.

To select an appropriate Memory Base Address, simply open the Memory Base Address selection box, and select the appropriate address by clicking on it. The selection box will close and the Memory Base Address you picked will be displayed in the Memory Base Address field.

Valid Memory Base Addresses for the PC IMAC (in hex) are:

0xC0000	0xC4000	0xC8000
0xCC000	0xD0000	0xD4000
0xD8000	0xDC000	0xE0000
0xE4000	0xE8000	0xEC000

A final reminder: The Memory Base Address set for the PC IMAC card’s 16 KB Memory Window must not conflict with any other card or device in the system. *This includes System BIOS extensions which may be in the 0xE0000 segment.*

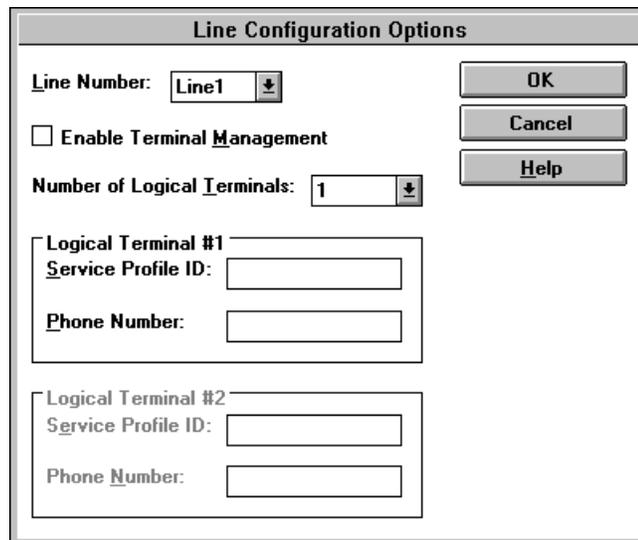
Step 9. **Setting the Switch Type**

Set the ISDN Switch Type to match that specified by your ISDN Service Provider by opening the Switch Type selection box and clicking on the appropriate switch type. The selection box will close and the switch type you picked will be displayed in the Switch Type field.

Valid Switch Types are AT&T (AT&T 5ESS running Custom 5E4.2 or greater), Definity, NTI (Northern Telecom Inc. DMS-100 running BCS-29 Functional or greater), NI-1 (National ISDN-1 Compatible switch), NET3, 1TR6, VN3, INS64, Generic and Auto.

Step 10. **Setting Line Configuration Options**

Once you have selected I/O Base, Memory Base Addresses and Switch Type in the Adapter Card Setup window, press the Line Options button in the lower right corner of the window. This will open the Line Configuration Options window:



The image shows a dialog box titled "Line Configuration Options". It contains the following elements:

- Line Number:** A dropdown menu currently showing "Line1".
- Enable Terminal Management**
- Number of Logical Terminals:** A dropdown menu currently showing "1".
- Logical Terminal #1:** A group box containing two text input fields: "Service Profile ID:" and "Phone Number:".
- Logical Terminal #2:** A group box containing two text input fields: "Service Profile ID:" and "Phone Number:".
- Three buttons on the right side: "OK", "Cancel", and "Help".

When the window is first opened, Line Number defaults to Line 1, Enable Terminal Management will *not* be enabled, Number of Logical Terminals defaults to 1, and the Service Profile ID (SPID) and Phone Number (DN or Directory Number) fields are blank.

Enter the Line Configuration information for your ISDN line as provided by your ISDN Service Provider. Recall that your ISDN Service Provider *must* tell you the type of switch you are connected to, the number of logical terminals supported by your ISDN service, the DNs (directory numbers), and the SPID numbers (if used) assigned to you. (See "ISDN Information Needed" on page 2.)

**PC IMAC/4 Users:** If you are installing a PC IMAC/4 card, be aware that a single PC IMAC/4 can support up to four ISDN lines. The number of ISDN lines supported by a PC IMAC/4 is dependent on the number of IDP modules installed on the card (minimum one, maximum four).

PCIMAC/4 users will have four lines (Line 1, Line 2, Line 3 and Line 4) available for configuration in the Line Number selection box in the Line Configuration Options window. If PCIMAC or DataFire was selected, only Line 1 will be available for configuration.

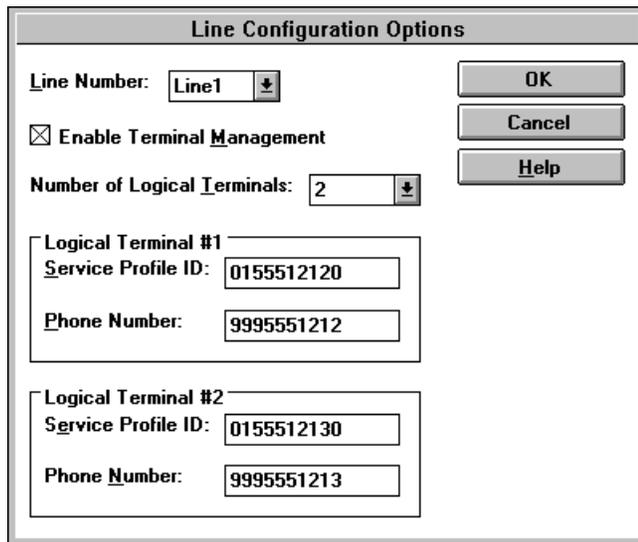
**PCIMAC/4 Users** should enter the **Line Configuration Options** for *each* line the PCIMAC/4 is equipped to support (has IDP modules installed for).



*Do not configure lines that have no supporting IDP modules.*

Select a line for configuration by opening the Line Number selection box and click on the line you want to configure. Continue this process until all (IDP supported) lines are configured.

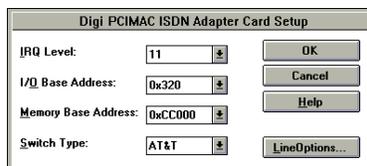
Here is an example of line configuration entries for two logical terminals. (Note that the numbers are “dummies” and not real ISDN numbers.)



The dialog box is titled "Line Configuration Options". It contains the following fields and controls:

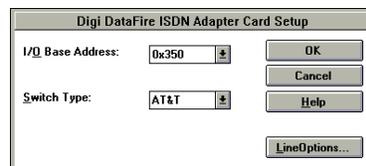
- Line Number:** A dropdown menu showing "Line1".
- Enable Terminal Management:** A checked checkbox.
- Number of Logical Terminals:** A dropdown menu showing "2".
- Logical Terminal #1:**
  - Service Profile ID:** Text box containing "0155512120".
  - Phone Number:** Text box containing "9995551212".
- Logical Terminal #2:**
  - Service Profile ID:** Text box containing "0155512130".
  - Phone Number:** Text box containing "9995551213".
- Buttons:** "OK", "Cancel", and "Help" are located on the right side.

Step 11. Once you have completed Line Configuration Options for all ISDN lines supported by the PC IMAC or DataFire card being installed, press the OK button in the Line Configuration Options window. You will return to the Adapter Card Setup window appropriate for your board:



The dialog box is titled "Digi PCIMAC ISDN Adapter Card Setup". It contains the following fields and controls:

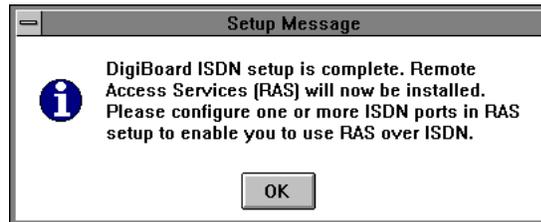
- IRQ Level:** A dropdown menu showing "11".
- I/O Base Address:** A dropdown menu showing "0x320".
- Memory Base Address:** A dropdown menu showing "0xCC000".
- Switch Type:** A dropdown menu showing "AT&T".
- Buttons:** "OK", "Cancel", "Help", and "LineOptions..." are located on the right side.



The dialog box is titled "Digi DataFire ISDN Adapter Card Setup". It contains the following fields and controls:

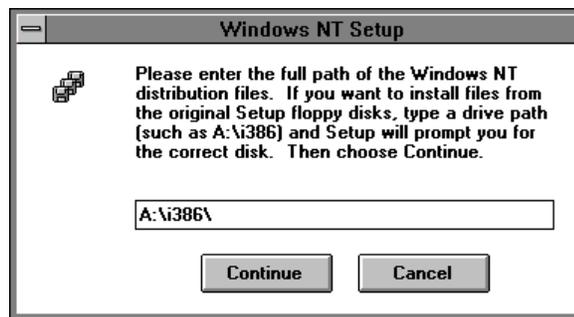
- I/O Base Address:** A dropdown menu showing "0x350".
- Switch Type:** A dropdown menu showing "AT&T".
- Buttons:** "OK", "Cancel", "Help", and "LineOptions..." are located on the right side.

- Step 12. Press the OK button in this ISDN Adapter Card Setting window. You will see:



Press the OK button.

- Step 13. Windows NT needs to go back to its source disks, and asks you to confirm where they are:



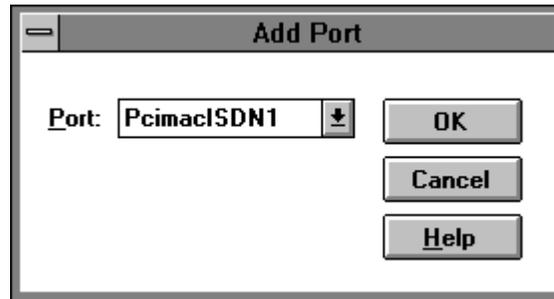
Unfortunately, the default points to where you last loaded the Digi distribution disks from; you will have to manually change the information in the text box.

Again assuming for this installation that our computer has an Intel processor and that our CD-ROM drive is D:, we change the entry to D:\i386\ as shown below, then press the Continue button.



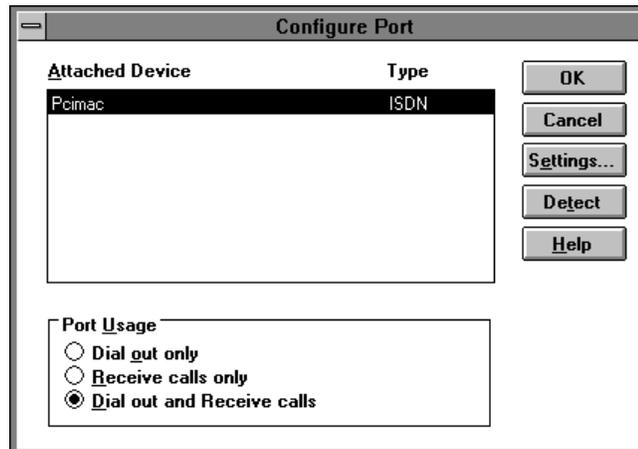
Again, we will have to wait a bit while NT copies files.

Step 14. A small Add Port window appears:



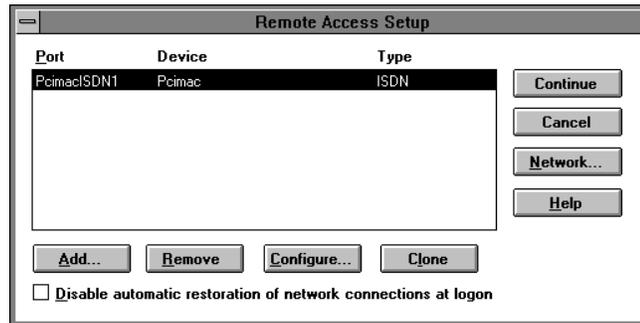
**Note:** The name in this and other screens will always be PCIMACISDN*n*, even if you are using a DataFire ISDN adapter.

Step 15. Select the first Digi ISDN port as shown and press the OK button. The Configure Port window appears:

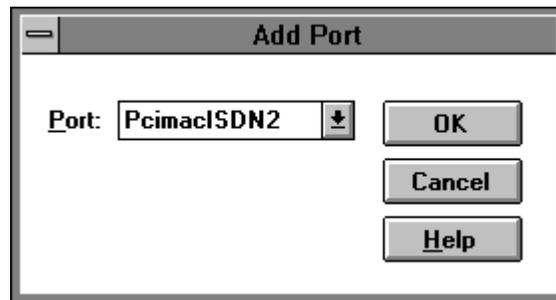


Step 16. Choose the Dial Out and Receive Calls radio button as shown, and press OK.

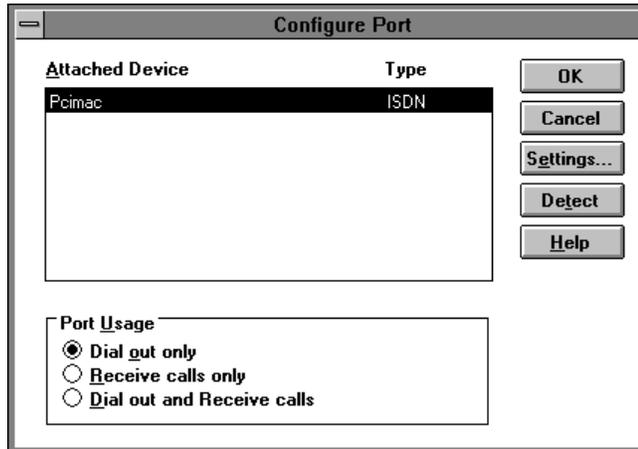
Step 17. You are sent to the Remote Access Setup window, which now shows the new ISDN port:



Step 18. Press the "Add..." button on the lower left to add a second ISDN port; this time the example selects PCIMACISDN2:

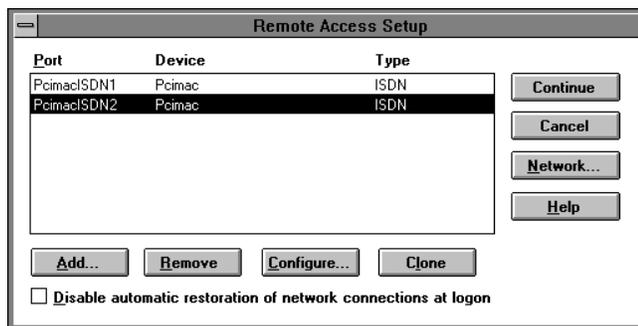


- Step 19. After you press OK, the Configure Port window comes up again.



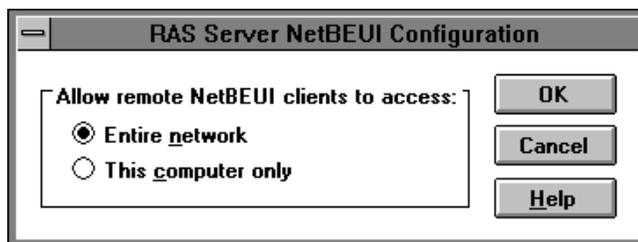
**This time, select the Dial Out Only radio button if you are installing on a machine running NT Workstation software. (Windows NT 3.5x Server users can select Dial Out and Receive if appropriate for your situation.)** When finished setting the Port Usage, press OK.

- Step 20. You are returned to the Remote Access Setup window. This time both new ports show up:



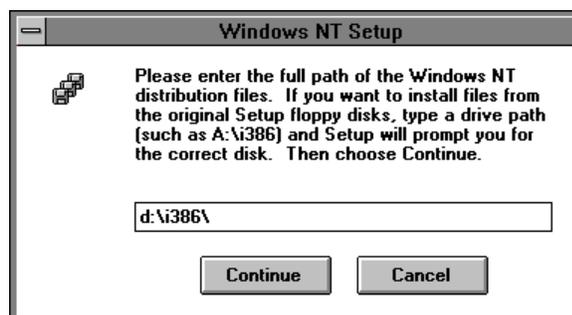
Note the check box at the bottom of the window. When this box is checked, Windows NT disables automatic restoration of network connections at logon. (See your Microsoft documentation for more details on this RAS feature.)

Step 21. Press the Continue button. You will see:



Workstation users will probably wish to select This Computer Only, while Server users may wish to allow full access; this is more a System Administrator issue than ISDN, so select what is appropriate to your installation. (You may see other choices of a like nature for any other protocols you have used; answer as appropriate to your own network.)

Step 22. If you had checked the IPX Compatible Transport box (Step 8 on page 9), Windows NT will need to go back to its source disks, and asks you to confirm where they are:



This time, you should be able to just press the Continue button.

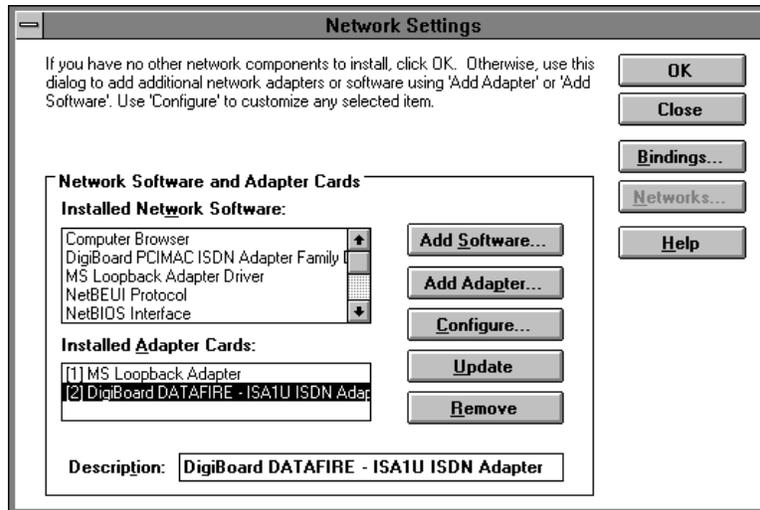
Step 23. As the installation continues, you can see Windows NT create the Remote Access Service program group; it will show briefly, then be minimized:



You will also see:

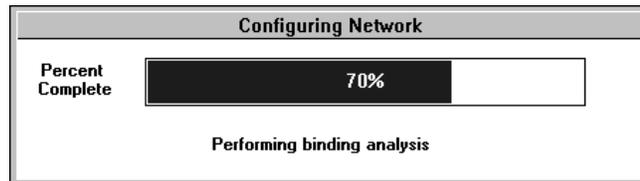


- Step 24. Finally, the Network Settings window reappears, with the PCIMAC, PCIMAC/4 ISDN or DataFire adapter you just installed appearing in the Installed Adapter Cards selection box:

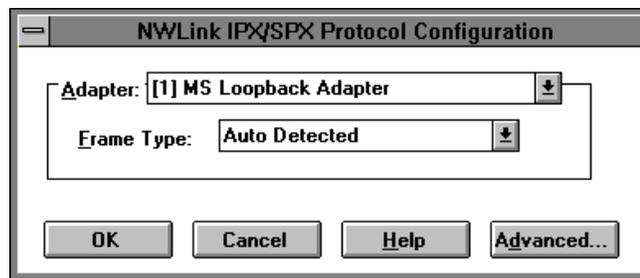


The exact Installed (Digi) Adapter Card displayed, of course, depends on which card was added.

- Step 25. From the Network Settings window, press OK. Windows NT 3.5x will spend some time configuring the network; you will see the usual progress screen.



- Step 26. If you had checked the IPX Compatible Transport box (Step 8 on page 9), Windows NT will ask for some information for the Loopback Adapter; press OK to accept the default values:



- Step 27. Finally, Windows NT will display the following Domain / Workgroup Settings window. Change the default “Workgroup” name to what is appropriate for your installation, then press the OK button.

Domain/Workgroup Settings

Computer Name: APPSLAB1

Member of:

Workgroup: WORKGROUP

Domain:

Create Computer Account in Domain

User Name:

Password:

This option will create a computer account on the domain for this computer. You must specify a user account with the ability to add workstations to the domain.

To join a workgroup, enter its name and click OK.

To join a domain which already has an account for this computer, enter its name and click OK.

If a computer account must be added for this computer, select the 'Username' option and enter the name and password of an account with 'Add workstation to domain privilege.'

OK

Cancel

Help



**Important!**

Depending on the order and timing of how you installed the network and Digi software, Windows NT 3.5x may or may not tell us that we should restart Windows. However, we *must restart Windows* for all of the changes we have just made to properly take effect. Restart Windows.

## **Reconfiguring an Installed Digi Adapter Card**

Should you have a need to reconfigure an installed Digi PC IMAC or DataFire card (to change the Line Configuration or Switch type, for example), simply access the **Network Settings** window from the Control Panel. In the **Network Settings** window, select the card to be reconfigured by clicking on its entry in the **Installed Adapter Cards** selection window. Then, press the **Configure** button.

The appropriate **ISDN Adapter Card Setup** window will be opened, and you can proceed to adjust the board hardware settings, **Switch Type**, or **Line Options** as necessary.

## On the Receiving Side: Remote Access Service

In this section, we will look at some of the RAS parameters that need to be set for the Receiving machine, and set user permissions. (The Calling machine is set up in the next section, “Setting Up an ISDN Call” on page 35.)

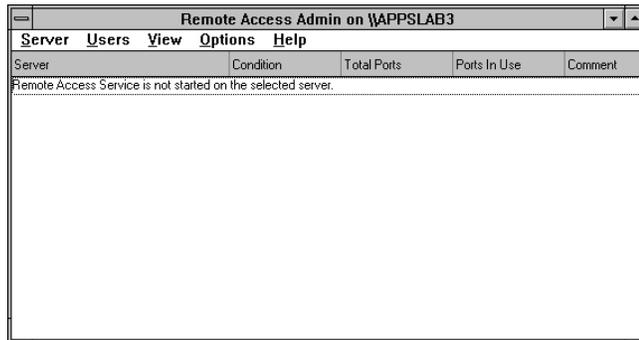
Remember that both Windows NT 3.5x Server software machines and Workstation software machines can be set up to receive calls; a limitation is that machines running Workstation software are limited to receiving one call only.

“Server” in the balance of this section refers to the machine being set up to receive calls; it does not necessarily have to be running Microsoft’s Windows NT 3.5x Server software.

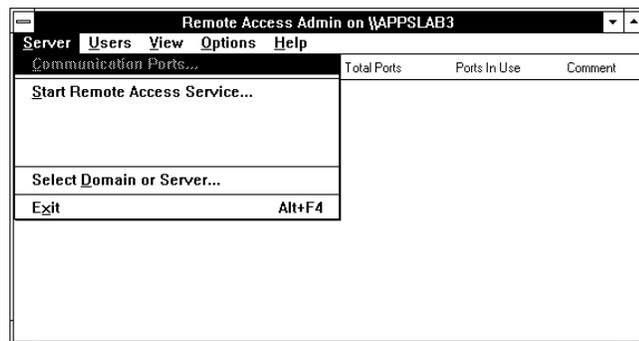
Step 1. Open the Remote Access Service Program Group:



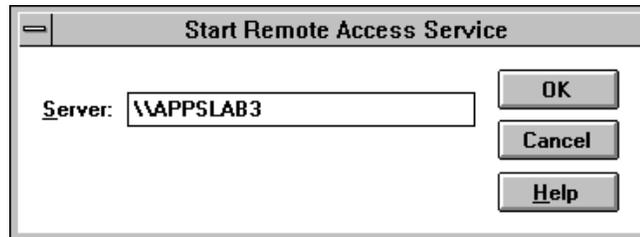
- Step 2. Double-click on the Remote Access Admin icon. The Remote Access Admin window will be displayed:



- Step 3. Pull down the Server menu, and select Start Remote Access Service...



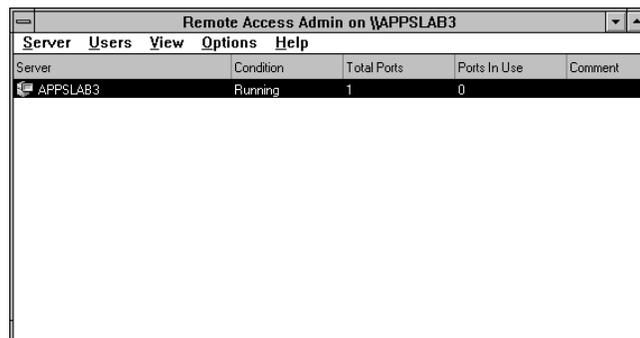
- Step 4. You are asked for the name of the server. Your answer of course depends on your own network's setup. "Server" here should be the name of the machine you are setting up to receive calls on.



- Step 5. Windows NT informs you that it is attempting to start up the Remote Access server service:



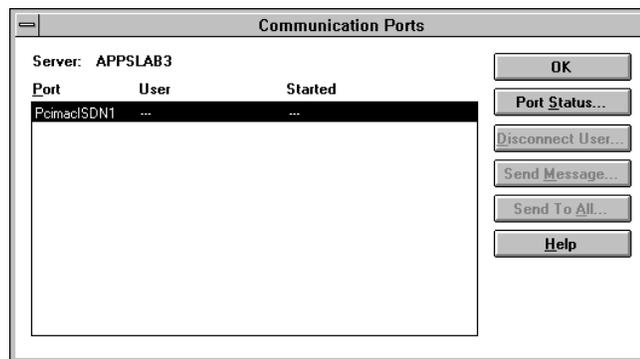
- Step 6. After the Remote Access service is started, you are returned to the Remote Access Admin window:



The **Server** field should show the name of the Windows NT 3.5x “server” that will be receiving the calls. The **Condition** field should indicate that RAS is Running. **Total Ports** should indicate the total number of ports (ISDN and other port types) added to and configured for RAS. *Ports In Use* indicates the number of currently active ports (probably 0).

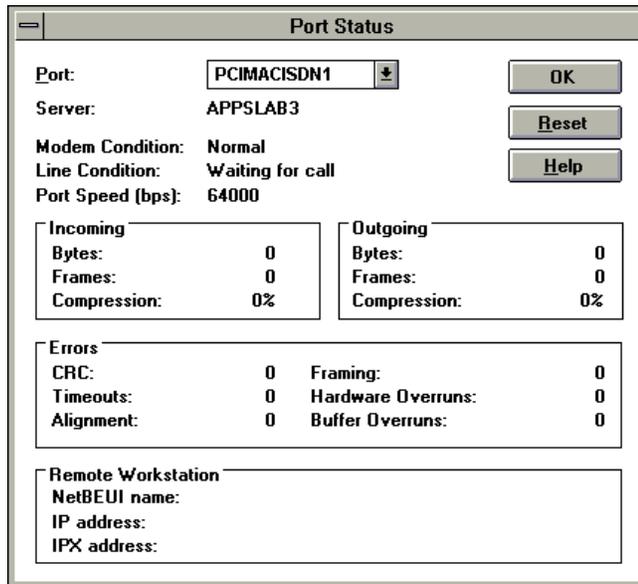
Step 7. **Examining RAS Communication Ports**

You may wish to examine the activity of the ISDN connection. Open the **Server** drop-down menu and select *Communication Ports*. A window similar to this will be opened:



Step 8. Note that any Digi ISDN Ports you have configured to receive calls are displayed in the window, along with any other ports you (or Windows NT) might have added outside of this installation.

Select one of the new ISDN ports by clicking on it, then press the “**P**ort **S**tatus...” button to open the port status window for the selected ISDN port. You will see something like:

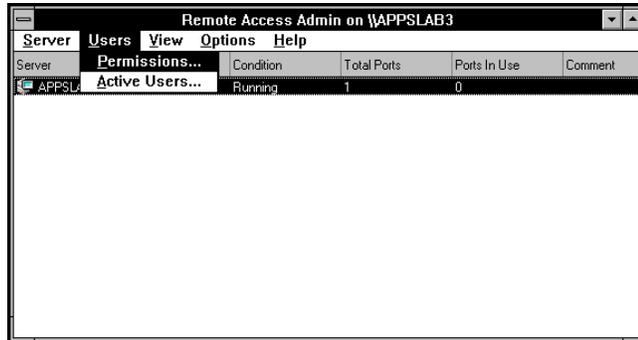


The example Port Status window shows the typical status for an idle ISDN Port. Note the Line Condition status: "Waiting for call." This indicates the port is in a "listening" state, and ready to answer an incoming ISDN call. We will examine the Port Status window for an active ISDN port further on.

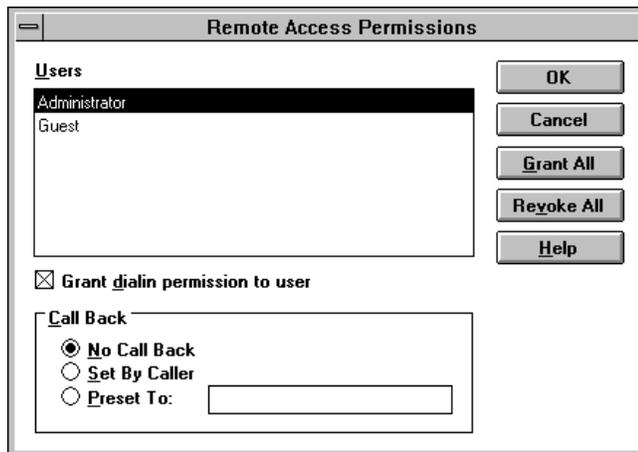
Press the OK button in the Port Status window to return to the Communications Ports window. From the Communication Ports window, press the OK button to return to the Remote Access Admin window.

Step 9. **Remote Access Permissions**

From the Remote Access Admin window, pull down the Users menu and select Permissions:



You will see something like:



Following Microsoft's instructions, grant dial-in permissions to listed users and set Call Back parameters as appropriate for your Network. Press OK when you are finished; you will be returned to the Remote Access Admin window.

## On the Calling Side: Setting Up an ISDN Call

In this section, we will look at some of the RAS parameters that need to be set for the Calling machine. Both Windows NT 3.5x Server software machines and Workstation software machines can be set up to originate calls.

“Server” in the balance of this section refers to the machine that was set up to receive calls; it does not necessarily have to be running Microsoft’s Windows NT 3.5x Server software.

- Step 1. Double-click on the Remote Access icon in the Remote Access Service Program Group window.

If you just installed RAS, the Remote Access phone book will be empty. Remote Access will detect this when it is first launched, and will display the dialog box shown below to prompt you to add an entry to the Remote Access phone book.



If the Remote Access phone book already has entries in it (i.e. you have installed RAS prior to the installation of the Digi ISDN adapter card and have added entries to the phone book for use with other installed communications ports), launching Remote Access opens the Remote Access window directly (without prompting for you to add an entry).

We will assume for the moment that RAS has just been installed and that there are no existing Remote Access phone book entries. Press the OK button in the dialog box

Step 2. You will see the Add Phone Book Entry window:

The screenshot shows a dialog box titled "Add Phone Book Entry". It has a standard Windows-style title bar with a close button. The dialog contains the following elements:

- Entry Name:** A text input field.
- Phone Number:** A text input field with a search button (three dots) to its right.
- Description:** A text input field.
- Buttons:** Four buttons are aligned to the right: "OK", "Cancel", "<< Basic", and "Help".
- Authentication:** A checked checkbox with the label "Authenticate using current user name and password".
- Port:** A dropdown menu currently showing "PCIMACISDN1".
- Device:** A text field showing "PCIMAC".
- Bottom Icons:** A row of five icons: "Modem", "25", "ISDN", "Network", and "Security".

(This example shows the window after the Advanced button is pushed.)

**Note:** If the Remote Access phone book *already had* entries in it, pressing the Add button in the Remote Access window would bring up the same Add Phone Book Entry window shown above, permitting you to Add a new entry to your phone book.

Step 3. In the Entry Name field, enter a name for the phone book entry being Added. This field is required in that you must enter a name consisting of at least one non-blank character with no commas or periods.

- Step 4. In the Phone Number field, enter the ISDN phone number *or numbers* to be dialed when the call is placed. To connect through ISDN, you must specify a phone number for *each* B Channel you request when requesting more than two B Channels.

For example, if you request two B Channels, you must specify two phone numbers (separated by colons, no spaces) in the Phone Number field.

Example: 5551234:5551234

If you request three B Channels, specify three phone numbers:

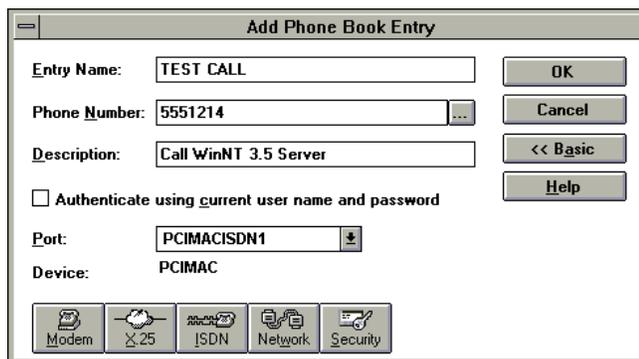
Example: 5551234:5551234:5556789

**Important!** There cannot be any dashes in the phone numbers.

**Note:** If there are more B Channels specified than phone numbers given, the extra channels will attempt to use the last number. For this reason, you can use *one* number for a two B Channel call since ISDN lines normally support two B Channels each. However, some ISDN Service Providers require a *unique* number for *each* B Channel. Check with your service provider.

- Step 5. In the Description field, enter a description for the phone book entry. This field may be left blank.
- Step 6. Check the Authenticate using current user name and password check box if you want authentication checks (on the RAS server you will be connecting to using this phone book entry) run against the user name and password you used to log in to the machine *placing* the call. If this box is not checked, you will be prompted to enter a user name and password to be used in authentication checks on the Windows NT 3.5x server you are connecting to.

- Step 7. A completed Advanced >> Add Phone Book Entry should look something like:



*Do not* press OK to accept/Add your new phone book entry yet. Before you accept the entry you must define what Port the phone book entry will “call out” on, verify the Device attached to the Port, and, for ISDN Ports, set and/or verify the ISDN Settings for the Port.

These settings will require the Advanced part of the window, so if the row of five icons doesn’t appear as pictured, press the Advanced button on the right of the window.

- Step 8. Select the ISDN Port to be used for this phone book entry by pulling down the Port selection drop box and clicking on the entry for the ISDN Port you wish to use:

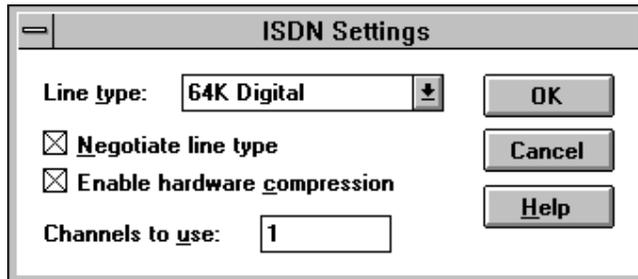
**Port:**

The selected ISDN port will appear in the box.

- Step 9. Next, press the **ISDN** button located in the bottom section of the window.



This will open the ISDN Settings window for the ISDN Port just selected. The ISDN Settings window should look like:



- Step 10. Set the Line Type to be assigned the port by opening the Line Type selection box and clicking on the line type you want (64K Digital, 56K Digital, or 56K Voice).
- Step 11. Check (or uncheck) the appropriate boxes to enable (or disable) Line Type Negotiation and Hardware Compression. (Both are enabled by default).
- Step 12. Channels to use: The Digi ISDN adapter cards allow you to use more than one B Channel when making an ISDN connection. The Channels to use field lets you define how many B Channels are to be used/aggregated when an ISDN call is placed using the phone book entry being Added. Using more than one B Channel improves throughput.

Enter the number of channels to use for the phone book entry being Added. The default is one.

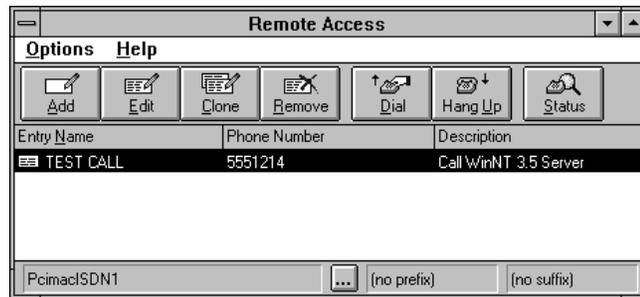


Do not attempt to connect through more B Channels than the number available on your Digi ISDN card(s). Selecting more than the maximum number of B Channels actually available may prevent you from connecting at all.

- Step 13. Once you have defined (or verified) the ISDN Settings for your new phone book entry, press the OK button in the ISDN Settings window to return to the (Advanced) Add Phone Book Entry window.

In that window, press OK to accept and add the new phone book entry to the phone book.

- Step 14. Your newly added phone book entry should be displayed in the phone book selection box. The Remote Access window should appear similar to:



## Making the ISDN Call

In this section, we will make a call between a two machines equipped with PC IMAC or DataFire boards.



You must have:

- Two computers running Windows NT 3.5x computers, each with functional ISDN lines connected, to properly installed Digi ISDN cards. See “Installing the Digi Windows NT 3.5x Driver Software” beginning on page 3.
- One computer must be set up through RAS to Receive calls. See “On the Receiving Side: Remote Access Service” on page 29.
- The other computer must be set up with RAS to Originate calls. See “On the Calling Side: Setting Up an ISDN Call” on page 35.

You will use the **Remote Access** application on *one* computer to place an ISDN call to the *other* computer.

**Please Note:** For brevity, the rest of this section will refer to the Windows NT 3.5x computer *placing* the ISDN call as **Machine C** (C for *Calling*) and the computer *receiving* the call as **Machine R** (R for *Receiving*).

Step 1. Start **Remote Access Services** on the **Machine R** (the Receiving machine); this *must* be done before Machine C can place the call.

- Step 2. On **Machine C**, Add a phone book entry (or edit an existing one) so that the entry calls the phone number of the ISDN line connected to **Machine R**. This phone book entry must also be set to use an installed and configured Digi ISDN Port. The ISDN Settings for the ISDN Port should be as follows:

<b>Line Type:</b>	64K Digital
<b>Negotiate line type</b>	enabled/checked
<b>Enable hardware compression</b>	enabled/checked
<b>Channels to use</b>	set to 1



*Machine R must always be set up with the same parameters as Machine C.*

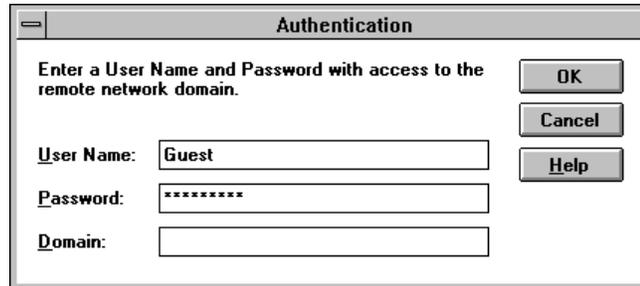
(Please note that this is an “easy connection” example connection just to get you going.)

- Step 3. On **Machine C**, launch the **Remote Access** application. Select the phone book entry configured to connect with **Machine R** by clicking on the entry (it should become highlighted when selected). Then, press the **Dial** button in the **Remote Access** window’s icon bar. This will cause an ISDN call to be placed to **Machine R**.

(You could also just double-click on the **Machine R** entry.)

Step 4. **User Authentication**

If the Authenticate using current user name and password check box if was *not* checked for the phone book entry being used, this screen will be displayed:



The screenshot shows a dialog box titled "Authentication". The text inside reads: "Enter a User Name and Password with access to the remote network domain." There are three input fields: "User Name:" containing "Guest", "Password:" containing "\*\*\*\*\*", and "Domain:" which is empty. To the right of the input fields are three buttons: "OK", "Cancel", and "Help".

If this window appears when you tell Remote Access to Dial, enter a valid user name and password to be used in authentication checks on the Windows NT 3.5x server you are connecting to (**Machine R**). The connection procedure will continue as described later.

If the Authenticate using current user name and password check box *was* checked for the phone book entry placing the call, authentication checks on **Machine R** will be run against the user name and password you used to log in to the machine *placing* the call (**Machine C**). If the user name and password you logged into **Machine C** with are *not* registered on **Machine R**, the Windows NT 3.5x security on **Machine R** will deny the user access, and prompt you for a *valid* User Name and Password with the Authentication window shown.

Users connecting to remote networks using RAS *must* adhere to and conform with Windows NT 3.5x's security and authentication requirements.

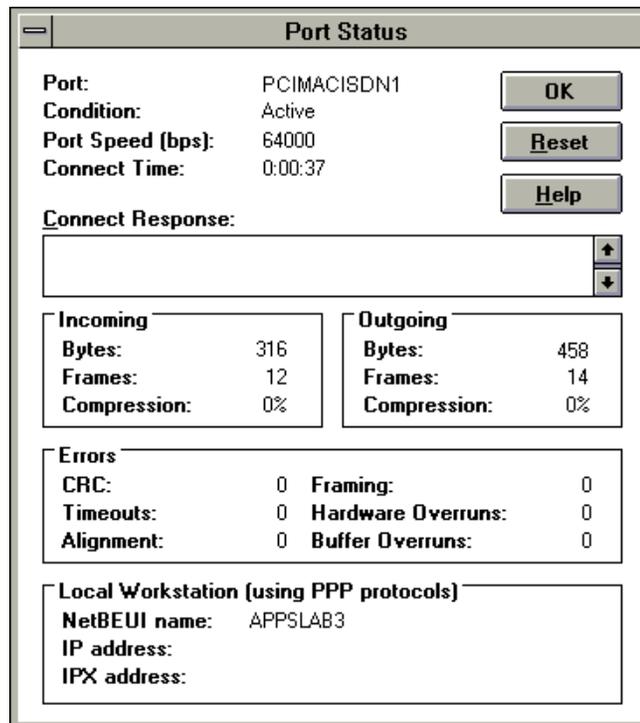
Step 5. When the connection is successful, you will see:



Click OK in this dialog box to close it. You may at your option check the appropriate boxes to Minimize on dial and/or Do not display this message in the future.

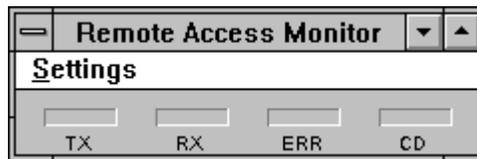
Once you press the OK button, you will be returned to the Remote Access window that you “dialed” from. **Machine C** is now connected to **Machine R** through Windows NT 3.5x Remote Access Service.

- Step 6. While the call is connected, press the Status button in the icon bar of the Remote Access window on the computer that placed the call (**Machine C**). Something similar to the Port Status window shown will be opened, allowing you to check the status of the ISDN port used to make the RAS connection to **Machine R**.



Step 7. **Remote Access Monitor**

The RAS Program Group contains an icon for the **Remote Access Monitor**; double-click on the icon to launch it. Pick the RAS port to be monitored by opening the Settings drop-down menu and selecting the (ISDN) Port that you wish to monitor. The **Remote Access Monitor** can be active on either or both machines connected through RAS.

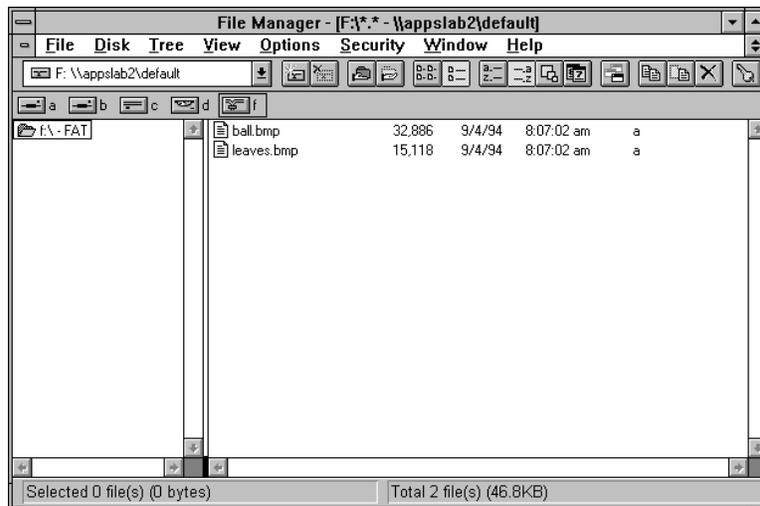


If an ISDN connection through RAS is active, the CD "light" will be lit. The TX and RX indicators monitor data traffic transmitted and received through the connection.

Step 8. **Once an RAS ISDN Connection is Established**

Typically, once connection is established between Windows NT 3.5x computers through RAS, the user at the computer originating the call (at **Machine C** in our examples) will connect to shared resources. A typical resource would be a Network drive. The connection to the network drive can be established in a number of different ways (see your Microsoft documentation for details).

One of the more common is to use the **Connect Network Drive** option found in the File Manager. The following figure shows an example of what File Manager's display might look like after **Machine C** connects with **Machine R** and connects to a Network Drive mapped to the user\default directory on **Machine R**:



Review Microsoft's documentation for details on connecting to Network Drives and sharing other network resources and services through RAS connections.

# Digi Support Services

## The Digi Bulletin Board System

Digi provides an electronic bulletin board service (BBS) for our customers. This bulletin board provides general and technical information about Digi's products.

The Digi BBS allows users to download software drivers as soon as they become available. There is also a feature to allow users with problems or questions about Digi products to leave messages to Digi Technical Support.

Using the Digi BBS is easy. Simply dial **(612) 943-0550**. In Europe, dial **+49 221 9205211**; in Asia, dial **+65 735 2460**. The bulletin board accepts calls at 1200, 2400, 9600 and 14.4K baud. V.32, HST 14.4, V.42 and V.42*bis* standards are supported, with full MNP class 1-5 error correction and data compression.

The recommended modem communications parameters are 8 bits, no parity and one stop bit (**8 N 1**). Other settings may also work.

Download protocols include Zmodem, Xmodem, Ymodem, Kermit and others.

## Internet FTP Server

Digi has set up an Anonymous FTP server for those with access to the Internet network. The address is `ftp.digibd.com`. Log in as `anonymous`, and enter your E-mail address when asked for a password. Drivers and installation tips are located in the `/drivers` directory. A text file, `download.doc`, gives information on uncompressing the files after downloading. Tip: Be sure to enter "bin" before downloading, to ensure binary transfer of files.

### **World Wide Web Server**

Product information, manuals, new product announcements, programs, application stories and more can be obtained through the World Wide Web. Our address is <http://www.digibd.com>

### **DigiFACTs FaxBack Server**

Manuals and technical information can also be obtained by FAX. To use the FaxBack server, simply dial (612) 943-0573 on a touch tone phone.

## Information About Your System

Serial number of your Digi product: \_\_\_\_\_

Make, model and clock speed of your computer: \_\_\_\_\_

\_\_\_\_\_

How much RAM does your computer have? \_\_\_\_\_

**Hard disk controller:** Type: \_\_\_\_\_ Memory addressed at: \_\_\_\_\_

I/O port used: \_\_\_\_\_ IRQ: \_\_\_\_\_

**LAN card:** Type: \_\_\_\_\_ Memory addressed at: \_\_\_\_\_

I/O port used: \_\_\_\_\_ IRQ: \_\_\_\_\_

**Other:** Type: \_\_\_\_\_ Memory addressed at: \_\_\_\_\_

I/O port used: \_\_\_\_\_ IRQ: \_\_\_\_\_

**Operating system:** \_\_\_\_\_ Version: \_\_\_\_\_

**Digi device driver version:** \_\_\_\_\_

## Technical Support

At Digi, we are proud of our products, and support them. Our dealers and distributors are fully trained on our product line, so that they can help you on a technical level should assistance be needed.

Your first level of support is your Digi dealer, the place where you purchased your Digi product. Your dealer has the training to help you with any installation questions or difficulties you might have.

If you still experience difficulties (after contacting your first level of support), Digi has a staff of Technical Support Specialists that can assist you. They can be reached at **(612) 943-0578**. In Europe, call **+49 221 920520**, and in Asia, call **+65 732 1318**. FAX numbers are: (612) 943-0579 (USA), +49 221 9205210 (Europe) and +65 732 1312 (Asia).

When you call Digi Technical Support, please call from a position where you can operate your system. Also, please fill out the "Information about your System" form on the preceding page before calling, so your Technical Support representative can have a clear picture of your system and any potential conflicts between devices.

Digi Technical Support can also be reached via Internet E-mail. Please send correspondences to [support@digibd.com](mailto:support@digibd.com), and include your voice and FAX phone numbers.

## Customer Service

Digi also has a staff of Customer Service representatives to help you with software and documentation update requests, as well as Returned Merchandise Authorizations (RMAs) in case you need to return your board to Digi for repair. They can be reached at **(612) 943-0577**.

Digi Customer Service can also be reached via Internet E-mail. Please send correspondences to [cust\\_serv@digibd.com](mailto:cust_serv@digibd.com), and include your voice and FAX phone numbers.