Contents

1   *Uniden Data 2000 Introduction*

RAISE ANTENNA

Caution *- Before operating this device, be sure to place the antenna in the vertical position. This offers the best performance of your modem, and, at the same time, reduces the risk of possible exposure to electromagnetic radiation emanating from the antenna.*

The antenna must be maintained at least 4 inches (or 10 cm) from users and nearby persons to comply with FCC radio frequency exposure limits (and to reduce the risk of RF radiation) when the Uniden Data 2000 is in operation.

1.0   Getting Ready

Thanks for purchasing the Uniden Data 2000 CDPD modem. It has been designed to provide you with the ability to wirelessly access your e-mail, the Internet, and more, from any location with CDPD coverage.

Please take a moment to look through this manual before installing the software or activating CDPD service. This manual contains all the information you will need to use your modem. There are sections for advanced users to allow them to integrate the modem into a variety of software applications and modem configurations.

Note: Sections for advanced users are identified with this icon.

Follow the step-by-step processes outlined in the following chapters to prepare your modem for use. For more information, or to troubleshoot a problem, contact Customer Service or Technical Support at 1 (888) 6 UNIDEN. Or, visit our website at http://www.uniden.com.

1.1   What is the Uniden Data 2000?

The Uniden Data 2000 is a wireless CDPD (Cellular Digital Packet Data) PC Card which enables most laptops, hand held computers, and Personal Digital Assistants with Type II PC Card slots to communicate with host-based applications such as web servers, intranet servers, databases, dispatch systems, and other host computer systems. The Uniden Data 2000 uses the Internet suite of protocols running over the CDPD system. The product is fully Windows compatible, supporting Windows 95/98, Windows NT, and Windows CE. It includes a suite of GUI (Graphical User Interface) utilities to provide the user with simplified access to operational status and statistics, as well as the ability to configure, control, and monitor the performance of the device. The Uniden Data 2000's compact size makes it an easily portable communications tool that can be stored conveniently in a briefcase or purse when not in use.

1.2   What is CDPD?

CDPD or Cellular Digital Packet Data is a wireless, public access, packet data standard designed to operate over existing analog cellular phone systems. Since it is designed to use existing cellular phone systems, CDPD provides a large coverage area. CDPD's primary benefit is quick, inexpensive, and efficient transmission of data packets. Additional benefits include built-in encryption for security (where applicable); a billing structure which charges for message size rather than on-line time (depending on individual service provider's service plans); forward error correction methods that reduce the effects of noise and interference on the airlink; and widespread deployment.

1.3   What is the PCMCIA Standard for PC Cards?

Over the past several years, mobile computers have experienced explosive growth. While prices have fallen sharply, features are becoming more advanced and reliability has been greatly improved. One of the most notable features of today's mobile computers is the PC Card slot. Over the last four years, the personal computer industry has rapidly adopted the PC Card slot feature, and today nearly 75 percent of laptops include a PC Card slot. This has been the driving force in the innovation and development of PC Card technology.

In 1989, an international standards body and trade association was founded, called the PCMCIA (Personal Computer Memory Card International Association.). This organization was founded to establish standards for Integrated Circuit cards and to promote interchangeability among mobile computers where ruggedness, low power, and small size are critical.

Even though PCMCIA is a rather young technology, it has been quickly adopted by every major personal computer manufacturer in the world. Since it's inception, PCMCIA has published a PC Card Standard which contains all of the physical, electrical and software specifications for PC Card technology. This standard is in a constant state of improvement by the PCMCIA technical committee.

1.4   Product Highlights

- Compatible with most laptops, hand held computers and Personal Digital Assistants (PDAs) with PCMCIA Type II PC Card slots.

- Windows compatible (Windows 95/98, Windows NT, and Windows CE).

- Graphical User Interface (GUI) provides simplified access to operational status and statistics, and allows the user to configure, control, and monitor the performance of the device.

- AT command interface allows the user to query status and statistics, change operational modes, and configure and control the device.

- Full Duplex operation with CDPD System Specification Version 1.1.

- Data transfer via SLIP or PPP to a connected host, using the PCMCIA interface.

- Embedded network connectivity application, for testing end-to-end connectivity (ICMP ECMO).

- Maximum of 10 unicast Network Equipment Identifiers (NEIs) that can be stored and activated one at a time.

- Onboard battery for operation independent of host power.

- External power option for desktop use.

1.5   Package Contents

- ***Uniden Data 2000 Wireless CDPD PC Card:*** The physical module containing all of the electronic and other hardware elements. (Includes the battery compartment, antenna and PCMCIA interface connector.) The PC Board is protected by a clam shell structure made from a 2-piece plastic sub-frame, molded together with a stamped stainless steel cover.

- Uniden Data 2000 Setup CD-ROM and two floppy disks

- Uniden Data 2000 Installation and Operation Manual

- 110 Volt AC Adapter

1.6   Optional Accessories

- Rechargeable Alkaline Battery Pack
- Rechargeable Alkaline Battery Charger

1.7   Battery Life Expectations

The Uniden Data 2000 is powered by 4 AAA size alkaline batteries that, depending upon your application, should provide you with several days of use. Here is a matrix below that will give you an idea of the expected battery life in relation to the modem's anticipated use:

Data Usage:	High	Medium	Light
User:	Information Technology User	Business User	Casual User
Application:	File Transfer	Web Browsing	Occasional e-mail
Battery Life:	4-5 hours	16-20 hours	60-80 hours

The above matrix is only an estimate. Your actual battery life will vary based on your use of the modem and other parameters. Whenever you are in a more stationary situation, Uniden recommends that you use the AC power adapter (wall unit) that comes with your Uniden Data 2000.

To ensure maximum battery life, Uniden recommends that you turn the modem power switch off when not in use.

1.8 Host Computer System Requirements

Before you install the <u>Uniden Data 2000</u> Setup and Installation software, please check your host computer to make sure that it meets or exceeds the following system requirements:

Minimum requirements for MSWindows computer:

- PC with a 486/33DX or higher processor; Pentium 90 or higher recommended
- Microsoft Windows 95 or higher, or NT 4.0 with Service Pack 3 or higher installed
- 8 MB of RAM; 12 MB recommended
- 8 MB or available hard disk space for installation
- CD-ROM or 3.5 floppy drive
- PCMCIA Type II PC Card slot
- VGA or higher-resolution monitor
- Microsoft mouse or compatible pointing device required.

Minimum Requirements for Windows CE:

- Microsoft Windows CE 2.0 or higher
- 200 kbytes disk space for installation
- PCMCIA Type II PC Card slot

Please store all of the software that accompanied your <u>Uniden Data 2000</u> in a safe, dry place. Should you misplace the software in the future, you can access it by calling Customer Service at 1-(888)-6UNIDEN. Or, go to our website at www.uniden.com/.

2 *Setting Up the Uniden Data 2000*

This chapter explains how to set up the Uniden Data 2000 for operation with host computers running Windows 95/98, Windows NT and Windows CE.

2.1 Setup Preparation

2.1.1 Hardware Required for Uniden Data 2000 Setup

- A host terminal, (laptop or hand held computer).
- The Uniden Data 2000 Wireless CDPD PC Card.

2.1.2 Software Required for Uniden Data 2000 Setup

One of the following operating systems is required:

- Windows 95/98
- Windows NT
- Windows CE

Note: Windows CE needs host PC to setup the Uniden Data 2000.

2.1.3 Requesting Service Activation

STOP Before you can use the Uniden Data 2000, you must contact your local cellular service (CDPD) provider to request the activation of your PC Card.

To activate the Uniden Data 2000, you need to give the service provider the PC Card's Equipment Identifier (EID) code which is printed on the unit. The provider will set up your account, tell you which side they provide for channel acquisition (Side A or Side B), and give you an IP address (NEI) to register your Uniden Data 2000. They will also provide a DNS (Domain Name Server) number.

Note: The EID for Uniden Data 2000 CDPD modem is formatted to look like: 00E011XXXXXX

2.1.4 Summary of Start Up Process

After you have completed the following steps, your Uniden Data 2000

should be ready for use. If you have a problem or question, please review the manual or contact Technical Support at 1 (888) 6UNIDEN.

Check the following:

- Has the <u>Uniden Data 2000</u> host application loaded properly on the host computer?
- Have you established a CDPD data account with your cellular CDPD provider?
- Is there a Dial Up Networking Icon on your host computer for the <u>Uniden Data 2000</u> .
- Have you configured the modem using UDConfig?
- Is your desired application (Web browser, e-mail) loaded on the host computer?

Once all of the above has been accomplished, you will be able to use the <u>Uniden Data 2000</u> . Here is a summary of the action steps that will need to be completed each time you want to use the <u>Uniden Data 2000</u>:

1. Launch Dial Up Networking
2. Launch UD Insight

   Note: You may want to hide this icon, or, move it to a more convenient location on your screen

3. Launch Internet Explorer, Air Boss or your desired application
4. Begin using the desired application.

2.2 Uniden Data 2000 Host Application Installation

The Uniden Data 2000 host applications, UDConfig and UDInsight are distributed on a CD-ROM and floppy disks: the **Uniden Data 2000 Setup and Installation** CD-ROM and floppy disks. These applications must be downloaded to the host terminal, in order to set up the host applications to use with the Uniden Data 2000.

To install and set up the UDConfig and UDConfig host applications, take the following steps:

1. Insert the **Uniden Data 2000 Setup and Installation** CD-ROM or floppy disks into the CD-ROM or floppy disk drive.

2. Click the **Start** button.

3. Select **Run**.

4. In the **Run** dialog box, enter the command line **d:\setup** (if the CD-ROM drive is D).

Note: For floppy disks, the drive is typically "A" instead of "D":

5. Follow the instructions provided by the Setup Wizard to complete installation. The Uniden Data 2000 host applications will be copied to the location you specify on the host system, and desktop and task bar icons will be created for each application.

6. Click **Next**.

Note: Host application software needs to be installed once, (when you initially set up the Uniden Data 2000 for use with a particular host computer); however, you must repeat the installation process for each new host computer used with the Uniden Data 2000.

7. Click **Next**.

8. Enter the DNS of your provider. (See Section 2.1.3, Requesting Service Activation, for details.)
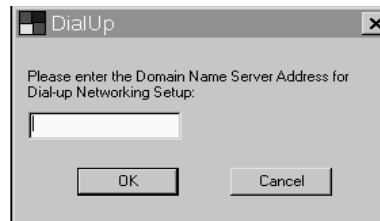
9. Click **Finish** to Restart Computer.

Please go to the following section, depending on your host computer operating system.

Section 2-3 If you are using Windows 95
Section 2-5 If you are using Windows 98
Section 2-7 If you are using Windows NT
Section 2-9 If you are using Windows CE

If the Host Applications (UD Config and Insight) have loaded successfully, go to Section 2.11 to configure the modem for use with the cellular network using UD Config. In addition, you may also view the operational status and statistics using UDInsight.

2.3 Installation Procedures/Windows 95

Follow the steps below to setup Dial-up Networking to connect your Uniden Data 2000 to the Internet.

To install the Uniden Data 2000, take the following steps:

1. Insert the Uniden Data 2000 into the PC Card slot of the host terminal you are using.

2. Move the **On/Off** Power Switch to the 'on' position.

The following dialog box displays on screen:

3. Click **Next**.

4. Insert Uniden Data 2000 Setup and Installation floppy disk or CD-ROM with the file **ud2k.inf**. Click **Next**.

5. The following dialog box displays on the screen:

6. Click **Finish**. The **Location Information** dialog appears.
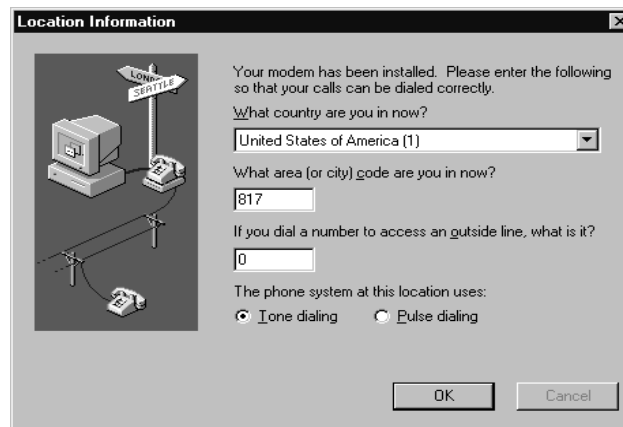
To check to see which COM port was selected during the setup process, take the following steps:

7. Click the **Start** button on your Windows 95 desktop, then select **Settings**, **Control Panel**.

The following dialog box displays on the screen:
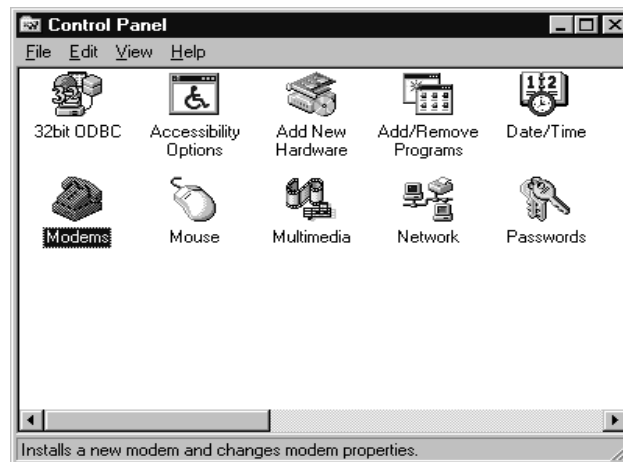
8. Double-click the **Modems** icon.

The following dialog box displays on the screen:

9. Select **Uniden Data 2000 PC Card** from the modems listed in the dialog box.

10. Click **Properties**.

The following dialog box displays on the screen.
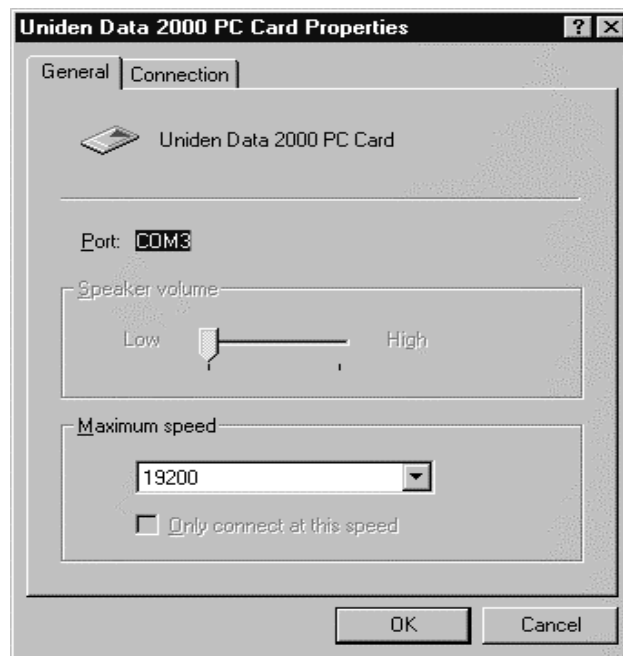
11. The COM port that was selected during the setup process is displayed on the **General** tab.

12. Click **OK**.

2.3.1 Verifying the Connection

The host computer should display a <u>Uniden Data 2000</u> icon in the system tray when the PC Card has made a proper connection. If you do not see this icon on the screen, take the following steps to determine if your host computer has been set to display system tray icons.

1. Click the **Start** button on your Windows 95 desktop, then select **Settings**. **Control Panel**.

2. Double-click the **PC Card (PCMCIA)** icon.

The following dialog box displays on the screen:
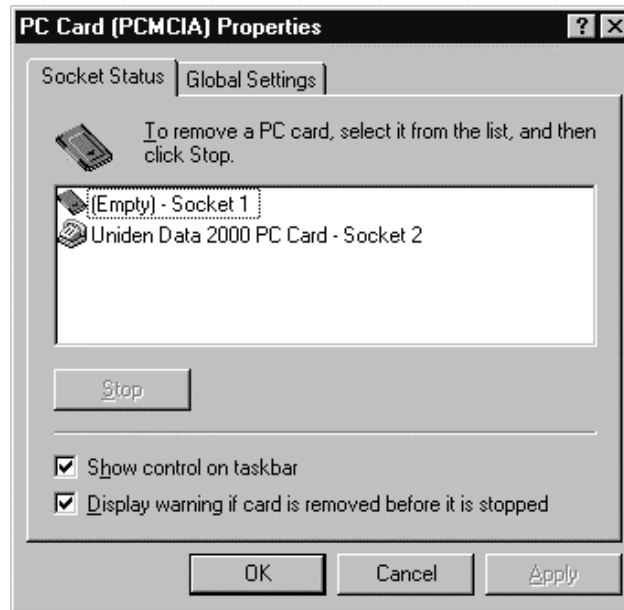
3. Select the **Show control on task bar** check box, then click **OK**.

If you have verified that the host computer has been set to display system tray icons, and you do not see the Uniden Data 2000 icon in the system tray, then the Uniden Data 2000 has *not* made a proper connection.

If the Host Applications (UD Config and Insight) have loaded successfully, go to Section 2.11 to configure the modem for use with the cellular network using UD Config. In addition, you may also view the operational status and statistics using UDInsight.

2.4 Using Windows 95 Dial-Up Networking

To use your <u>Uniden Data 2000</u> modem with Windows 95 Dial-up Networking, take the following steps:

2.4.1 Checking Dial-Up Networking Installation

To determine if dial-up networking is already installed, double-click on the **My Computer** icon. If you don't see an icon for Dial-Up Networking, you will need to add this feature:

2.4.2 Installing Dial-Up Networking.

If Dial-Up Networking is not installed, follow these steps:

> ***Note***: It is possible that Windows 95 setup software will be required for installation.

1. Click on the **My Computer** icon.

2. Select **Control Panel**.

3. Select **Add/Remove Programs**.

4. Select **Windows Setup** tab.

5. Select **Communication**.

6. Check the **Dial-up Networking** box, then click **OK.**

Depending on your preference, or the host configuration, you can use SLIP or PPP Dial-Up Networking to interface with the host computer. For SLIP, see Section 2.4.3. For PPP see Section 2.4.5.

2.4.3 Installing Win95 Support for SLIP

To add SLIP support, take the following steps:

1. Click on the **My Computer** icon.

2. Select **Control Panel.**

3. Select **Add/Remove Programs**.

4. Select the **Windows Setup** tab.

5. Click **Have Disk.**

6. Insert <u>Uniden Data 2000</u> Setup and Installation floppy disk or CD-ROM with **rnaplus.inf**. Check file path. Click **OK**.

Install From Disk

Insert the manufacturer's installation disk into the drive selected, and then click OK.

OK

Cancel

Copy manufacturer's files from:

A:\

Browse...

.

7. Check the box for the **Unix Connection for Dial-Up Networking**, then click **Install**.

Have Disk

Click the box next to an item to add or remove a check mark. A check means you want the component on your computer; no check mark means you don't want the component.

Components:

☑ Unix Connection for Dial-Up Networking   0.1 MB

Space required: 0.0 MB
Space available on disk: 2015.4 MB

Description

Allows you to connect to Unix machines through Dial-up Networking

Details...

Install   Cancel

2.4.4 Setting Up Dial-Up Networking for SLIP

To set up Dial-up Networking, take the following steps::

1. Double-click on the **My Computer** icon.

2. Open the **Dial-Up Networking** folder.

3. Double-click on the **Make New Connection** icon. Follow the instructions provided for making a new connection.

4. When you are instructed to select a modem, click on **Uniden Data 2000 PC Card**. Change the name of the connection from **My Connection** to **PC Card SLIP**. Click **Next**.

5. In the **Telephone Number** box, enter the single digit: **2**. Click **Next**, then click **Finish** to create a new Windows 95 connection icon named PC Card SLIP.

6. Select the new icon with the right mouse button. From the sub-menu, click **Properties**.

7. Select **Slip: Unix Connection.**

8. Deselect **Log on to network**.

9. Click **TCP/IP Settings....**

10. Enter the assigned IP address of the <u>Uniden Data 2000</u> and the Primary DNS.

11. Click **OK**.

12. Deselect **Use IP header compression.**

13. Select **Use default gateway on remote network**.

14. Click **OK** twice.

2.4.5 Setting Up Dial-Up Networking for PPP

Dial-Up Networking for PPP is automatically created when installing
UD Host Application (Section 2.2) If the computer has installed
multiple modems, make sure to click on **Connect Using** and select
Uniden Data 2000 PC Card.

To setup Dial-Up Networking for PPP, take the following steps:

1. Double-click on the **My Computer** icon.

2. Open the **Dial-Up Networking** folder.

Verify that a file **PC Card PPP** was created. (It should be generated
during Host Application Installation). If the file is not found, continue
with the following procedures.

3. Double-click on the **Make New Connection** icon.

4. When you are instructed to select a modem, click on **Uniden
   Data 2000 PC Card**. Change the name of the connection
   from **My Connection** to **PC Card PPP**, then click **Next**.

5. Enter the single digit: **0** in the **Telephone Number** box.
   Deselect **Use Country code and area code**.

6. *Right* click on **PC Card PPP** to activate the Pccard screen.
   Select **Properties**.

7. Click **Next**, then click **Finish** to create a new Windows 95 connection icon named Pccard.
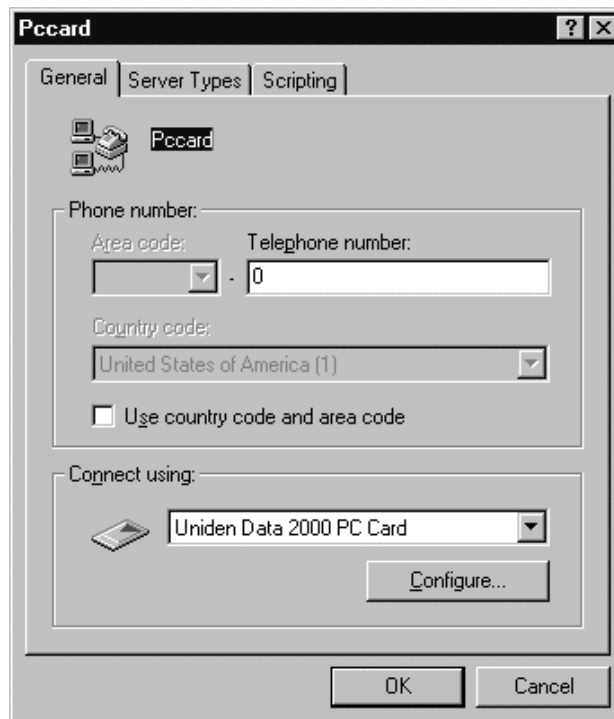
8. Click on **Server Type**.

9. From the **Type of Dial-Up Server** box, click on **PPP**: **Windows 95**, **Windows NT**, **Internet**.

10. In the **Advanced Options** box, deselect **Log on to Network**, **Enable software compression**, and **Require encrypted password**.

11. In the **Allowed network protocols** box, deselect **NetBEUI**, and **IPX/SPX Compatible**.

12. Select **TCP/IP**.

13. From the **TCP/IP Settings** box, if you have been given the address of a Domain Name Server (DNS), select Specify name server addresses. Enter the address as your Primary DNS.

Note: A DNS is needed to access sites by name, i.e. www.uniden.com.

14. Deselect **Use IP header compression**.

15. Select **Use default gateway on remote network**.

16. Click on **OK** 3 times to exit the properties program.

2.4.6 Adding TCP/IP Protocol Support

To add TCP/IP protocol support, take the following steps:

1. Double-click on the **Network** icon in the Control Panel.

2. Click **Add**.

3. Click **Protocol**, then click **Add**.

4. From the **Manufacturers** box, select **Microsoft**.

5. From the **Network Protocols** box, select **TCP/IP**.

6. Click **OK** twice. Now Windows 95 will install the TCP/IP stack and any other protocol it requires.

7. After the protocols are installed, click **OK**.

8. Restart Windows 95.

2.4.7 Connecting to the CDPD Network

To connect to the CDPD Network, take the following steps:

1. Double-click the new icon you created in the previous section.

2. A window should appear, displaying the progress of your connection. Within a few seconds, the connection display should show that a connection has been established. Once this has occurred, you may minimize the window and proceed with Windows 95 Internet programs such as web browsers and e-mail.

2.5   Installation Procedures/Windows 98

Follow the steps below to create Dial-up Networking to connect your Uniden Data 2000 to the Internet.

To install the Uniden Data 2000, take the following steps:

1. Insert the Uniden Data 2000 into the PC Card slot of the host computer you are using.

2. Move the On/Off Power Switch to the 'on' position.

The following dialog box displays on screen:

3. Click **Next**.

4. Select **Display a list of all the drivers in a specific location , so you can chose the driver you want**. Click **Next**.

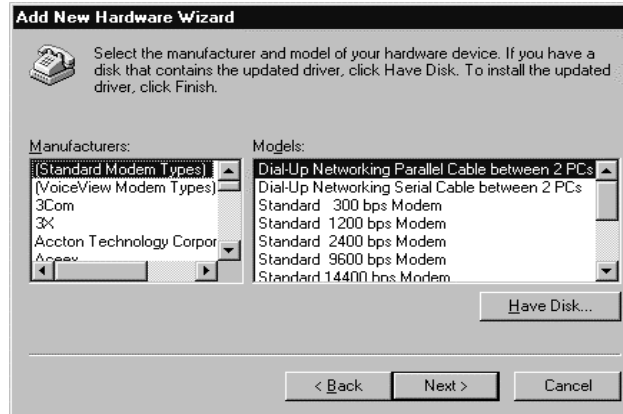5. Select **Modem** from the list and click **Next**.

6. Click **Have Disk...**

7. When **Install From Disk** dialog appears, change the drive
    name to an appropriate one in **Copy manufacturer's files
    from** such as **D:** for CD-ROM. Then click **OK**.

8.   Click **Next**.

Add New Hardware Wizard

Select the manufacturer and model of your hardware device. If you have a disk that contains the updated driver, click Have Disk. To install the updated driver, click Finish.

Models:

Uniden Data 2000 PC Card [3-12-1998]

Have Disk...

< Back   Next >   Cancel

9.   Click **Next**.

Add New Hardware Wizard

Windows driver file search for the device:

Uniden Data 2000 PC Card

Windows is now ready to install the selected driver for this device. Click Back to select a different driver, or click Next to continue.

Location of driver:

D:\UD2K.INF

< Back   Next >   Cancel
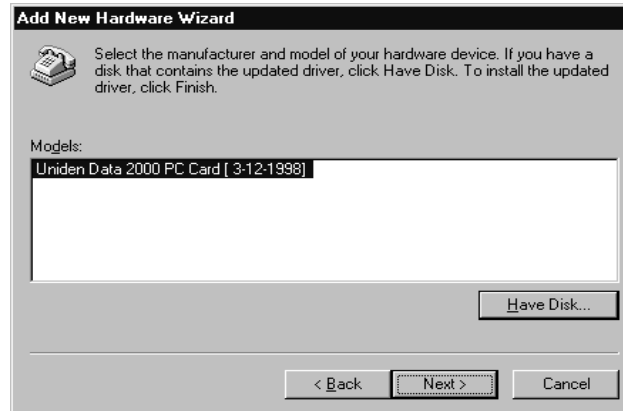
10. Click **Finish**.

To check to see which COM port was selected during the setup process, take the following steps:

1. Click the **Start** button on your Windows 98 desktop, then select **Settings**, **Control Panel**.

2. Double-click the **Modems** icon.

3. Select **Uniden Data 2000 PC Card.**

4. Click **Properties**.
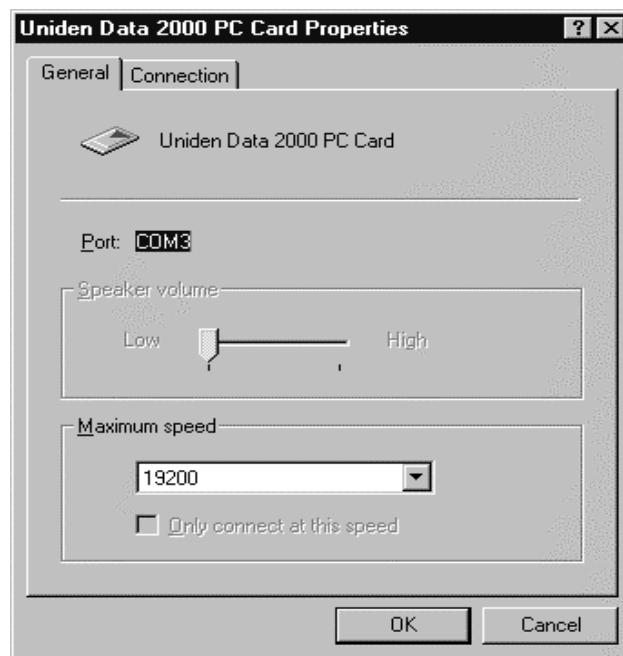
The following dialog box displays on screen:

5. The COM port that was selected during the setup process is displayed on the **General** tab.

2.5.1 Verifying the Connection

The host computer should display a <u>Uniden Data 2000</u> icon in the system tray when the PC Card has made a proper connection. If you do not see this icon on screen, take the following steps to determine if your host computer has been set to display system tray icons:
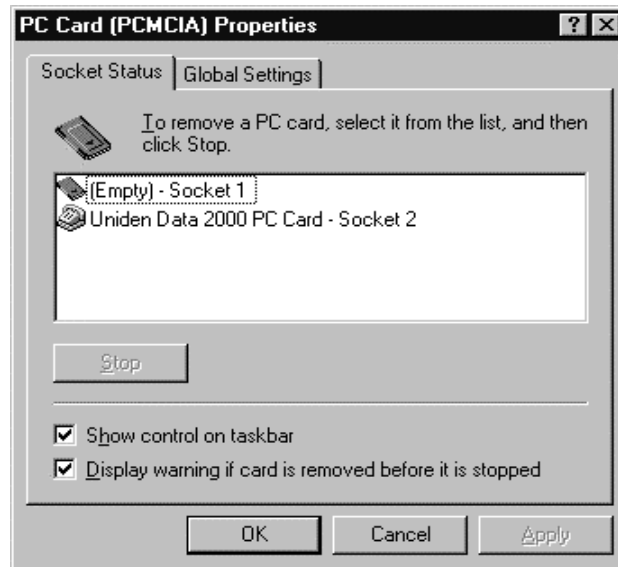
1. Click the **Start** button on your Windows 98 desktop, then select **Settings**, **Control Panel**.

2. Double-click the **PC Card** (PCMCIA) icon.

The following dialog box displays on screen:

3   Select the **Show control on taskbar** check box, then click **OK**.

If you have verified that the host computer has been set to display system tray icons, and you do not see the Uniden Data 2000 icon in the system tray, the Uniden Data 2000 has not made a proper connection. Remove and reinsert the Uniden Data 2000. If it still does not connect, contact Uniden Customer Service center at 1-888-6-UNIDEN.

If the Host Applications (UD Config and Insight) have loaded success-fully, go to Section 2.11 to configure the modem for use with the cellu-lar network using UD Config. In addition, you may also view the oper-ational status and statistics using UDInsight.

2.6   Using Windows 98 Dial-Up Networking

To use your <u>Uniden Data 2000</u> modem with Windows 98 Dial-up
Networking, take the following steps:

2.6.1 Checking Dial-Up Networking Installation

To determine if dial-up networking is already installed, double-click on
the My Computer icon. If you don't see an icon for Dial-Up
Networking, you will need to add this feature:

2.6.2 Installing Dial-Up Networking.

If Dial-up networking is not installed, follow these steps:

> *<u>Note</u>*: It is possible that Windows 98 setup software will be
> required for installation.

1.   Click on the **My Computer** icon.

2.   Select **Control Panel**.

3.   Select **Add/Remove Programs**.

4.   Select **Windows Setup** tab.

5.   Select **Communication**.

6.   Check the Dial-Up Networking box, then click **OK**.

Depending on your preference, or the host configuration, you can use
SLIP or PPP Dial-up Networking to interface with the host computer.
For SLIP, see Section 2.6.3. For PPP see Section 2.6.4.

2.6.3 Installing Windows 98 Support for SLIP

1.   Click on the **My Computer** icon.

2.   Select **Control Panel**.

3.   Select **Add/Remove Programs**.

4.   Select the **Windows Setup** tab.

5.   Insert a floppy disk or CD-ROM with **rnaplus.inf**.
     Click **Have Disk**.

6.   Check the file path. Click **OK**.

7.   Check the box for **Unix Connection** for **Dial-Up
     Networking then click Install.**

### 2.6.4 Setting Up Dial-Up Networking for SLIP

To set up Dial-up Networking, take the following steps:

1. Double-click on the **My Computer** icon.

2. Open the **Dial-Up Networking** folder.

3. Double-click on the **Make New Connection** icon. Follow the instructions provided for making a new connection.

4. When you are instructed to select a modem, click on **Uniden Data 2000 CDPD Modem**. Change the name of the connection from **My Connection** to **PC Card SLIP**. Click **Next**.

5. In the **Telephone Number** box, enter the single digit: **2**. Click **Next**, then click **Finish** to create a new Windows 98 connection icon named PC Card SLIP.

6. Select the new icon with the right mouse button. From the sub-menu, click **Properties**.

7. Select the Server tab.

8. Select **SLIP: Unix Connection.**

9. Deselect **Log on to network**.
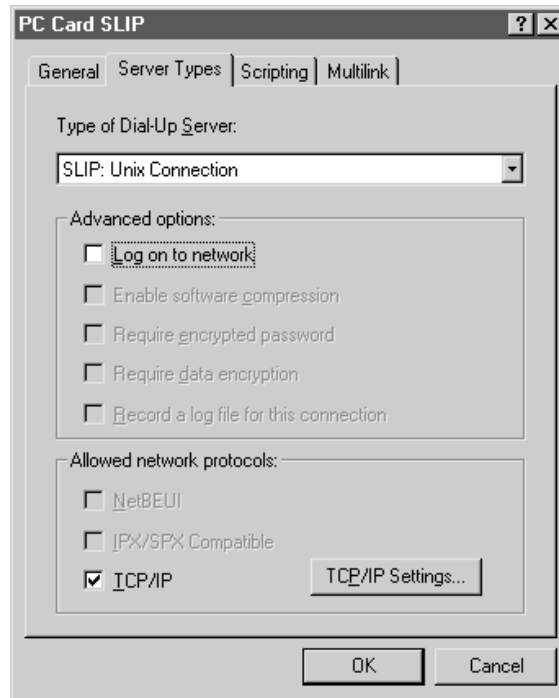
10. Click **TCP/IP Settings....**

11. From **SLIP TCP/IP settings** dialog box, enter the IP Address provided by your CDPD carrier.

12. If you have been given the address of a Domain Name Server (DNS), select **Name server addresses**. Enter the address as your **Primary DNS.**

Note: A DNS is needed to access sites by name, e.g. www.uniden.com.

13. Deselect **Use IP header compression.**

14. Select **Use default gateway on remote network**.

15. Click **OK** twice.

2.6.5 Setting Up Dial-Up Networking for PPP

Dial-Up Networking for PPP is automatically created when installing Uniden Data 2000 host application (Section 2.2). If the computer has installed multiple modems, be sure to click **Connect Using** and select Uniden Data 2000 PC Card.

To setup Dial-Up Networking for PPP, take the following steps:

1. Double-click on the **My Computer** icon.

2. Open the **Dial-Up Networking** folder.

Check for a file called **PC Card PPP** (generated automatically during Host Application Installation). If the file is not found, proceed with the following procedure:

3. Double-click on the **Make New Connection** icon.
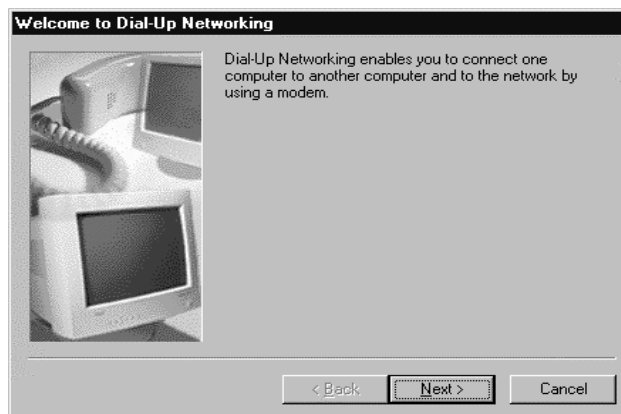
4. When you are instructed to select a modem, click on <u>Uniden Data 2000 PC Card</u>. Change the name of the connection from **My Connection** to **PC Card PPP**, then click **Next**.

5. Enter the area code and enter the single digit: **0** in the Telephone Number box, then click **Next**.

6. Click **Finish** to create a new Windows 98 connection icon named PC Card PPP.
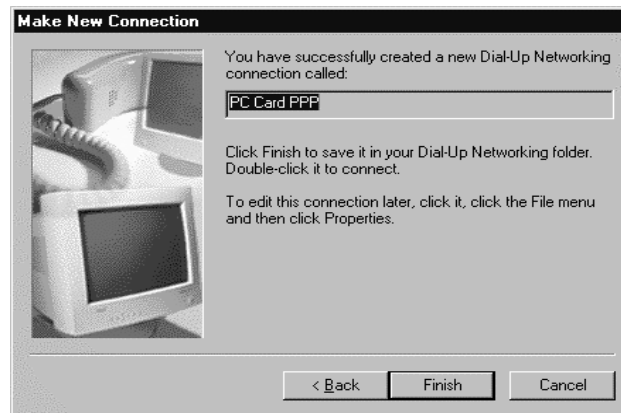
7. Right click on **PC Card PPP** to obtain the PC Card PPP screen. Select **Properties**.

8. Deselect **Use area code and Dialing Properties** and click on the **Server Types** tab.
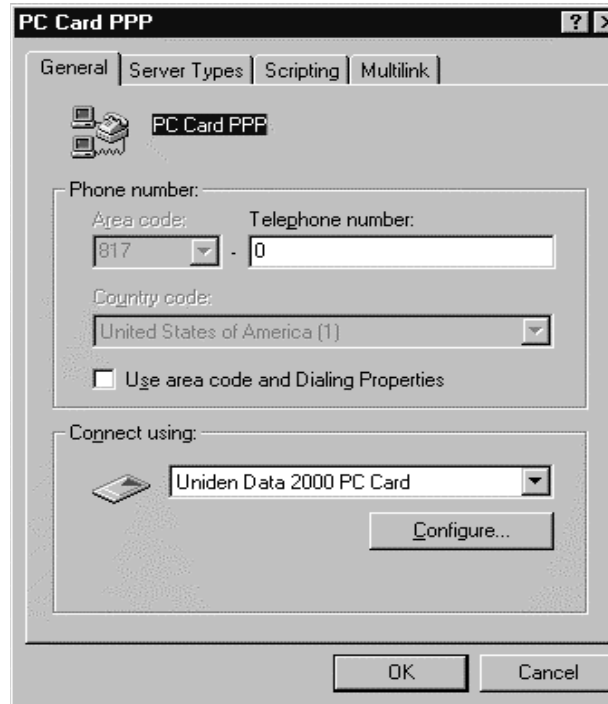
9. From the **Type of Dial-Up Server** box, select **PPP**: **Internet**, **Windows NT Server**, **Windows 98**.

10. In the **Advanced Options** box, deselect **Log on to Network**, **Enable software compression**, and **Require encrypted password**, **Require data encryption**, **Record a log file for this connection**.

11. In the **Allowed network protocols**, deselect **NetBEUI** and **IPX/SPX Compatible** and select **TCP/IP**.
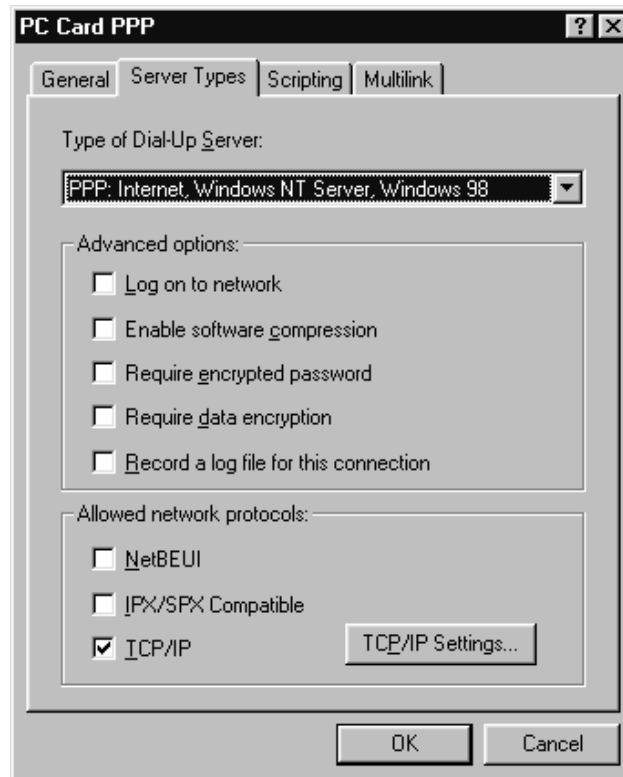
12. Click **TCP/IP Settings**.

13. From the **TCP/IP Settings** box, if you have been given the address of a Domain Name Server (DNS), select **Specify name server addresses**. Enter the address as your Primary DNS.

<u>*Note*</u>: A DNS is needed to access sites by name, i.e. www.uniden.com.

14. Deselect **Use IP header compression**.

15. Select **Use default gateway on remote network**.

16. Click **OK** twice to exit.

2.6.6 Adding TCP/IP Protocol Support

To add TCP/IP Protocol Support, take the following steps:

1. Double-click on the **Network** icon in the **Control Panel**.

2. Click **Add**.

3. Click **Protocol**, then click **Add**.

4. From the **Manufacturers** box, select **Microsoft**.

5. From the **Network Protocols** box, select **TCP/IP**.

6. Click **OK** twice. Windows 98 installs the TCP/IP stack and any other protocol it requires.

7. After the protocols are installed, click **OK**.

8. Restart Windows 98.

2.6.7 Connecting to the CDPD Network

To connect to the CDPD Network, take the following steps:

1. Double-click the new icon you created in the previous section.

2. A window should appear, displaying the progress of your connection. Within a few seconds, the connection display should show that a connection has been established. Once this has occurred, you may minimize the window and proceed with Windows 98 Internet programs such as web browsers and e-mail.

2.7 Installation Procedures/Windows NT

Follow the steps below to create Dial-up Networking to connect your Data 2000 to the Internet.

1. Turn your host computer off.

2. Insert the <u>Uniden Data 2000</u> into the PC Card slot of your host computer.

3. Move the <u>Uniden Data 2000</u> On/Off Power Switch to the 'on' position.

4. Turn your host computer on.

    Note: Windows NT does not support hot swapping, (the process of inserting or removing a PC Card into or from a PC Card slot while the host computer is running). Therefore, you must turn your host computer off before inserting or removing the <u>Uniden Data 2000</u>.

Uniden recommends using a third party vendors' PC card drive to enable hot swapping. Please contact 1-888-6-UNIDEN, or visit our web-site www.uniden.com to obtain PC card driver information.

To check which COM port was selected during the setup process, take the following steps:

5. Click the **Start** button on your Windows NT desktop, then select **Settings**, **Control Panel**.

6. Double-click the **PC Card (PCMCIA)** icon.

7. Select **Uniden Data 2000 PC Card**.

8. Click **Properties**.

9. The COM port that was selected during the setup process is displayed on the **Card Info** tab.

2.7.1 Verifying the Connection

1. Click the **Start** button on your Windows NT desktop, then select **Settings**, **Control Panel**.

2. Double-click the **PC Card (PCMCIA)** icon.

The following dialog box displays on the screen:
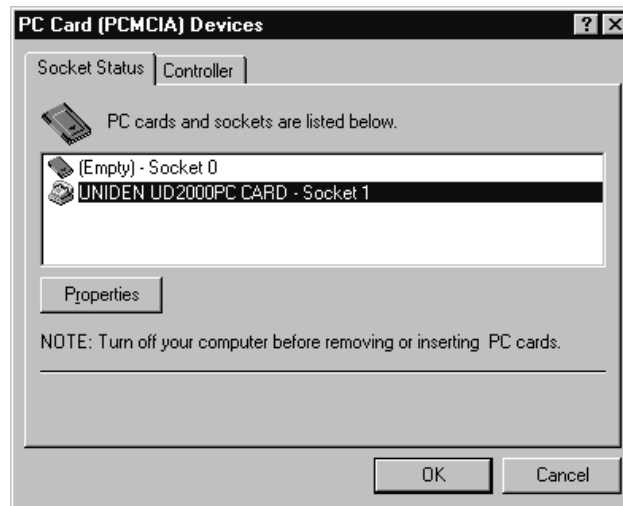
If <u>Uniden Data 2000</u> PC Card is shown at one of the PC Card sockets, the <u>Uniden Data 2000</u> is properly installed to Windows NT.

If the Host Applications (UDConfig and Insight) have loaded success-fully, go to Section 2.11 to configure the modem for use with the cellular network using UD Config. In addition, you may also view the operational status and statistics using UDInsight.

2.8 Using Windows NT Dial-up Networking

To use your <u>Uniden Data 2000</u> modem with Windows NT Dial-Up Networking, take the following steps:

2.8.1 Checking Dial-up networking installation

To determine if dial-up networking is already installed, double-click on the **My Computer** icon. If you don't see an icon for Dial-Up Networking, you will need to add this feature:

2.8.2 Installing Dial-up networking.

If Dial-Up Networking is not installed, follow these steps:

To install the Dial-Up Networking, insert the Windows NT workstation installation CD-ROM into the CD-ROM drive and take the following steps.

1. Click **Install**.

2. Click **Yes**.

Remote Access Setup

? There are no RAS capable devices to Add. Do you want RAS setup to invoke the Modem installer to enable you to add a modem?

Yes | No
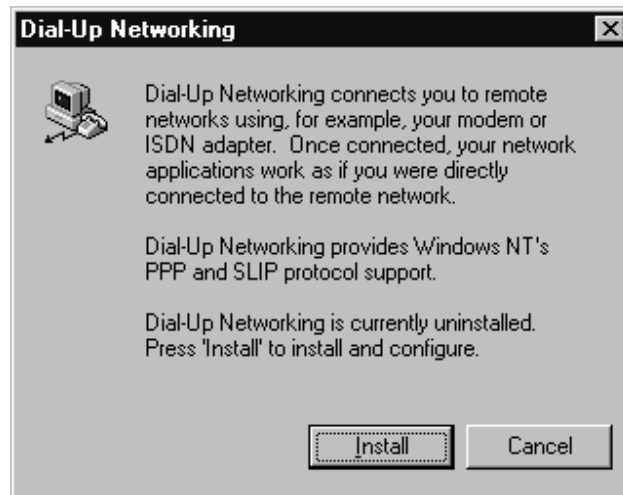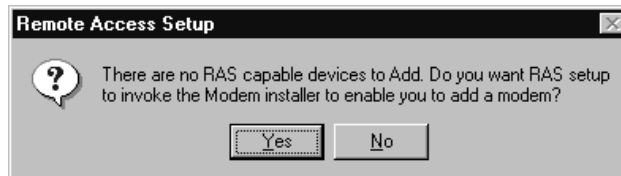
3. Select **Don't detect my modem; I will select it from a list**, then click **Next.**

Install New Modem

Windows NT will now try to detect your modem. Before continuing, you should:

1. If the modem is attached to your computer, make sure it is turned on.

2. Quit any programs that may be using the modem.

Click Next when you are ready to continue.

☑ Don't detect my modem; I will select it from a list.

< Back | Next > | Cancel
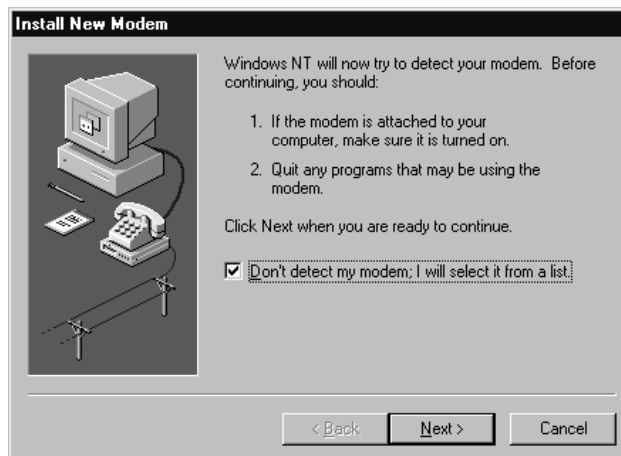
4. Click **Have Disk...**
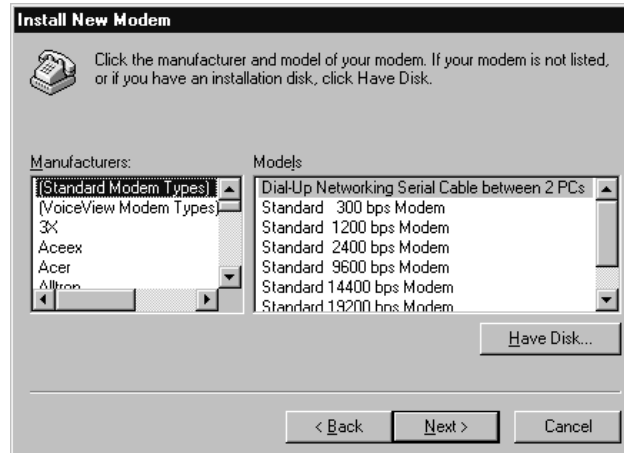
5. Insert a Uniden Data 2000 Setup and Installation floppy disk or CD-ROM with the file **ud2k.inf**.
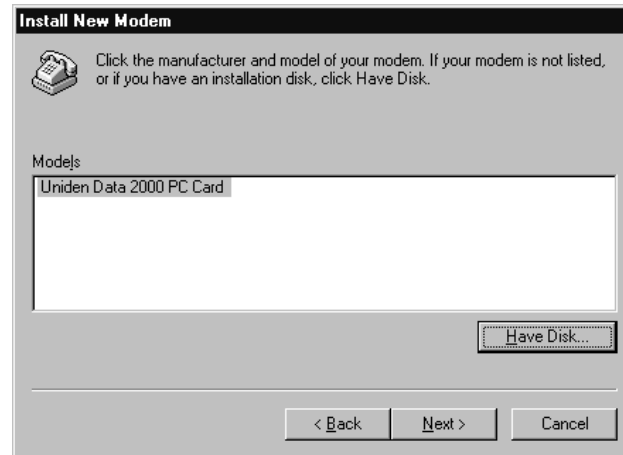
6. Click **Next**.

7. Select the COM port assigned to the <u>Uniden Data 2000</u>, then click **Next**.
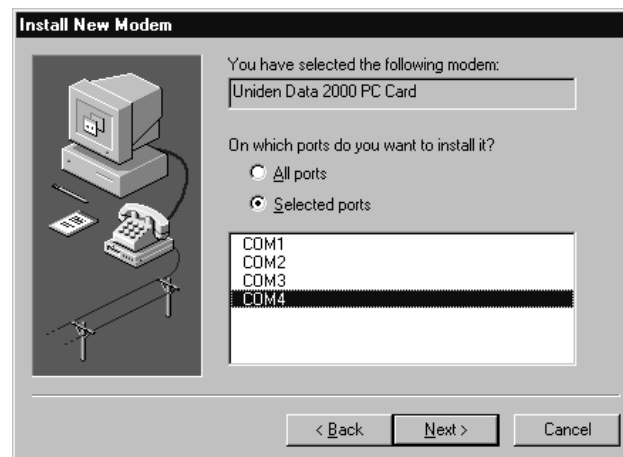
Note: If you do not remember the COM port assigned to the
Uniden Data 2000, open **PC Card dialog** from the Control Panel,
then click **Properties for the UD2000**. It will show the COM
port at the Device Map.
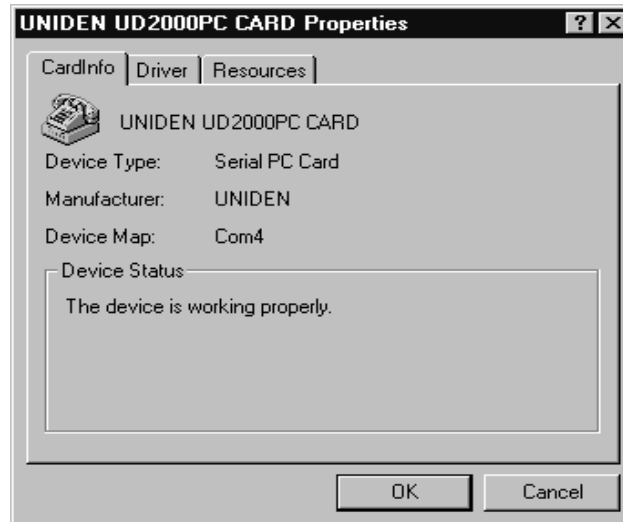
10. Click **Finish**.

11. Select **UD2000 for the RAS Capable Devices**, then click **OK**.
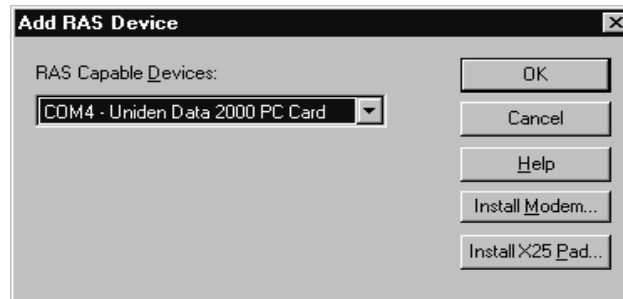
12. Click **Network**.
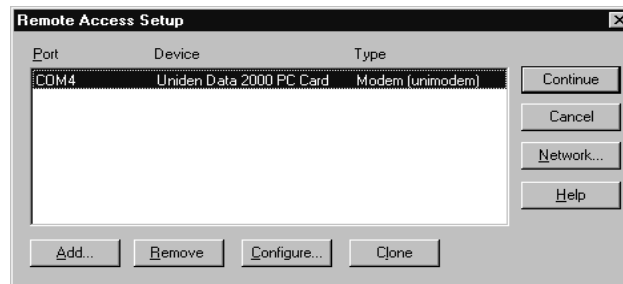
13. Select **TCP/IP**, then click **OK**
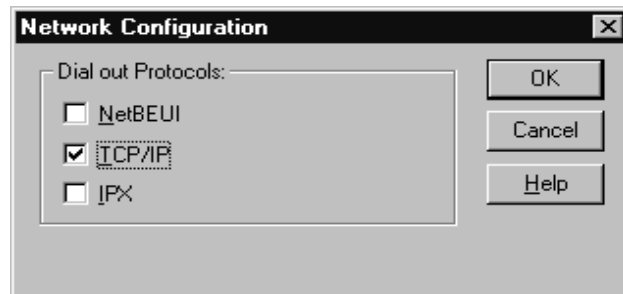
14. Click **Continue**. WindowsNT will copy all required files from the Windows NT installation CD-ROM.

15. Click **Restart**.

Note: Dial-Up Networking is part of the Remote Access Service (RAS). You must be an administrator to install RAS.

You may take the following procedure to install RAS:

1. Click on the **My Computer** icon.

2. Select **Control Panel**.

3. Select **Network**.

4. Select **Services** tab.

5. Select **Add**.

6. Check the **Remote access service** box, then click **OK**.

7. Select **Uniden Data 2000 PC Card for RAS Capable Devices**, then click **OK**.

8. Click **Continue**.

9. Click **Close** on the Network dialog.

2.8.3 Setting Up Dial-Up Networking for SLIP

1. Double-click on the **My Computer** icon.

2. Open the **Dial-Up Networking** folder.

3. Click **More** and select **Edit entry and modem properties**.

4. From the **Edit phone book entry dialog** box, select the **Basic** tab.

5. Enter **PC Card SLIP** in the **Entry name** box.

6. Enter **Uniden Data 2000 PC Card Modem** in the **Dial using** box.

7. Enter **2** in the **Phone number** box.

Edit Phonebook Entry				? ☒
Basic	Server	Script	Security	X.25

Entry name: UD2000 SLIP

Comment:

Phone number: 2   Alternates...
                ☐ Use Telephony dialing properties

Dial using: Uniden Data 2000 PC Card (COM4 ▾   Configure...
                ☐ Use another port if busy

OK   Cancel

8. Select the **Server** tab.

9. From the **Dial-Up server type** box, select **SLIP: Internet.**

10. Check **TCP/IP** in Network protocols.

11. Click **TCP/IP Settings**.
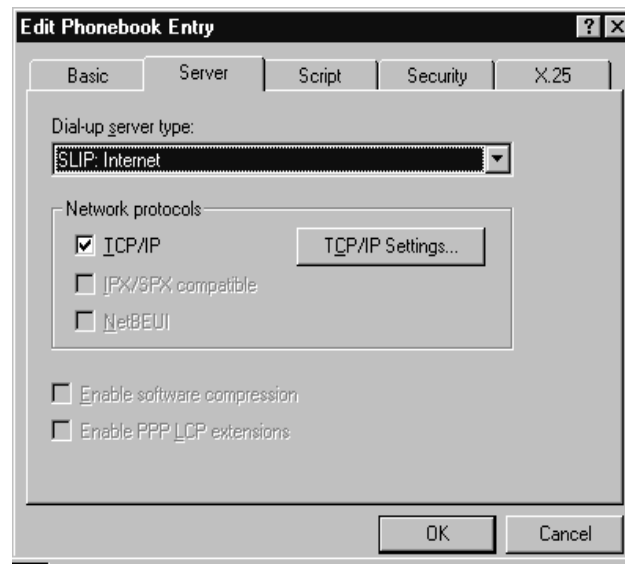
12. From **SLIP TCP/IP settings dialog** box, enter the IP Address provided by your CDPD carrier.

13. If you have been given the address of a Domain Name Server (DNS), select **Name server addresses**. Enter the address as your Primary DNS.

Note: A DNS is needed to access sites by name, e.g. www.uniden.com.

14. Deselect **Force IP header compression**.

15. Select **Use default gateway on remote network**.

16. Click **OK** twice.

2.8.4 Installing Windows NT Support for SLIP

1. Click on the **My Computer** icon.

2. Select **Control Panel**.

3. Select **Add/Remove Programs**.

4. Select the **Windows NT Setup** tab.

5. Click **Have Disk**. Insert Uniden Data 2000 Setup and Installation disk or CD-ROM, then click **OK**.

6. Select **Unix Connection for Dial-Up Networking**, then click **Install**.

Have Disk

Click the box next to an item to add or remove a check mark. A check means you want the component on your computer; no check mark means you don't want the component.

Components:

☐ 🖼 Unix Connection for Dial-Up Networking	0.1 MB

Space required: 0.0 MB
Space available on disk: 479.0 MB

Description

Allows you to connect to Unix machines through Dial-up Networking

[Details...]

[Install] [Cancel]

2.8.5 Setting Up Dial-Up Networking for PPP

Dial-Up Networking for PPP is automatically created when installing the Uniden Data 2000 host application (Section 2.2) If the computer has installed multiple modems, make sure to click on **Connect Using** and select **Uniden Data 2000 PC Card**. To setup Dial-Up Networking for PPP, take the following steps:

1. Double-click on the **My Computer** icon.

2. Double-click the **Dial-Up Networking** icon.

3. Click **OK** if there is a dialog, **The phone book is empty**. Press **OK** to add an entry.

4. Enter **PC Card PPP** in the **Name the new phone book entry**, then click **Next**.

5. Click **Next** without checking any of listed selections.

6. Enter **0** for Phone number, then click **Next**.

7. Click **Finish**.

8. Click **More** and select **Edit entry and modem properties**.

9. From the **Edit Phone book Entry dialog** box, select the **Basic** tab.

10. Select **Uniden Data 2000 PC Card Modem** in the **Dial using** box.

11. Enter **0** in the **Phone number** box.

12. Select the **Server** tab.

13. From the **Dial-up server** type box, select **PPP: Windows 95**, **Windows NT**, **Internet.**

14. Check **TCP/IP** in **Network protocols**.

15. Click **TCP/IP Settings**.
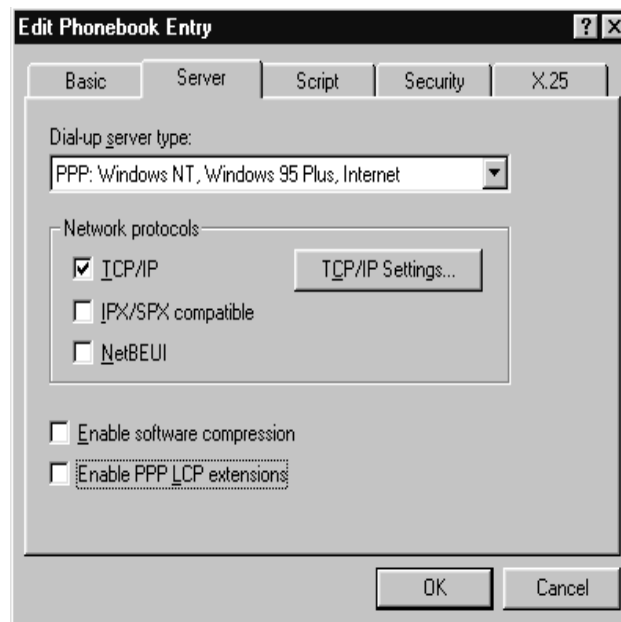
16. If you have been given the address of a Domain Name Server (DNS), enter the address as your Primary DNS.

Note: A DNS is needed to access sites by name, i.e. www.uniden.com.

17. Deselect **Use IP header compression**.

18. Select **Use default gateway on remote network**.

19. Click **OK** twice.

2.8.6 Adding TCP/IP Protocol Support

In order to add TCP/IP protocol support, Windows NT requires that the user be the administrator. To add TCP/IP protocol support, take the following steps:

1. Click the **Start** button on your Windows NT desktop, then select **Settings**, **Control Panel**.

2. Double-click on the **Network** icon.

3. Choose the **Protocols** tab, then click **Add**.

4. From the **Select Network Protocol dialog** box, select **TCP/IP Protocol** , then click **OK**.
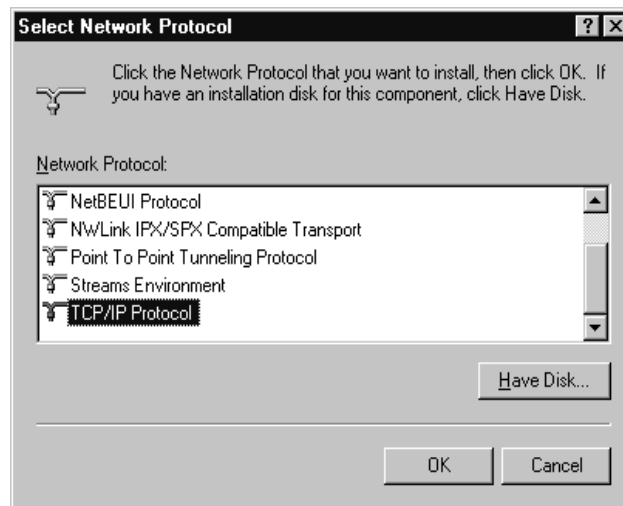
5. Restart Windows NT.

2.8.7 Connecting to the CDPD Network

To connect to the CDPD Network, take the following steps:

1. Select **Dial-up Networking** from **Start - Programs - Accessories**, or Double-Click the **Dial-Up Networking** icon in **My Computer**.

2. Select the entry for the **Uniden Data 2000** from **Phone book entry to dial** menu. Then, click **Dial**.

Note: No data entry is necessary for User Name, Password and Domain Field.

3. A window should appear, displaying the progress of your connection. Within a few seconds, the connection display should show that a connection has been established. Once this has occurred, you are ready to proceed with Windows NT Internet programs such as web browsers or e-mail.

2.9 Installation Procedures/Windows CE

Follow the steps below to create Dial-up Networking to connect your Uniden Data 2000 to the Internet.

To install the Uniden Data 2000 Host Application for Windows CE, take the following steps:

1. Establish the mobile device connection between host PC and your Windows CE handheld computer.

2. Insert the Uniden Data 2000 Setup and Installation CD-ROM into the CD-ROM drive of your host computer.

3. Open the Windows CE folder on the CD-ROM.

4. Open either **CE Pro (2.11)** or **CE v2.0** according to your handheld PC system version.

5. Start **Setup.exe** to install the Host Applications to the Handheld computer.

6. UDConfig and UDInsight shortcut icons will be displayed on the desktop when the installation is complete.

To install the Uniden Data 2000, take the following steps:

1. Insert the Uniden Data 2000 modem into the PC Card slot of the host terminal you are using.

2. Power on the Uniden Data 2000.

3. Double click the **UDConfig** icon on the desktop of the handheld computer.

4. Click **Setup** when a message Click. **Setup to Continue...** is shown in the dialog.

5. When the CDPD sheet is shown, select one of the side preferences for your Uniden Data 2000. Click **Network tab**.

6. Enter the Active IP Address of your Uniden Data 2000. Then click **Power Mgt** tab.

7. Select one of the **Power Management Modes** and enter timer value if needed.

8. Click **Save** tab and wait for **Finished saving the Settings!!** to be displayed on the screen.

9. Click **OK** *or* click **X** in the upper right corner of the screen to exit the UD2000 setup.

2.10 Using Windows CE Remote Networking

To use your <u>Uniden Data 2000</u> Modem with Windows CE Remote Networking, take the following steps:

2.10.1 Installing Remote Networking

1. From the **Start**, click **Programs**. Click **Communication**. Click **Remote Networking**.

2. In the **Remote Networking** window, double-click **Make New Connection**.

3. Type **UD2000** in the **Type a name for the connection** and select **Dial-up Connection**.

4. Click **Next**.

5. Select **UNIDEN-UD2000PC_CARD** for the **Select a modem**:

6. Click **TCP/IP** Settings. Deselect **Use software compression** and **Use IP header compression**.

7. Click **Name Servers** tab.

8. Deselect **Server-assigned addresses** and enter the IP address of the DNS provided by your CDPD carrier. Then, click **OK**.

9. Click **Next**.

10. Enter your **Country code**, **Area code** and enter **0** for the Telephone number. Select **Force local**.

11. Click **Finish**.

2.10.2 Connecting to the CDPD Network

To Connect to the CDPD Network, take the following steps:

1. Double click the new icon you created in the previous section.

2. Leave User Name, Password and Domain Blank.
   Then, click **Connect**.

A Window should appear, displaying the progress of your connection. Within a few seconds, the connection display should show a remote networking connection has been established.

3. Minimize the window and proceed with Windows CE Internet programs such as web browsers or e-mail.

Note: If you cannot connect to the network, connect manually by opening the properties of <u>Uniden Data 2000</u> Remote Network and selecting **Manual Dial**. Start the <u>Uniden Data 2000</u> network as described above. When a terminal screen displays, click **OK**, or select **Continue** from the **File** menu.

2.10.3 Modem Status Check

1. Establish the Remote Network Connection according to Section 2.10.2.

2. Double click the **UDInsight CE** icon to check the connection status.

> ***Important***: For WindowsCE v2.0, use UDInsight only when the Remote Network connection is established. Run UDInsight after Remote Networking connection is established. Exit UDInsight prior to disconnecting the Dial Up network. Failure to follow this instruction may cause the UDInsight window freeze and system reset may be required

2.11 Uniden Data 2000 Host Applications

There are two host applications provided with the Uniden Data 2000: UDConfig and UDInsight. UDConfig allows the user to configure and modify the parameters of the Uniden Data 2000. UDInsight provides insight to the user regarding the state and status of the Uniden Data 2000 in the SLIP and PPP modes.

Please refer to Section 2.12, **UD Configuration and Insight Operation** for Host Application Operation.

> ⚠ **_Important:_** UDConfig requires the Uniden Data 2000 to be in AT command mode in order to operate, not SLIP or PPP mode.

> ⚠ **_Important:_** UDInsight requires the Uniden Data 2000 to be in PPP or SLIP or PPP mode with Dial-Up networking installed.

2.11.1   UDConfig

UDConfig is a host application that allows the user to configure and modify the parameters of the Uniden Data 2000. UD Config provides two modes, Setup Wizard and Advanced mode. The Advanced mode has 9 tabbed dialogs which represent the 9 different parameter areas that are accessible to the user.

2.11.1.1   Setup Wizard

To confugure the Uniden Data 2000, take the following steps:

1. Insert the Uniden Data 2000 into the PC Card slot of the host terminal you are using.

2. Move the **On/Off** Power Switch to the 'on' position.

3. Double-click the **UDConfig** icon or select **UDConfig** from the Start Menu. (**Start** ➝ **Programs** ➝ **UD2000 Host Application**).

   UD Config will search for the location of your Uniden Data 2000 modem. Please wait until the Setup Wizard screen appears.

4. Click **Setup Wizard**.

Welcome to Uniden

Welcome to the Uniden Data Device Configuration

Please choose between Setup Wizard and Advanced mode.

Setup Wizard is for first time users to setup and verify the readiness of their Uniden Data Device.

Advanced mode is designed to allow knowledgeable users to further configure their Uniden Data Device to meet their specific needs.

Setup Wizard | Advanced Mode

5. Click **Next**.

Setup Wizard - UD Device Location and Code Version

Comm configuration
Your Uniden Data Device is currently on COM3 at 28.8 kbps.

UD Code Version
Boot Version : BOOT Alpha 1.5
(GMT Mon Apr 27 20:40:59 1998)

Software Version : PCCARD CORE Alpha 1.u
(GMT Wed Feb 17 21:47:36 1999)

UD Config Code Version
UD Config UD Config Version 2.0 Copyright (C)
Built: Feb 24 1999 at 14:23:44

< Back | Next > | Cancel

6. Call your CDPD service provider and give them the EID to obtain an IP (NEI) of your <u>Uniden Data 2000</u> as described in Section 2.1.3. Click **Change IP Address**.

7. Enter the IP Address (NEI) given to your <u>Uniden Data 2000</u> in one of 10 fields and click **Default** to activate it. Click **Apply**.

8. Click **Next**.

9. Select the side preference and click **Next**.

10. Wait for the <u>Uniden Data 2000</u> to register to the Network.

Note: If it does not register to the network in a few minutes, go back to the IP Address display and check the **IP Address**.
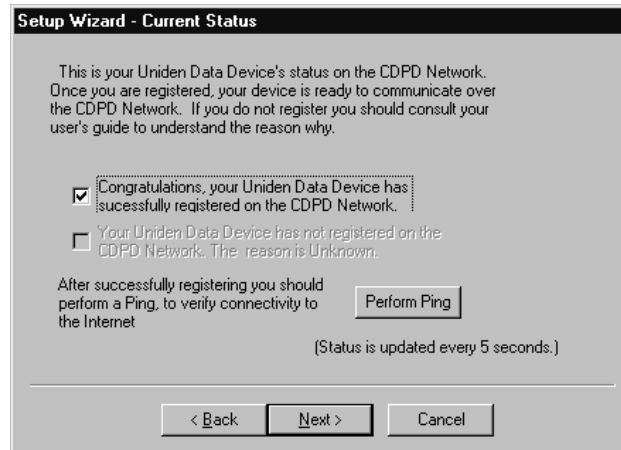
11. When your Uniden Data 2000 is registered, cl.ick **Perform Ping**. Select an IP Address to ping and click **Start Ping**.
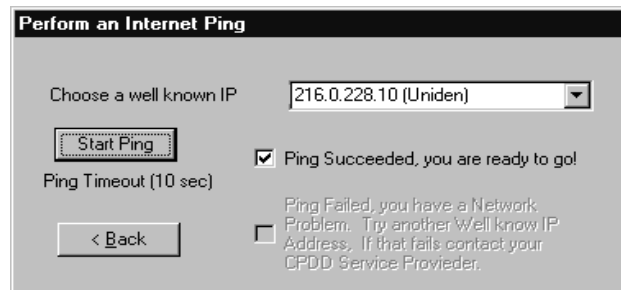
12. If Ping is successful, connectivity to the internet is confirmed. Click **Back**.

13. Click **Next**.

```
Setup Wizard - Current Status

       This is your Uniden Data Device's status on the CDPD Network.
       Once you are registered, your device is ready to communicate over
       the CDPD Network.  If you do not register you should consult your
       user's guide to understand the reason why.

       ☑  Congratulations, your Uniden Data Device has
           sucessfully registered on the CDPD Network.

       ☐  Your Uniden Data Device has not registered on the
           CDPD Network. The  reason is Unknown.

       After successfully registering you should
       perform a Ping, to verify connectivity to       [ Perform Ping ]
       the Internet
                                            (Status is updated every 5 seconds.)

                    [ < Back ]   [  Next >  ]    [ Cancel ]
```

14. Click **Finish**.

2.11.1.2 Advanced Mode

The nine areas are:

- Comm Settings

- Network

- CDPD

- Default Tables

- Modem

- Code Version

- Status

- AT Commands

- Power Management

Note: Each field within each tabbed dialog offers tool tips which explain the field's purpose, as well as how to select or add information to the field.
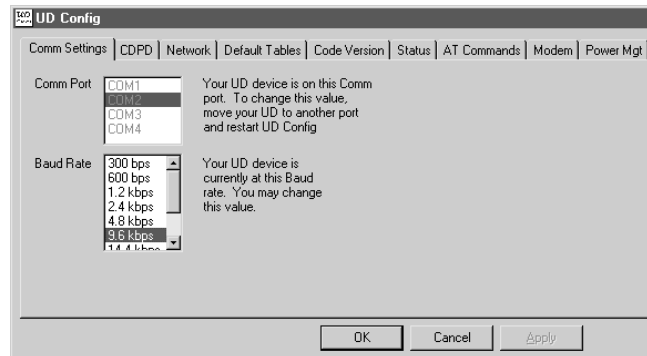
Comm Settings

The Comm Settings tab displays which COM Port the Uniden Data 2000 is configured to, as well as the baud rate it is using.

UDConfig searches for the Uniden Data 2000 upon startup. If it finds the Uniden Data 2000, it 'remembers' which COM port, and at which baud rate it found the Uniden Data 2000. Subsequent executions of UDConfig will then look for the Uniden Data 2000, starting from the previously saved settings. If UDConfig does not find the Uniden Data 2000, it begins a search, checking COM1 through COM5, using the following baud rates: 300, 600, 1200, 2400, 4800, 9600, 14,400, 19,200, 28,800 baud.

When UDConfig searches for the PC Card, the Comm Settings tab dialog is displayed first, indicating to the user where UDConfig found the PC Card. If UDConfig is located the Uniden Data 2000 at its previously stored location, the Comm Setting tabbed dialog displays last.

Beyond this, there is no particular order to the remaining UDConfig dialog tabs.

> **Note**: Each time the user switches from one tabbed dialog to another, the mouse changes to a hourglass icon while UDConfig loads the parameters from the Uniden Data 2000.

Network

The Network tab provides settings that identify the <u>Uniden Data 2000</u> to its network.

CDPD

The CDPD tab provides settings that define how the <u>Uniden Data 2000</u> interacts with the CDPD network.
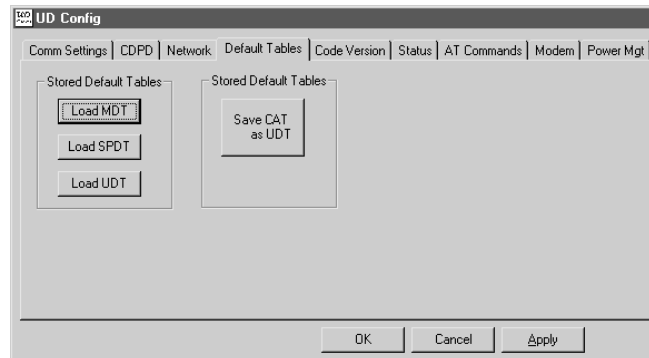
Default Tables

The Default Tables tab provides the controls to load and/or save preset tables of Uniden Data 2000 settings.

Modem
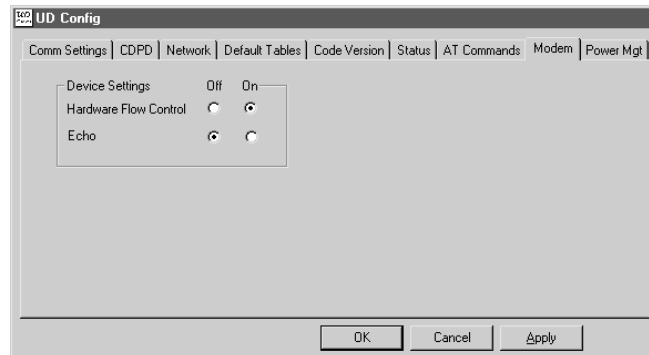
The Modem tab provides the modem type settings that define how the Uniden Data 2000 behaves as a modem.
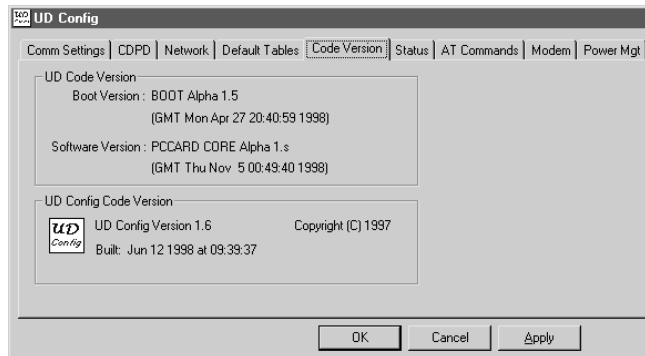
Code Version

The Code Version tab displays UDConfig's code version, the Boot and software versions which have been loaded in the Uniden Data 2000.

Status
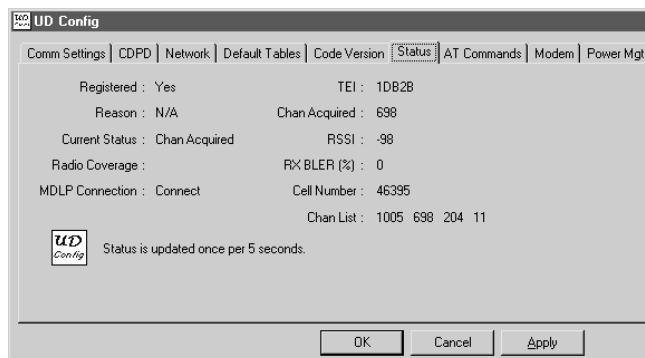
Registered: Registration Status

Reason: Registration Denied Reason

Current Status: Current Modem CDPD Status

MDLP Connection: MDLP Connection Status

TEI: Temporary Equipment Identification

Chan Acquired: Current Channel Number

RSSI: Receive Signal Strength Indication

RX BLER: Received Block Error Rate

Cell Number: Current Cell Number

Chan List: Current Channel List

2.11.2 UDInsight

UDInsight provides insight to the user regarding the state and status of the <u>Uniden Data 2000</u>. The application works when the <u>Uniden Data 2000</u> is in SLIP/PPP mode and a Winsock is in place and running. Winsocks include Windows 95/98/NT/CE Dial-up Networking, Trumpet, and other similar applications resident on a Windows 95/98/NT/CE platform.

When the <u>Uniden Data 2000</u> is in SLIP/PPP mode and a Winsock is in place, applications communicate to the <u>Uniden Data 2000</u> with UDP over IP packets, and sends a request for information from the <u>Uniden Data 2000</u>. The <u>Uniden Data 2000</u> replies with a response that includes the following data:

> **channel** - Current channel
>
> **rssi** - Received signal strength indication. Add to -113 to get true RSSI in dBm
>
> **regstate** - Registration state. 0= No; 1=Yes
>
> **reg_result** - Registration result code
>
> **spni** - Service provider network ID
>
> **cell_num** - Current cell number
>
> **wasi** - Wide area service ID
>
> **spi** - Service provider ID
>
> **data_sent** - Bytes sent
>
> **data_rcvd** - Bytes received
>
> **active_nei** [NEI_LEN] - Current IP address

These packets are sent and received (once every 5 seconds) depending on the users selected polling rate of UDConfig.

The following dialog box displays when UDInsight is accessed:
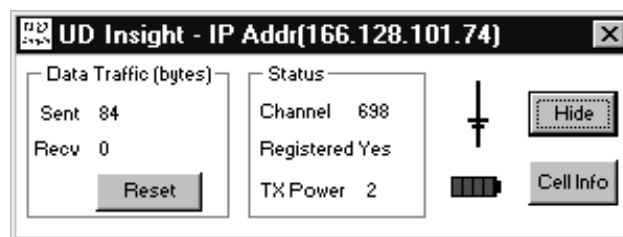
● The antenna icon has bars that represent 10 dB of RSSI, starting at -110. One bar is added for each 10 dB.

● The Cell Info button displays information regarding the specific cell that the Uniden Data 2000 is currently attempting to communicate with. Clicking the Cell Info button brings up the Cell Info dialog box:
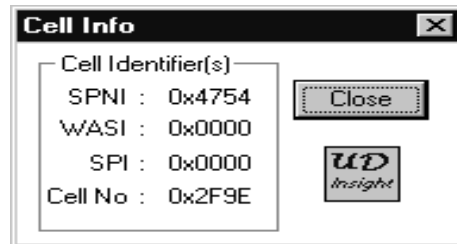
● To set the Polling rate of UDInsight, click the small **UDInsight** icon on the upper left corner of UDInsight dialog box and click the **Polling Rate** from the menu. The Polling dialog box will display and allow the polling rate to be set in the range of 5 to 3600 secs.

● When the Cell Info dialog box is displayed, the button used to display it changes from Cell Info, to Hide CI.
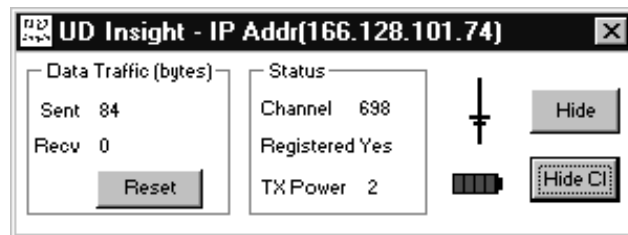
● The R button can be used to reset the Data Traffic counts to zero. These counts are relative, starting at zero each time the PC Card is powered up.

● The Uniden Data 2000's IP address is indicated in the UDInsight title bar.

- The Hide button reduces UDInsight to a system tray icon. Double clicking on the icon, will reopen UDInsight to its normal size and state. UDInsight continues to communicate whether it is minimized in the system tray, or maximized on the screen.

Note: The Uniden Data 2000 Insight icon in the system tray displays as UD with a colored dot.

green dot - the Uniden Data 2000 is registered.

red dot - UD Data 2000 is not registered.

yellow dot - the Uniden Data 2000 is in sleep mode.

black dot - the Uniden Data 2000 is in coma mode.

Note: Uniden Data 2000 Insight will run simultaneously while other applications are active, such as e-mail, web browsers etc.

A *Appendix: Specifications*

A.1   Size

Standard Portion

85 mm x 54 mm x 4.8 mm (3.37" x 2.12" x .19")

Extended Portion

64.3 mm x 57.9 mm x 20 mm (2.53" x 2.28" x .70"), including battery compartment.

A.2   Weight

141 g (5 oz), not including batteries.

A.3   PCMCIA Interface

PCMCIA Type II interface

A.4   Data Rate

19.2 Kbps Airlink (physical layer) as specified in the CDPD System Specification 1.1.

A.5   Antenna Interface

Custom antenna provided with the unit.

A.6 Battery Specifications

Four AAA alkaline batteries

A-7   Radio Specifications

Transmit Frequencies

824 MHz-849 MHz

Receive Frequencies

869 MHz - 894 MHz

- Full Duplex
- 0.6W transmit power
- Receiver sensitivity - 113 dBm

The antenna must be maintained at least 4 inches (or 10 cm) from users and nearby persons to comply with FCC radio frequency exposure limits (and to reduce the risk of RF radiation) when the Uniden Data 2000 is in operation.

A.8   Environmental Specifications

Temperature Range

0 to +50 degrees Celsius, operating.

Storage Temperature

-20 to +70 degrees Celsius

Vibration

Sinusoidal 1.5 g, 5 Hz to 500 Hz

Shock

20 g shock

Humidity

5% - 95% relative humidity

Emissions Limits

Per FCC CFR-47 Part 2, Part 15, and Part 22

Electrostatic Discharge (ESD)

15 kV, with no electrical damage or impairment of function

B *Appendix: Additional References*

B.1 Printed References

Cellular Digital Packet Data System Specification, Release 1.1. January 19, 1995. Available from the CDPD Forum, 401 N. Michigan Avenue, Chicago, IL 60611-4267. Phone: 800-335-2373.

Sreetharan, M. and Kumar, Rajiv. Cellular Digital Packet Data. Artech House 1996. ISBN 0-89006-709-0

B.2 On-line References

The CDPD forum is an industry association of cellular data end users, data product, software application and service providers. Their web site is at http://www.wireless data.org

Uniden's web site at http://www.uniden.com, includes up-to-date information about Uniden products.

C *Appendix: Software*

C.1 About Uniden Data 2000 Software

Uniden Data 2000 software has been factory installed.

In most cases, you will not need to install software in your PC Card, however, there are some instances when software installation is required:

- You receive an upgraded version of the software.

- You wish to change the data encryption support. (You may switch from software that supports data encryption to a version that does not support data encryption, and vice-versa.)

The Uniden Data 2000 supports two types of software: data encryption software (128 bit key and 40 bit key) and non-encryption software. **128 bit Key Data encryption software can only be used within the United States and Canada.**

To check the software version, use the Code Version display feature of the UDConfig.

The Uniden Data 2000 software and download utility will be found in the Uniden Data 2000 Installation and Setup CD-ROM.

If you would like to reload the software and do not have the Uniden Data 2000 software or setup CD-ROM, contact Uniden Customer Service directly at 1-888-6-UNIDEN to request a CD-ROM containing the appropriate software version.

> ***Note***: Any PC Card configuration which has been set prior to reloading the software will be maintained after the new software has been loaded. Reconfiguring the PC Card is unnecessary.

C.1.1   Requirements for Software Installation

- DNLD.EXE - A software downloading utility that can run under both Windows 95/98 and Windows NT.

- PPCard dnl

C.1.2   Uniden Data 2000 Software Downloading Instructions

1. Insert the Uniden Data 2000 to a PC Card slot.

2. Create a directory such as UD2000 in a local hard drive and copy **dnld.exe** and **pccard.dnl** files into it from the installation CD-ROM.

Note: You may use a latest download file obtained from other source.

3. From the PC, click **Start** and open an MS DOS prompt from Program.

4. Select the directory in which you copied the files, using the DOS command **cd <DIRECTORY NAME>**.

   Example: **cd UD2000**

5. Type in the command **DNLD PCCARD.DNL -port <COM port> -atrate <baudrate> -dlrate<baudrate>**.

Example: DNLD PCCARD.DNL -port COM2 -atrate 9600 -dlrate 57600. (This option directs the PC Card to use PC COM port 2 and sets the atrate, to 9600, and baudrate to 57600.)

> *Important*: The atrate and baudrate must match in order for a successful download to occur.

- The following progress message displays on screen:
  Example:
  Opening COM2
  Looking for Uniden Data device
  Sending AT commands at 9600
  Uniden Data 2000 Detected
  Reading BOOT software directory
  Reading main software directory
  Downloading the following image:

Name: (filename)

Version: (version name)

Date: (date)

Erasing affected memory

Erasing flash sector 4

Erasing flash sector 5

Erasing flash sector 6

Erasing flash sector 7

Erasing flash sector 10

Entering binary download mode ● The download process will take a few minutes depending on your PC's operating system and other programs that may be competing for the PC's CPU time.

● At the conclusion of a successful download the <u>Uniden Data 2000</u> will reset and the newly loaded software will be enabled.

● The following message displays on screen:

Resetting Modem

Download Successful

<u>***Note***</u>: If any problems arise during the downloading process, contact Uniden Customer Service at 1-888-6-UNIDEN for troubleshooting assistance.

Command or DLL Utility Syntax	Description
-port COM1	Use PC COM port 1
-port COM2	Use PC COM port 2
-port COM3	Use PC COM port 3
-port COM4	Use PC COM port 4
-port COM5	Use PC COM port 5
-dlrate <baudrate>	Specify the data rate used for a binary download (options: 4800, 9600, 14400, 19200, 28800, 38400, 57600, 115200 bps) (default rate=57600 bps, fastest rate=115200 bps)
-atrate <baudrate>	Specify the data rate used for AT commands (options: 4800, 9600, 14400, 19200 bps) (default rate=9600 bps, fastest rate= 19200 bps)
-image <n>	Load the n'th image from the download file (default=1)
-quiet	Suppress the banner and copyright message
-implant	Place the software in a directory without downloading

D *Appendix: AT Commands*

As mentioned previously, AT commands allow an authorized user to:

Read and modify configuration parameters supported by the <u>Uniden Data 2000</u>.

- Query status and statistics.
- Change the modem's operational modes.

This chapter describes the following items, in detail:

- The modem's Default Value Tables. (MDT, SPDT, UDT)
- The System Table.
- Login and logout procedures.
- All of the available AT Commands supported by the modem.
- Error messages.

D.1 Default Value Tables

Configuration information for the <u>Uniden Data 2000</u> modem is stored in three unique default value tables: the Manufacturer's Default Table (MDT), the Service Provider's Default Table (SPDT), and the User's Default Table (UDT.) These default value tables are stored in nonvolatile memory.

Unlike the MDT, SPDT, and UDT, the Current Active Table (CAT) resides in volatile memory. The CAT contains the set of configuration parameters that is currently active within the modem. You can load the configuration information contained in the MDT, SPDT, and UDT to the Current Active Table, at any time, using the AT command **AT RESETCFG [MDT][SPDT][UDT]** or **AT&F0** for the UDT.

Each time the modem is powered up, it will attempt to load configuration information from the UDT to the Current Active Table. Once the modem is powered off, the information in the Current Active Table is erased.

Most of the configuration changes you make using AT commands, are made to the Current Active Table only. (The only exception is the **AT SLI SLIP [MDT][SPDT][UDT]** command which automatically saves the changes to the default table you have defined.) Any changes made to the CAT can be saved to a particular default table by typing in the AT command **AT SAVECFG [MDT] [SPDT][UDT]** or **AT&W** for the UDT.

The SPDT and UDT contain the same settings as the MDT when shipped from the factory.

The following table lists all of the configuration parameters that are stored in the MDT, UDT, and SPDT, as well as their default values.

Setting	Default Value
Baud Rate	9600 bps
Statistics	0 (statistics disabled)
Auto Registration	1 (true)
Compression	1 (true)
Encryption	1 (true)
SPNI	0 (accept all)
WASI	0 (accept all)
SPI	0 (accept all)
Side Preference	3 (side A preferred)
Active NEI	1
Mode	AT command mode
STS Update Interval	60 sec

Detailed information regarding each default table is described in the following sections.

D.1.1 Manufacturer's Default Table (MDT)

The Manufacturer's Default Table (MDT) contains the configuration information defined by the manufacturer.

The values in the MDT can be read by any user, but can be <u>modified only by</u> Uniden service personnel using a login with a MDT password.

D.1.2 Service Provider's Default Table (SPDT)

The Service Provider's Default Table (SPDT) contains configuration information restricted by your local service provider's CDPD network. Each of the parameters in the SPDT can be read by any user, but modified <u>only by an authorized user</u>.

To set the configuration parameters for the SPDT, take the following steps:

1. Contact your service provider directly for specific configuration values restricted by their CDPD network.

2. Call Uniden customer service at 1-888-6-UNIDEN to receive the SPDT password. Once you receive the SPDT password from Uniden, you are solely responsible for it's protection and distribution. <u>Uniden is not liable for the protection and distribution of the SPDT password once it has been passed on to the user. It is strongly recommended that you keep the SPDT password in a secure location.</u>

Take the following steps to modify the SPDT:

1. Login using the SPDT password.

2. Change the values in the CAT using appropriate AT commands.

3. Save changes to the SPDT by typing in the command **AT SAVECFG SPDT**.

4. Logout.

For login and logout procedures, see the section titled **E.4 Login and Logout Procedures**, in this chapter.

D.1.3 User's Default Table (UDT)

The User's Default Table (UDT) contains configuration information defined by the user. To change the UDT parameters, make your configuration changes to the CAT, then save the information from the CAT to the UDT by typing in the command **AT SAVECFG UDT**.

Note: You can type in the command **AT RESETCFG MDT** or **AT&F0** followed by the command **AT SAVECFG UDT** or **AT&W0**, at any time, to reset the UDT to the factory default state.

Important: Editing the UDT does not require a password.

D.2 System Table

The System Table contains specific configuration parameters which are preserved during the power cycle. Unlike settings in the modem's default value tables (MDT, SPDT, UDT), these values cannot be restored to their original settings once they have been changed.

The following table lists all of the configuration parameters stored in the System Table:

Settings	Default Values
Boot Version	Current Version
SW Version	Current Version
HW Version	Current Version
EID Parameter	12 Hex Characters
NEI1	0.0.0.0
NEI2	0.0.0.0
NEI3	0.0.0.0
NEI4	0.0.0.0
NEI5	0.0.0.0
NEI6	0.0.0.0
NEI7	0.0.0.0
NEI8	0.0.0.0
NEI9	0.0.0.0
NEI10	0.0.0.0
Antenna	2
Flow Control	1
Verbose	1
Echo	1

D.3 AT Command Highlights

The tables on the following pages list the AT Commands which are supported by the <u>**Uniden Data 2000**</u> modem. Please note the following:

- When typing in AT commands, it is recommended, but not mandatory, that you insert at least one space after typing **AT** and between each parameter. Multiple spaces are acceptable. (The space after the AT is helpful for automated parsing.)

- AT commands are NOT case sensitive.

- In the tables on the following pages, all parameters shown in [ ] are optional. All parameters shown in < > are required.

- It is unnecessary to login to use AT commands except to save changes to the MDT or SPDT.

- Any command which requires a modem reset to become effective is indicated in boldface type.

- This document assumes that the reader has general CDPD knowledge.

D.4 Login and Logout Procedures

It is necessary to login before saving changes to the SPDT.

- To login, type in the command **AT LOGIN**, then enter the SPDT password.

    Note: Contact UNIDEN at 1-888-6-UNIDEN to access the SPDT password. The MDT password is available to Uniden service personnel only.

- To logout, type in the command **AT LOGOUT**.

D.5 AT Commands/Reading the Configuration

AT Command Syntax	Description of Command
AT ACTNEI?	Read the current Active IP address from the System Table. **Response**: NEI n ddd.ddd.ddd.ddd
AT BOOTVER?	Read the version of the boot code from the System Table. **Response**: Boot n.n (X) (Date Time)
AT CDPDVER?	Read the CDPD version supported by this modem from the System Table. (Currently 1.1 is the only version supported.) **Response**: CDPD Version 1.1
AT CMPR? [CAT] [MDT][UDT][SPDT]	Read Data Compression Mode from a particular default table. **Response**: Header Compression Flag 0 or Header Compression Flag 1 (If the option is not specified, the modem will read the Baud rate from the CAT.) Header Compression O means Header Compression is off, Header Compression 1 means Header Compression is on.
AT ECHO?	Read Echo mode from the System Table. **Response**: Echo 0 or Echo 1 Echo 0 means Echo is off, Echo 1 means Echo is on.
AT EID?	Read the EID programmed in the Modem from the System Table. **Response**: EID Parameter xxxxxxxxxxxx (x = hexadecimal)

AT Command Syntax	Description of Command
AT ENCR? [CAT][MDT][UDT][SPDT]	Read Data Encryption Mode from a particular default table. (If the option is not specified, the CAT will be used as the default table.) **Response**: Encryption Flag 0 or Encryption Flag 1 Encryption Flag 0 means encryption is off, Encryption Flag 1 means is on.
AT FC?	Read flow control mode from the System Table. **Response**: Flow control mode 0, Flow control mode 1 Flow control mode 0 means flow control is off, Flow control mode 1 means flow control is on.
AT HWVER? or ATI0	Read the hardware version of the Modem from the System Table. **Response**: U D 1000 n.n
AT IP? [CAT][UDT][MDT][SPDT]	Read the active NEI number from a particular default table. (If the option is not specified the CAT will be used as the default table.) **Response**: Active IP n (n = from 1 to 10)
AT NEIn?	Read NEI n (n = from 1 to 10) from the System Table **Response**: NEIn ddd.ddd.ddd.ddd
AT PREFER? [CAT][UDT][MDT][SPDT]	Read the side preference from a particular default table. Side A includes channels 1-333, 667-716, and 991-1023. Side B includes channels 334-666 and 717-799. (If the option is not specified the CAT will be used as the default table.) **Response**: Side Preference n

AT Command Syntax	Description of Command
AT REG? [CAT][MDT][UDT][SPDT]	Read Auto-Registration Mode from a particular default table. **Response**: Auto Registration Mode 0 or Auto Registration Mode 1 (If the option is not specified the CAT will be used as the default table.) Auto Registration Mode 0 means Auto Registration is off, Auto Registration Mode 1 means Auto Registration is on.
AT SLI? [CAT][MDT][SPDT][UDT]	Read Modem's serial line interface mode from a particular default table. (If the option is not specified the CAT will be used as the default table.) **Response**: MES SLI MODE AT or MES SLI SLIP
AT SPI? [CAT][MDT][SPDT][UDT]	Read Service Provider Identifier from a particular default table. (If the option is not specified the CAT will be used as the default table.) **Response**: <SPI> (n, REQ><PREF><EXCL><DEL>)
AT SPNI? [CAT][MDT][SPDT][UDT	Read Service Provider Network Identifier from a particular default table. (If the option is not specified the CAT will be used as the default table.) **Response**: <SPNI> (n, REQ><PREF><EXCL><DEL>)
AT WASI? [CAT][MDT][SPDT][UDT]	Read Wide Area Service Identifier from a particular default table. (If the option is not specified the CAT will be used as the default table.) **Response**: <WASI> (n, REQ><PREF><EXCL><DEL>)

AT Command Syntax	Description of Command
AT SWVER? or ATI1	Read the software code version downloaded in the Modem from the System Table. Data encrypted version: U-D_1000 (Version #) (Date Time) Non encrypted version: No Encrypt Version #)(Date Time) **Response**: U-D_1000 (Version #) (Date Time) No Encrypt (Version #) (Date Time)
AT VERBOSE?	Read 1 for verbose or 0 for terse modes from the System Table. **Response**: Verbose 0 or Verbose 1 Verbose 0 means terse mode is on, Verbose 1 means verbose mode is on.
AT CLRAUTH NEI n	Clear Authentication parameters for NEI #n. WARNING: Check with your service provider before taking this step. **Response**: OK
AT CMPR <1><0>	Set TCP/IP Header Compression Mode. (On/Off) **Response**: OK
AT FC <1><0>	Set flow control mode (On/Off). (When hardware flow control is enabled, the Modem generates CTS when it is able to accept characters, otherwise it will de-assert CTS. The Modem inhibits output to the serial line when the host de-asserts RTS; otherwise it will permit output.) **Response**: OK

AT Command Syntax	Description of Command
AT IP #	Set the active NEI(# = number from 1 to 10) **Response**: OK
AT NEIn d.d.d.d	Set NEI n (n = from 1 to 10). 0 to 255. **Response**: OK
AT PASSWORD "new password" "new password" **	Change the current password. This requires a logon **Response**: OK
AT PREFER <1><2><3><4>	Set the side preference (1 = Side A only; 2 = Side B only; 3 = Side A is scanned first, then Side B ; 4 = Side B scanned first then Side A). Contact your service provider to determine which setting they provide. **Response**: OK
AT REG <1><0>	Set Auto-Registration Mode (Enabled/Disabled). **Response**: OK
AT SPI n <REQ><PREF><EXCL> <DEL>	Set the Service Provider ID (SPI) preference as either request/preferred/exclude/delete. Login required **Response**: OK (Password required)
AT SPNI n <REQ><PREF><EXCL> <DEL>	Set the Service Provider Network ID (SPNI) preference, as either request/preferred/exclude/delete. Login required. **Response**: OK
AT VERBOSE <0><1> or AT V <0><1>	Disable/enable verbose AT responses. Login required. **Response**: OK
AT WASI n <REQ> <PREF><EXCL><DEL>	Set preference for the WASI number as either request/preferred/exclude/delete. Login required. **Response**: OK

D.6 AT Commands/Saving to a Table

AT Command Syntax	Description of Command
AT SAVECFG <SPDT><UDT> or AT&W (Saves UDT)	Save the configuration in the current active table to the Service Provider's Default Table (SPDT), or User's Default Table (UDT). Password required for SPDT. **Response**: OK

D.7 AT Commands/Loading from a Table

AT Command Syntax	Description of Command
AT RESETCFG <MDT><SPDT><UDT> or AT&F (restores UDT)	Restore the configuration information into the Current Active Table (CAT) from Manufacturer's Default Table (MDT), Service Provider's Default Table (SPDT), or User's Default Table (UDT). **Response**: OK

D.8 AT Commands/Reading Statistics and Status

AT Command Syntax	Description of Command
AT$RSSI	Read the current RSSI value. **Response**: CFG: Current RSSI: n

D.9 AT Commands/Command/Control

AT Command Syntax	Description of Command
AT	Verifies that the AT interface is working. **Response**: OK
AT$CHAN_< >	Forces modem to stay on one or a limited Set of ten RF channels. Calling with no parameters will return the current setting n = defining parameter Note: If this command is entered with no parameters, the list of fixed channels is returned. To clear the list of fixed channels, enter AT$CHANSET CLEAR. To save the list of channels to non-volatile memory, type AT$CHANSET WRITE. Example: If you want the modem to use only channel 713 and 705, type AT$CHANSET 713 705, then AT$CHANSET WRITE, then AT RESET. **Response**: list of any channel(s) set by at$chanset write, OK

AT Command Syntax	Description of Command
AT PING ip_addr [size] [I interval]	Invokes the Ping application to test network connectivity and reports results; Optional is the size of the ping in bytes (64 default); Optional interval is in miliseconds following an I. **Response**: AT ping XXX.XXX.XXX.XXX size I intervalPING host (xxx.xxx.xxx.xxx) size data bytes Ping size bytes from (xxx.xxx.xxx.xxx): icmp_sn (0) time (time ms) Ping size bytes from (xxx.xxx.xxx.xxx): icmp_sn (1) time (time ms) Ping size bytes from (xxx.xxx.xxx.xxx): icmp_sn (2) time (time ms) Ping size bytes from (xxx.xxx.xxx.xxx): icmp_sn (3) time (time ms) etc.
AT PING ABORT	Abort the Ping. **Response**: Ping host (xxx.xxx.xxx.xxx) : Aborted
AT RESET or AT Z	Reset the Modem. **Response**: none
AT STATE?	Echo modem state as "Operational CDPD" or "Boot". **Response**: Operational CDPD

D.10 Error Messages

There are a number of different error message responses that may appear on screen in the event of an error. The following table reflects these error message responses, as well as the action(s) required to correct them.

Error Message Response	Action to Correct Error
System errors: "ID is not reported" "1D does not exist" "Get buffer failed" "Data type not supported" "Get buffer failed" "Free buffer failed" "Enqueue message failed" "Dequeue message failed" "Configuration registration failed" "Modify failed" "Modify access denied" "Registration failed" "Deregistration failed" "List all command failed" "List all command access denied" "save-default command failed" "save-default command access denied" "Restore command failed" "Restore command access denied" "Memory buffer allocation failed" "Invalid command or request" "FAILED"	Reboot the computer Call Uniden Customer Service for troubleshooting and support.
"Modify failure, out of range parameter"	Check the range.

Error Message Response	Action to Correct Error
"Default table does not exist"	Check the default table to see if correct table has been selected.
"Invalid Password"	Reenter the password being used.
"Invalid AT Command"	Retype the AT command.
"Wrong number of arguments"	Retype the argument and check its accuracy.
"Wrong configuration table"	Check the selected configuration table for accuracy.
"Timeout"	Retype the AT command.
"Logout before Login again"	Logout and then login again.
"Invalid mode"	Check the argument to see if the correct mode has been selected.
"Invalid Status/ Statistics group"	Check for the correct Status/Statistics group.

E Appendix: Warranty

E.1 One Year Limited Warranty

⚠ **Important***:* Evidence of original purchase is required for warranty service.

WARRANTOR: UNIDEN AMERICA CORPORATION ("Uniden")

ELEMENTS OF WARRANTY: Uniden warrants, for one year, to the original retail owner, this Uniden Product to be free from defects in materials and craftsmanship with only the limitations or exclusions set out below.

WARRANTY DURATION: This warranty to the original user shall terminate and be of no further effect 12 months after the date of original retail sale. The warranty is invalid if the Product is (A) damaged or not maintained as reasonable or necessary, (B) modified, altered, or used as part of any conversion kits, subassemblies, or any configurations not sold by Uniden, (C) improperly installed, (D) serviced or repaired by someone other than an authorized Uniden service center for a defect or malfunction covered by this warranty, (E) used in any conjunction with equipment or parts or as part of any system not manufactured by Uniden, or (F) installed or programmed by anyone other than as detailed by the owner's manual for this product.

STATEMENT OF REMEDY: In the event that the product does not conform to this warranty at any time while this warranty is in effect, warrantor will either, at its option, repair or replace the defective unit and return it to you without charge for parts, service, or any other cost (except shipping and handling) incurred by warrantor or its representatives in connection with the performance of this warranty. Warrantor, at its option, may replace the unit with a new or refurbished unit. THE LIMITED WARRANTY SET FORTH ABOVE IS THE SOLE AND ENTIRE WARRANTY PERTAINING TO THE PRODUCT AND IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES OF ANY NATURE WHATSOEVER, WHETHER EXPRESS, IMPLIED OR ARISING BY OPERATION OF LAW, INCLUDING, BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THIS WARRANTY DOES NOT COVER OR PROVIDE FOR THE REIMBURSEMENT OR PAYMENT OF INCIDENTAL OR CONSEQUENTIAL DAMAGES. Some states do not allow this exclusion or limitation of incidental or consequential damages so the above limitation or exclusion may not apply to you.

LEGAL REMEDIES: This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. This warranty is void outside the United States of America.

PROCEDURE FOR OBTAINING PERFORMANCE OF WARRANTY:
If, after following the instructions in the owner's manual you are certain that the Product is defective, pack the Product carefully (preferably in its original packaging). The Product should include all parts and accessories originally packaged with the Product. Include evidence of original purchase and a note describing the defect that has caused you to return it. The Product should be shipped freight prepaid, by traceable means, to warrantor at:

Uniden America Corporation - 4700 Amon Carter Blvd - Fort Worth, TX 76155
1 (888) 6 UNIDEN
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F *Appendix: Troubleshooting*

F.1 Troubleshooting

Please contact Uniden Customer Service Center at 1-888-6-UNIDEN.

Also, please consult the UD2000 Help.doc included on the Installation & Operation CD-ROM, or go to the Troubleshooting Page for the UD2000 at www.uniden.com.