

# **DiREcWAY**<sup>®</sup>

## **Remote Terminal Installation Guide**

*Models: DW7000, DW7700*

1035977-0001  
Revision A  
June 03, 2005

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# Important safety information

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For your safety and protection, read this entire manual before you attempt to install the remote terminal. In particular, read this safety section carefully. Keep this safety information where you can refer to it if necessary.

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## Types of warnings used in this manual

This section introduces the various types of warnings used in this manual to alert you to possible safety hazards.

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### **DANGER**



Indicates an imminent electric shock hazard, which, if not avoided, will result in death or serious injury.

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### **WARNING**



Indicates a potential electric shock hazard, which, if not avoided, could result in death or serious injury.

---

### **DANGER**



Indicates an imminently hazardous situation, which, if not avoided, will result in death or serious injury.

---

### **WARNING**



Indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.

---

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 **CAUTION**



Indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury.

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**CAUTION**

Indicates a situation or practice that might result in property damage.

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Note: A note provides additional information.

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# About this document

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## Scope and audience

This manual describes installing, commissioning, troubleshooting, and servicing DIRECWAY® DW7000 and DW7700 remote terminals. The manual also provides reference information for the installation and operation of the remote terminals.

### DW7000 and DW7700 terminals

The DW7000 terminal is a self-hosted terminal that has one Ethernet port.

The DW7700 is a self-hosted terminal equipped with a serial port, two Ethernet ports, and an internal modem to support the DIRECWAY Virtual Private Network Automatic Dial Backup (DVADB) feature.

### Audience profile

This manual is intended for use by the following audiences:

- Professional installers
- Installer trainers, who prepare separate instructions for the installers
- Call center operators, who respond to user's calls
- Call center trainers, who train call center operators

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## Organization and updates

This manual is organized into the following chapters and appendices:

Chapter 1 – *Introduction* gives an overview of the DW7000 and DW7700 remote terminals.

Chapter 2 – *Preparing for the installation* discusses steps that must be completed before installing the remote terminal.

Chapter 3 – *Installing the hardware* explains how to assemble and install the remote terminal.

Chapter 4 – *Commissioning the remote terminal* explains how to commission the remote terminal using satellite-based commissioning (SBC), dial-up commissioning, or manual commissioning.

Chapter 5 – *Configuring the DW7700 for DVADB* discusses how to configure remote terminals for DVADB, which is used by enterprise customers such as large businesses.

Chapter 6 – *Completing the installation* discusses steps that must be completed after the remote terminal is installed.

Chapter 7 – *Remote terminal LEDs and troubleshooting* describes LED activity and troubleshooting strategies.

Appendix A – *The System Control Center* describes the System Control Center that provides configuration and status information.

Appendix B – *Configuring a computer to support DHCP* explains how to configure the installer PC to support the Dynamic Host Control Protocol (DHCP).

Appendix C – *Updating the remote terminal's PID* explains how to use the Fallback Updater utility to update the fallback.bin file on a remote terminal.

Appendix D – *Disabling a web browser's proxy connection* explains how to disable proxy server settings for Internet Explorer and Netscape.

Appendix E – *Lat/Long Decimals to Minutes Table* provides conversion information for installations where this data is entered manually.

There is also a safety summary, list of abbreviations and acronyms, and index.

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## Contact information for product users

Customers are required to contact their service provider for warranty or repair support.

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## Conventions

This manual follows the typographical conventions shown below to help clarify instructions:

Example	Explanation
Click <b>Exit</b> .	Indicates the names of command buttons that execute an action.
The system displays the following: Are you ready?	Indicates all system messages and prompts as the system displays them.
Type <b>exit</b>	Indicates operator input.
Enter a value in the Time field.	Indicates the names of fields on windows.
Retrieve the following file: <code>O:\template\techman_r3</code>	Indicates file names or file paths referenced in the manual.

Example	Explanation
Press <b>ALT+V</b> to view the menu.	Indicates function or keyboard keys. Press two keys simultaneously—in this case, Alt and V.
Select the <b>Edit</b> menu.	Indicates the names of menu bar options on a software screen.
Go to <b>Edit</b> → <i>Spelling Checker</i>	Indicates a menu/submenu sequence for selecting an action or option

## Related publications

The installation of this product may also require the use of one or more of the antenna or outdoor unit manuals listed below. Some of the manuals may be available from your installation support web site.

- ***DIRECWAY Satellite Dish Installation Guide DW4000-Ku Two-Way Ku-band Antenna Model AN4-074*** (HNS 1035567-0001)
- ***DIRECWAY Satellite Dish Installation Guide DW4000 Ku Antenna for Enterprise Mounts Model AN6-074*** (HNS 1035566-0001)
- ***DIRECWAY Outdoor Unit Installation Guide DW4000-098 DW4000-120*** (HNS 1032025-0001)
- ***.89/.98M Ku-Band Rx/Tx Series 1892/1982 Antenna System Assembly Manual*** (Prodelin 4906-629)
- ***1.2m Ku-Band Rx/Tx Series 1132 Antenna System*** (Prodelin 4906-630)
- ***1.8m Ku-Band Rx/Tx Series 1194 Antenna System*** (Prodelin 4096-394)
- ***Assembly Instructions for the 1.2m Ku-Band Upgradeable Antenna*** (HNS 1035931-0001)
- ***Assembly Instructions for the 98cm Ku-Band Upgradeable Antenna*** (HNS 1035930-0001)
- ***Site Preparation and Mount Installation Guide for Ka-band-Ready Antenna Sites*** (HNS 1035678-0001)

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## Revision record

Revision	Date of issue	Scope
Rev A	06/03/05	Production release

# Chapter 1

## Introduction

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This chapter discusses these general remote terminal topics:

- *DW7000 overview* on page 1
- *DW7700 overview* on page 2
- *Supported configurations* on page 3
- *Hardware specifications* on page 5
- *Commissioning methods* on page 6
- *Summary of the installation process* on page 8

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### DW7000 overview

A DW7000 remote terminal connected to a properly aligned antenna assembly can provide satellite Internet or Intranet connectivity to a single host or multiple hosts on a local area network (LAN). A host may be a point-of-sale (POS) terminal, credit verification device, or a computer operating with a Windows, Unix, Mac, or Linux operating system. A DW7000 remote terminal is shown in Figure 1.

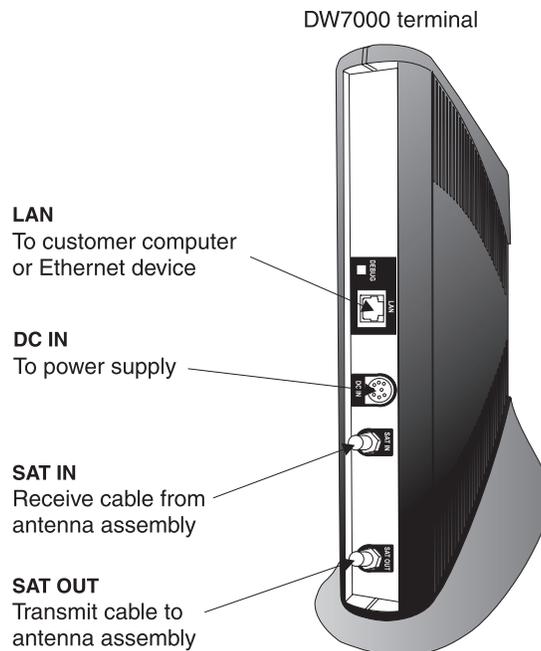


Figure 1: DW7000 remote terminal

The software required to operate the remote terminal resides in the remote terminal, which eliminates the need to install client software on the host(s).

## DW7700 overview

The DW7700 remote terminal shown in Figure 2 is equipped with a serial port, two Ethernet ports, and an internal modem to support the DIRECWAY Virtual Private Network Automatic Dial Backup (DVADB) feature for enterprise customers, which are typically large businesses.

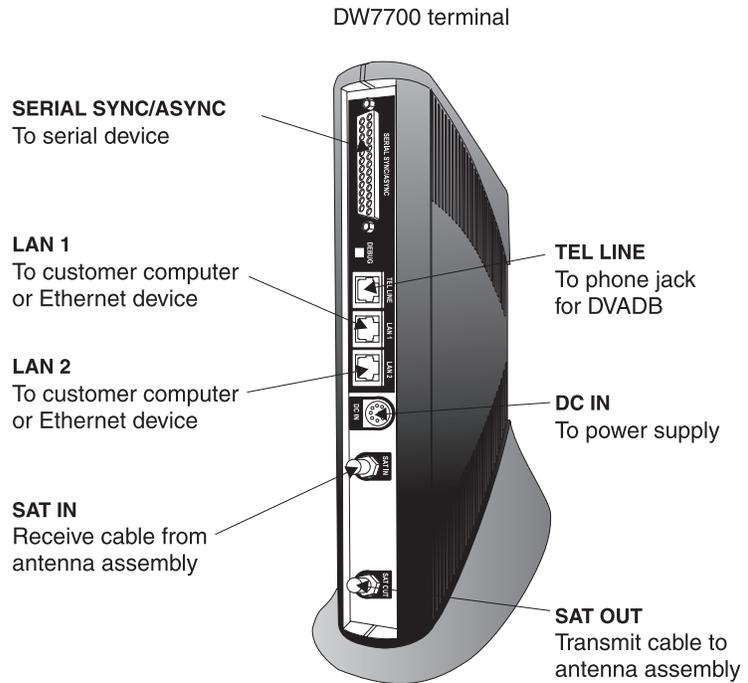
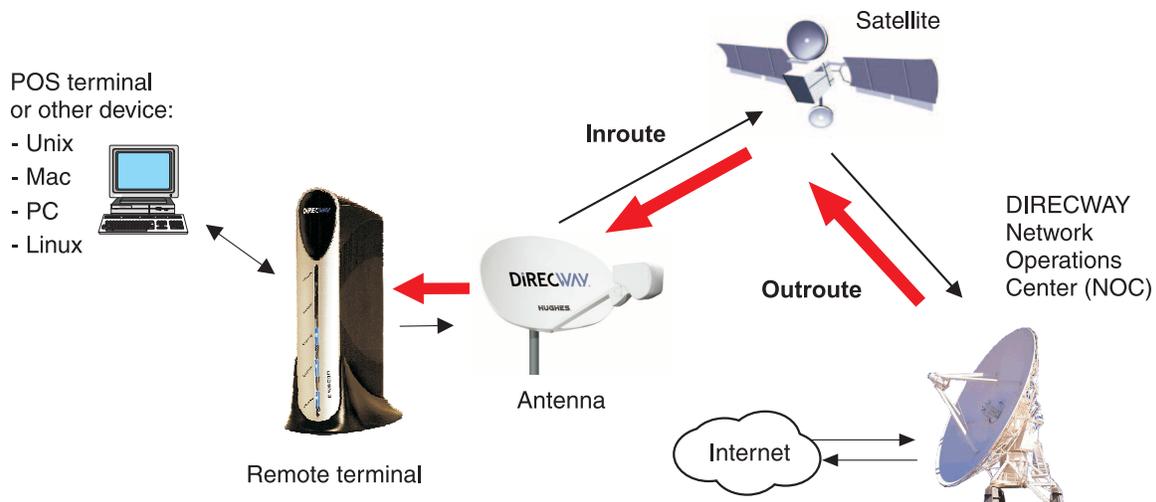


Figure 2: DW7700 remote terminal

## Supported configurations

In a single-host configuration, the remote terminal is directly connected to the host. A single-host configuration is shown in Figure 3.



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Figure 3: Single-host configuration

In a multiple-host configuration, the hosts on the LAN share satellite Internet or Intranet connectivity through an Ethernet hub, router, or wireless base station. The remote terminal is connected to the hub, router, or wireless base station. Figure 4 on page 4 shows a multiple-host configuration that includes an Ethernet hub or router. Figure 5 on page 4 shows a multiple-host configuration that includes a wireless base station.



Note: The customer is required to provide and configure hub, router, or wireless base station equipment.

The graphics in this section are intended for illustrative purposes only. Connecting components to the remote terminal is discussed in Chapter 6 – *Completing the installation*.

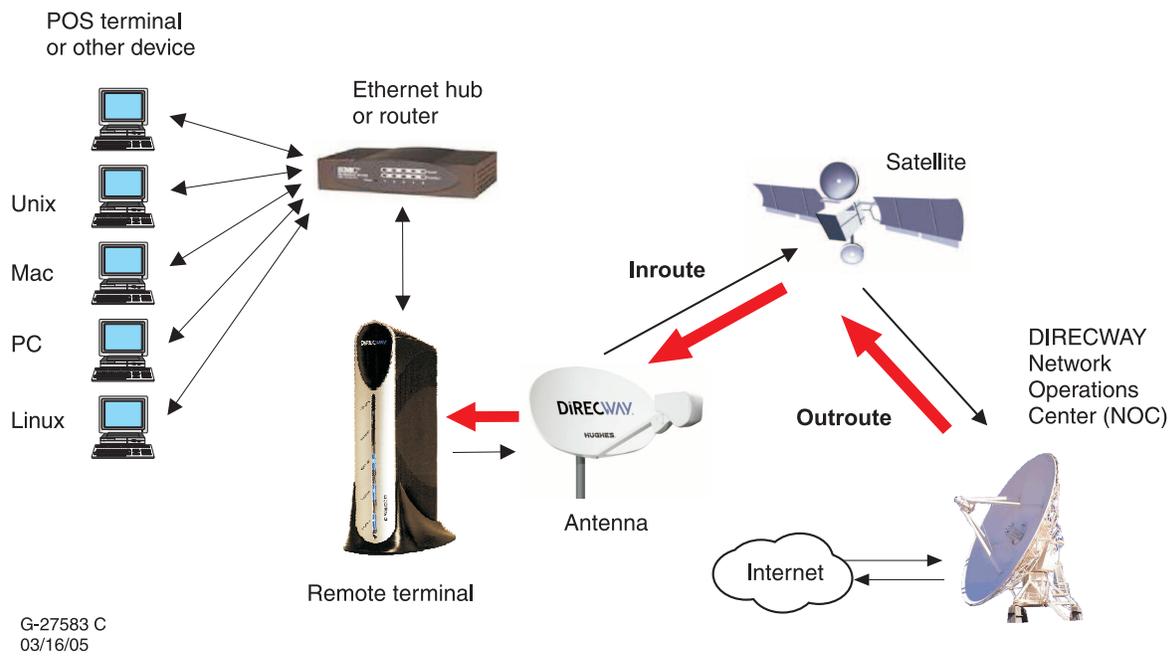


Figure 4: Multiple-host configuration: Ethernet hub or router (wired LAN)

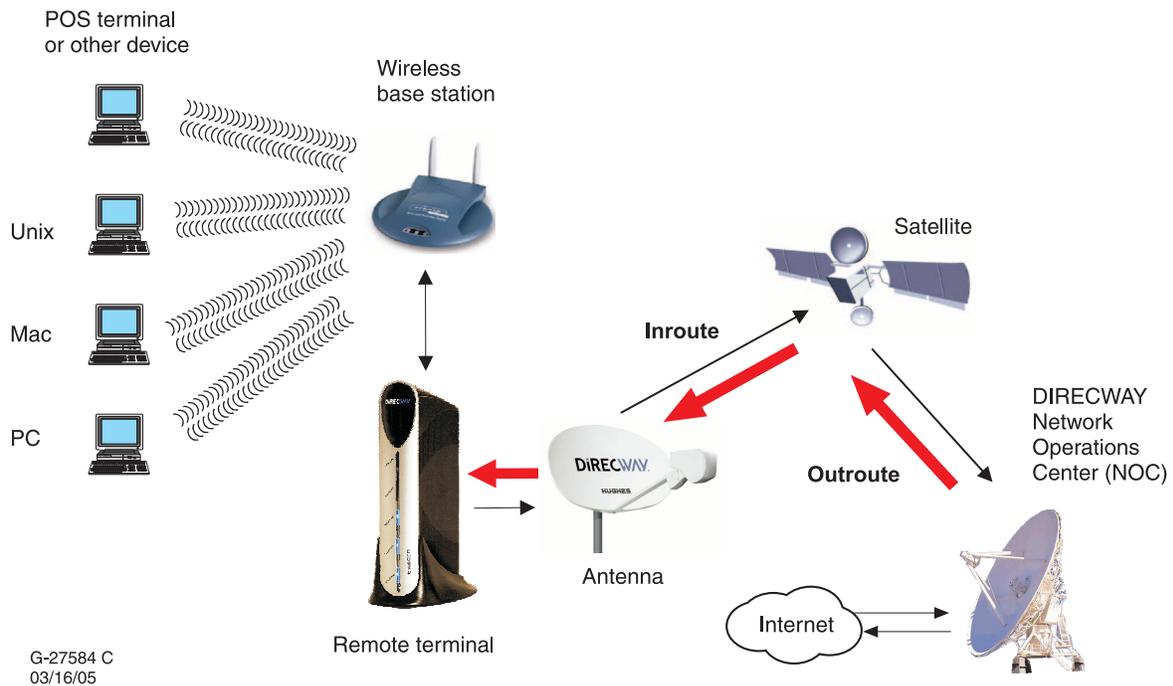


Figure 5: Multiple-host configuration: wireless base station (wireless LAN)

## Hardware specifications

Refer to Table 1 for remote terminal equipment specifications.

Table 1: Remote terminal specifications

Product Element	Specification
Weight	2.4 lb (1.089 kg)
Width	1.7 in (4.32 cm) 4.5 in (11.43 cm) with pedestal base
Height	9.5 in (24.13 cm) 9.75 in (24.77 cm) with pedestal base
Depth	10.5 in (26.67 cm)
AC/DC power supply for 1 W radio (64 W)	PN 1031105-0001
Electrical requirements:	
• Input line voltage	100 - 240 V - 2A max
• Input line frequency	50-60 HZ AC
• Rated power consumption	64 W
Power cord	Detachable power cord for 110 VAC outlet type
AC/DC power supply for 2 W radio (64W)	PN 1031105-0001
Electrical requirements:	
• Input line voltage	100 - 240 V - 2A max
• Input line frequency	50-60 HZ AC
• Rated power consumption	64 W
Power cord	Detachable power cord for 110 VAC outlet type
DC/DC power supply	PN 1033554-0001
Electrical requirements:	
• Input line voltage	12.7 - 25 V - 10A max
• Rated power consumption	64 W
Power cord	Detachable power input cables and connector
Safe operating temperature range	0 to 40 degrees C (above 5000 feet altitude, reduce maximum temperature by 1 degree C per 1000 feet)
Safe operating humidity	5% to 95% non-condensing
Safe altitude	10,000 ft.
Cooling method	Convection

Table 1: Remote terminal specifications (Continued)

Product Element	Specification
Interfaces/ports	<p><b>DW7000:</b></p> <ul style="list-style-type: none"> <li>• One Ethernet port supporting 10BaseT or 100BaseT operation, RJ45-switched</li> </ul> <p><b>DW7700:</b></p> <ul style="list-style-type: none"> <li>• Two Ethernet ports supporting 10BaseT or 100BaseT operation, RJ45-switched</li> <li>• Telephone line port</li> <li>• Serial port, DTE/DCE RS-232, which supports the following protocols: <ul style="list-style-type: none"> <li>– VISA (Veriphone 3200 and 3300) (the asynchronous protocol of Vanguard International Service Association credit card)</li> <li>– X.25 International Telecommunication Union-Telecommunication Standardization Sector (ITU-T) protocol standard for WAN communications)</li> <li>– XPAD (X.25 Packet Assembler/Disassembler)</li> <li>– DSPAD (IBM 3270 Display System Protocol)</li> <li>– SDLC (Synchronous Data Link Control)</li> <li>– LLC (Logical Link Control)</li> </ul> </li> </ul>
Main processor	133 Mhz
Main memory	64MB
Flash memory	16MB
Protocol Support	TCP/IP protocol suite

## Commissioning methods

Commissioning is the process of registering a remote terminal for service. There are three methods available to commission a remote terminal:

- Satellite-based commissioning (SBC)
- Dial-up commissioning
- Manual commissioning

### Satellite-based commissioning (SBC)

Satellite-based commissioning is the preferred commissioning method. The installer uses a web-based interface on the remote terminal to complete the satellite-based commissioning process.

An SBC configuration file (*sbc.cfg*) is present in remote terminals that support SBC. The *sbc.cfg* file contains satellite information for SBC and the auto-commissioning server (ACS) to be used during commissioning. Occasionally, new satellites are activated to support DIRECWAY service. As a result, installers

might be required to upload an *sbc.cfg* file to the remote terminal prior to installation **or** manually enter satellite parameters during the installation process.

If a new satellite is activated, and a new *sbc.cfg* file is available for installers, then installers are instructed to download the *sbc.cfg* file from an installation support web site. The *sbc.cfg* file must be saved on the installer laptop prior to commissioning and then uploaded to the remote terminal.

If a new satellite is activated, and a new *sbc.cfg* file is not available, then the new satellite parameters are distributed to installers in a technical update e-mail or in an installation specification. The satellite parameters must be manually entered.



Note: If the service provider has provided you with an *sbc.cfg* file, you must complete the procedures in *Uploading the sbc.cfg file to the remote terminal* on page 23 to upload the file to the remote terminal.

Satellite-based commissioning procedures are provided in Chapter 4 – *Commissioning the remote terminal*.

### **Dial-up commissioning**

The dial-up or manual commissioning method may be used if SBC is not available. The installer uses installation software, which is installed on the installer laptop PC, to complete dial-up commissioning procedures.

The WebSetup component of the installation software is used to register the remote terminal. The installer launches WebSetup on the installer laptop PC and uses a dial-up connection to connect to the appropriate registration server.

The Antenna Pointing component of the terminal's web-based interface is used to fine-point the antenna assembly.

Dial-up commissioning procedures are provided in Chapter 4 – *Commissioning the remote terminal*.

### **Manual commissioning**

The installer may only use the manual commissioning method if instructed to do so by the service provider. The installer enters configuration parameters on the Manual Commissioning page of the terminal's web-based interface. The installer then uses the interface to complete antenna pointing.

Manual commissioning procedures are provided in Chapter 4 – *Commissioning the remote terminal*.

---

## Summary of the installation process

The remote terminal installation consists of the following steps:

- Preparing for the installation:
  - Inventorying the items required for installation
  - Confirming the customer's computer meets the requirements to use the service (not required for International or enterprise customers)
  - Conducting the site survey
- Installing the hardware:
  - Assembling and adjusting the antenna
  - Attaching the remote terminal to the pedestal base
  - Connecting component cables
  - Powering up and observing the remote terminal's LEDs
- Commissioning the remote terminal:
  - Satellite-based commissioning (SBC)
  - Dial-up commissioning
  - Manual commissioning
- Configuring the remote terminal for DVADB operation



Note: Configuring the remote terminal for DVADB operation is applicable only to enterprise customers, which are typically large businesses. If you are installing the remote terminal for an enterprise customer, refer to the installation specification to determine if configuring the remote terminal for DVADB is required.

- Completing the installation:
  - Confirming all files are current
  - Connecting the remote terminal to the customer's computer
  - Connecting serial devices to the remote terminal
  - Printing the System Information page (may not be required for International or enterprise customers)
  - Creating a shortcut to the System Control Center (may not be required for International or enterprise customers)

## Chapter 2

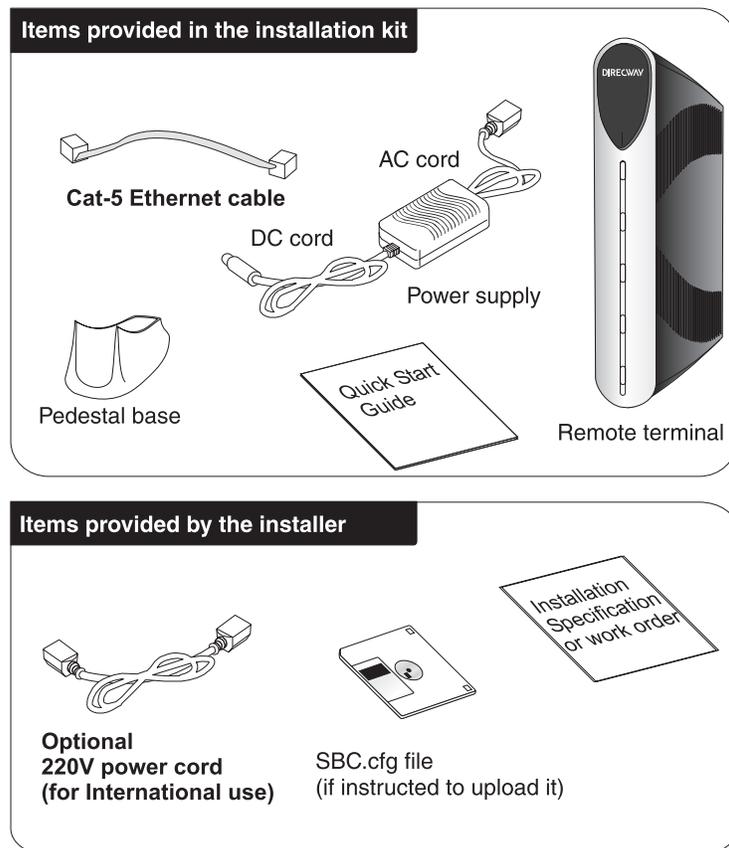
# Preparing for the installation

This chapter discusses the following tasks:

- *Inventorizing the items required for installation* on page 9
- *Confirming installer laptop and customer site requirements* on page 11
- *Conducting the site survey* on page 12

### Inventorizing the items required for installation

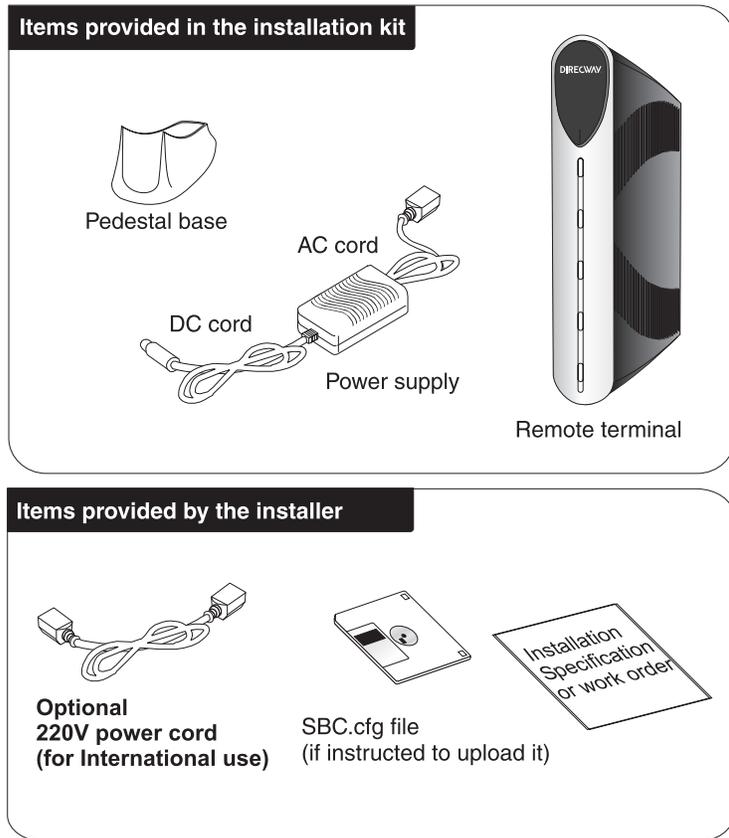
Make sure you have all the items shown in Figure 6 if you are installing a model DW7000 terminal. The items are provided in the DW7000 installation kit.



G-27582 C  
05/27/05

Figure 6: DW7000 installation kit components

Make sure you have all the items shown in Figure 7 if you are installing a model DW7700 remote terminal. The items are provided in the DW7700 installation kit.



G-27701 C 05/27/05

Figure 7: DW7700 installation kit components



Note: The antenna assembly is shipped in a separate box. If you have an outdoor pointing interface (OPI), you may use it to point the antenna. The installation specification or work order are provided to you. Download the most current *sbccfg* file from your installation support web site.



Note: Customers who purchased their system from a DIRECWAY retail channel receive an order confirmation e-mail containing their site account number (SAN) and personal identification number (PIN).



Note: The DC/DC power supply (HNS part number 1033554-0001) is not shown in Figure 6. This power supply is required for sites that have DC power sources. The installer must provide the wire required to assemble the DC input power cable.

---

## Confirming installer laptop and customer site requirements

You must confirm the installer laptop and the customer's computer meet specific requirements before installing the remote terminal.

### Installer laptop requirements

The installer laptop must meet the following requirements:

- Ethernet enabled network interface card (NIC) and Ethernet cable.
- Windows 98 SE, Windows Me, Windows 2000, or Windows XP operating system with DHCP configured to automatically obtain IP addresses. See Appendix B – *Configuring a computer to support DHCP*, on page 119.
- Internet Explorer 5.5 or 6.0 with proxy settings disabled. See Appendix D – *Disabling a web browser's proxy connection*, on page 137.
- Dial-out modem if not using satellite-based commissioning (SBC).
- Installer software installed if not using SBC. See *Installing the installation software* on page 40.
- The latest version of the `sbc.cfg` file if instructed to install it.

### Customer site requirements

The customer's PC must meet the following requirements:

- Operating system
  - PC: Windows 98 SE, Windows Me, Windows 2000, Windows XP
  - MAC: 10.1 and higher
- Processor
  - PC: Pentium II 333 Mhz or faster
  - MAC: 300 Mhz or faster
- Memory
  - PC: 64MB RAM, Windows 98SE and Me; 128MB RAM Windows 2000 and XP.
  - MAC: 128MB
- Free hard drive space
  - PC: 100MB
  - MAC: 150MB
- A functioning 10/100 BaseT Ethernet interface installed on at least one computer.

The customer must provide the following items:

- A power strip or surge protector. If one of these is not present, proceed with the installation using the wall outlet or other power source.
- An analog phone line if not using SBC.



Note: If the customer wants to connect a network to the remote terminal, he or she must do so with an Ethernet hub or other such device. The customer must supply and configure the hub and cables. IP address information required to configure the network is obtained during commissioning.



Note: Prior to starting the installation, confirm the installer laptop is configured to support the Dynamic Host Control Protocol (DHCP). See Appendix B – *Configuring a computer to support DHCP on page 119*. Make sure customers who purchased their system from a DIRECWAY retail channel have their SAN and PIN.

---

### CAUTION



**Do not connect the power supply to the remote terminal, or connect the power supply to a power source, before instructed to do so.**

---

### CAUTION

- **Do not block any ventilation openings. Do not install near heat sources, such as radiators, heat registers, ovens, stoves, or other apparatus (including amplifiers) that produce heat.**
  - **Recommended ventilation space around the top and sides of the remote terminal assembly should be approximately 6 inches. Ventilation is necessary to avoid overheating.**
- 

---

## Conducting the site survey

Survey the customer's site to confirm it fulfills the requirements to use the DIRECWAY service. This includes confirming there is an unobstructed line-of-sight to the appropriate satellite and confirming the customer's computer meets the requirements as listed on page 11 of this manual.

If you are installing a remote terminal for an enterprise or International customer, review the installation specification or work order for site-specific instructions.

# Installing the hardware

---

This chapter explains how to install hardware components. The following topics are discussed:

- *Assembling and adjusting the antenna* on page 13
- *Attaching the remote terminal to the pedestal base* on page 15
- *Connecting component cables* on page 16
- *Powering up and observing the remote terminal's LEDs* on page 19

---

### Assembling and adjusting the antenna

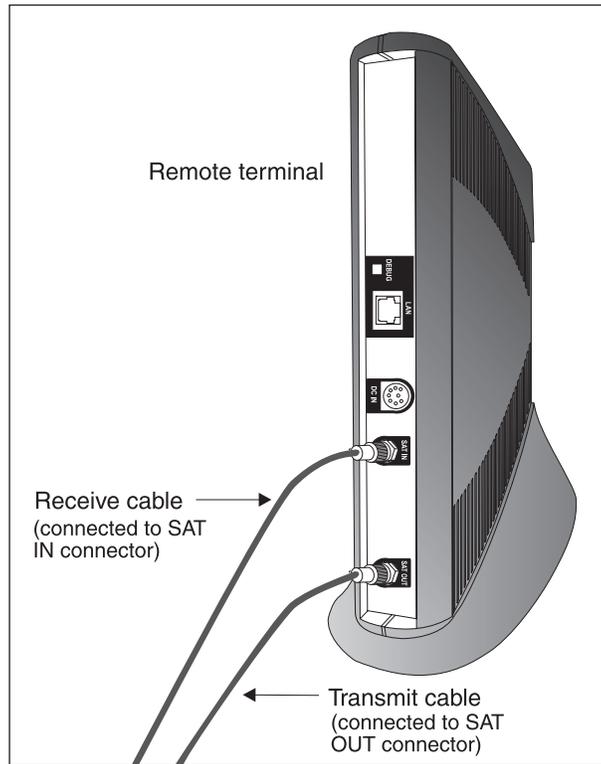
The remote terminal can be used with 74cm, .98m, 1.2m, and 1.8m two-way antennas. Use the appropriate antenna installation manual to assemble and install the antenna assembly. Refer to the *Related publications* section on page xvii of this manual for a list of antenna installation manuals.

Follow the steps below to label the receive and transmit cables at the exterior point-of-entry and the indoor location where the remote terminal will be installed.

1. Wrap a small piece of red electrical tape around the receive cable.
2. Write *SAT IN* on the tape.
3. Wrap a small piece of blue electrical tape around the transmit cable.
4. Write *SAT OUT* on the tape.

### Connecting the receive and transmit cables to the remote terminal

Connect the receive cable to the SAT IN connector on the remote terminal and the transmit cable to the SAT OUT connector as shown in Figure 8.



G-27703 C 05/17/05

Figure 8: Connecting the receive and transmit cables to the remote terminal

---

 **CAUTION**

- The two-way satellite dish must be installed in a location or manner not readily accessible to children and so that the dish bottom is at least 5 feet above ground level.
- Professional installation or service of the two-way satellite dish is required by the Federal Communications Commission because the radio transmits radio frequency energy.
- This device emits radio frequency energy when in transmit mode. To avoid injury, do not place head or other body parts between the feed horn and satellite dish when the system is operational.
- Unplug the indoor power connection before performing maintenance or adding upgrades to any satellite dish components.
- Do not allow anything to come in contact with the front surface of the satellite dish.



## Attaching the remote terminal to the pedestal base

Refer to Figure 9 and follow the steps below to attach the remote terminal to the pedestal base.

Skip to *Connecting component cables* on page 16 if the unit will not be attached to a pedestal base.

1. Position the remote terminal and pedestal base as shown in Figure 9.
2. Align the bottom set of ventilation openings on the remote terminal with the guides on the pedestal base. See Figure 9.
3. Gently slide the remote terminal into the pedestal base until the remote terminal locks into position. See Figure 9.



Note: If you need to remove the remote terminal from the pedestal base, pull up and back on the tab on the back of the base. You can then slide the base off the remote terminal. See Figure 9.

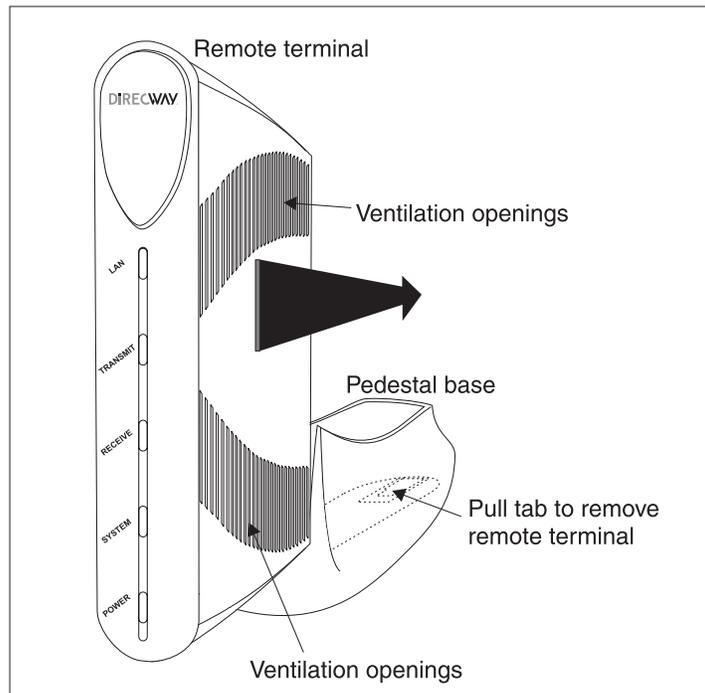


Figure 9: Attaching the remote terminal to the pedestal base

## Connecting component cables

Refer to Figure 10 and complete the steps in this section to connect component cables.

1. Place the remote terminal in the desired installation location.

### CAUTION

- Do not block any ventilation openings. Do not place the remote terminal near heat sources such as radiators, heat registers, ovens, stoves, or other apparatus (including amplifiers) that produce heat.
- Leave 6 inches of space around the top and sides of the terminal to ensure ventilation and prevent overheating.

2. Connect the installer PC to the remote terminal with an Ethernet cable. Make sure an Ethernet router or switch is not currently connected to the remote terminal and the customer's computer. See Figure 10.

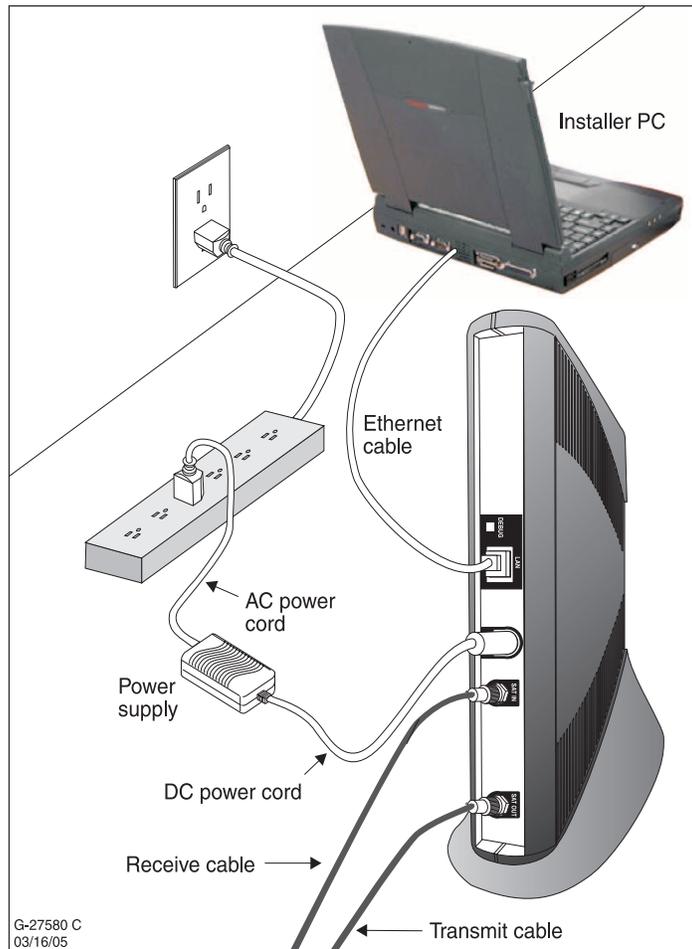


Figure 10: Connecting component cables



Note: Do not connect any devices to the remote terminal at this time. Serial and Ethernet devices may only be connected to the remote terminal after it is installed and commissioned.

3. Assemble the power supply and connect it to the remote terminal. The supported power supplies are shown in Figure 11.

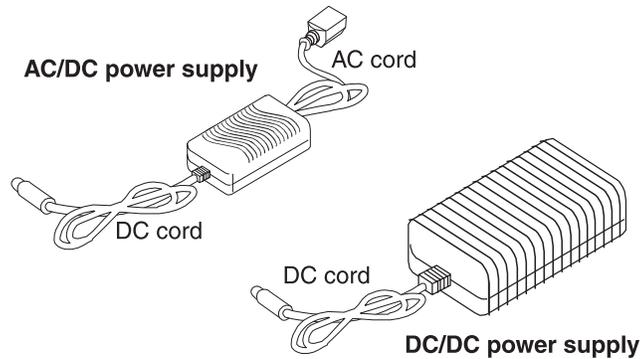


Figure 11: AC/DC and DC/DC power supplies

**AC/DC power supply:**

- a. Retrieve the AC/DC power supply (HNS part number 1031105-0001 for use with 1 watt radio, HNS part number 1033374-0001 for use with 2 watt radio) and AC power cord.

Refer to the equipment specification table on page 5 of this manual for the current power supply revision level.

- b. Connect the AC power cord to the power supply. An assembled power supply is shown in Figure 11.
- c. Connect the DC power cord to the DC IN port on the remote terminal.
- d. Connect the AC power cord to a surge protector or power strip.



Note: It is recommended that the remote terminal be protected by a surge protector. Power surges are a common cause of failure for electronic devices.



Note: Do not connect the surge protector or power strip to the wall outlet until instructed to do so.

### DC/DC power supply:

- a. Retrieve the DC/DC power supply kit (HNS part number 1036088-0001) that was shipped with the remote terminal. The kit contains the power supply (HNS part number 1033554-0001) and a DC input cable kit. The input cable kit contains an input power connector, connector pins, and a wiring diagram; the input cable kit does not include wire. The DC/DC power supply is shown in Figure 11.
- b. Refer to the wiring diagram and assemble the DC input power cable.
- c. Connect the input power connector to the power supply.
- d. Connect the DC power cord to the DC IN port on the remote terminal.



Note: Do not connect the input power cable to a power source until instructed to do so.

---

## CAUTION

- This unit's performance may suffer if the wrong power supply is used. Always use the power supply provided with the system.
  - NEVER pull the DC power cord from the back of the remote terminal. Doing so could damage the pins and also cause a short in the system.
  - When power needs to be removed from a remote terminal that uses an AC/DC power supply, ALWAYS unplug the AC power cord from the wall outlet, surge protector, or power strip.
  - When power needs to be removed from a remote terminal that uses a DC/DC power supply, ALWAYS unplug the DC input cable connector from the power supply.
  - Power supply with the part number 1031105-0001 is to be used only in the United States and Canada.
  - AC/DC power supplies must be used with 110/240-volt AC input.
  - If the remote terminal is installed outside the United States and Canada, always observe the power standards and requirements of the country where it is installed.
-



Note: Some installation and troubleshooting steps require you to power-cycle the remote terminal. When power-cycling a remote terminal that uses an AC/DC power supply, always disconnect the AC power cord from the power source. When power-cycling a remote terminal that uses a DC/DC power supply, always disconnect the DC input cable connector from the power supply.

---

## Powering up and observing the remote terminal's LEDs

If the remote terminal for your installation uses an AC/DC power supply, and the power supply's AC power cord is connected to a power strip or surge protector, connect the power strip or surge protector to a 110 V wall outlet or other AC power source.

The remote terminal LEDs come on in the following order when power is applied to the terminal or after a terminal resets:

1. All LEDs come on for 1/2 second.
2. Power LED comes on solid, indicating the remote terminal is powered up.
3. LAN LED comes on within 30 seconds, indicating LAN connectivity is detected.
4. Power LED blinks, indicating the unit is not commissioned and therefore is running fallback.bin and not main.bin.



Note: In countries outside North America, the remote terminal may be plugged directly into a 240 V outlet with a replacement power cord. Different countries may have different standards and requirements.



Note: Whenever the LEDs do not function properly as described in this section, make sure you have the correct power supply. Refer to the equipment specification table on page 5 of this manual for detailed power supply specifications.



# Commissioning the remote terminal

---

This chapter explains how to register a remote terminal for service.

Procedures are provided for the following commissioning methods:

- *Satellite-based commissioning (SBC)* on page 21
- *Dial-up commissioning* on page 40
- *Manual commissioning* on page 56

---

## Satellite-based commissioning (SBC)

Commissioning the remote terminal using SBC consists of the following tasks:

- *Obtaining an IP address from the remote terminal*
- *Uploading the sbc.cfg file to the remote terminal*
- *Commissioning the remote terminal*

### Obtaining an IP address from the remote terminal

1. Make sure the installer laptop PC is configured to support the Dynamic Host Control Protocol (DHCP). Refer to Appendix B for instructions explaining how to configure the laptop to support DHCP.
2. Verify the installer laptop PC is connected to the remote terminal with an Ethernet cable.
3. Open a command prompt or window on the installer PC.
4. Type **ipconfig /release** and press **Enter**.
5. Type **ipconfig /renew** and press **Enter**.

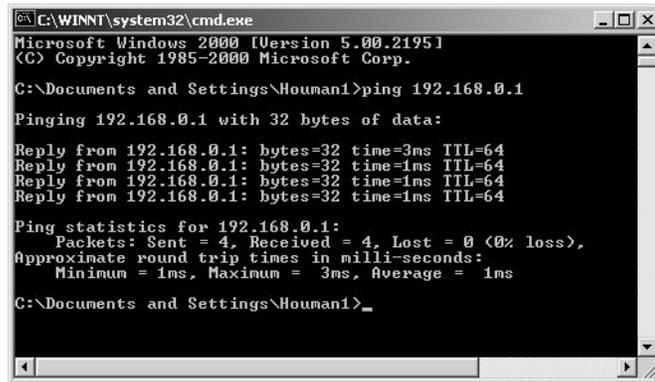


Note: Type **ipconfig /help** at a command line prompt and press **ENTER** to view all IP configuration commands.

If the remote terminal does not assign IP address 192.168.0.2 to the installer PC, restart the installer PC to obtain the IP address.

6. Execute a ping test to verify the Ethernet connection between the remote terminal and laptop PC is active:
  - a. Open a command prompt or window on the installer PC.
  - b. Type **ping 192.168.0.1**.
  - c. Press **ENTER**.

A successful ping test is shown in Figure 12.



```
C:\WINNT\system32\cmd.exe
Microsoft Windows 2000 [Version 5.00.2195]
(C) Copyright 1985-2000 Microsoft Corp.

C:\Documents and Settings\Houman1>ping 192.168.0.1

Pinging 192.168.0.1 with 32 bytes of data:

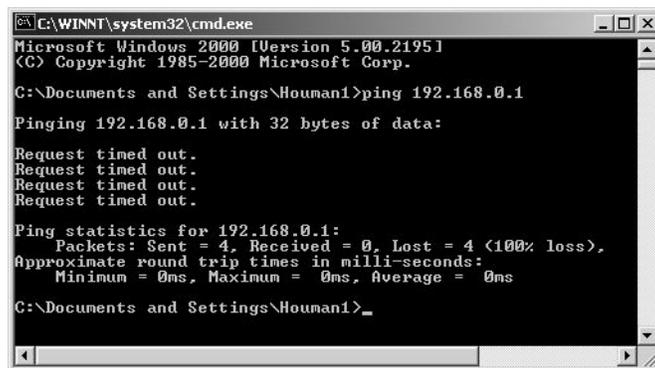
Reply from 192.168.0.1: bytes=32 time=3ms TTL=64
Reply from 192.168.0.1: bytes=32 time=1ms TTL=64
Reply from 192.168.0.1: bytes=32 time=1ms TTL=64
Reply from 192.168.0.1: bytes=32 time=1ms TTL=64

Ping statistics for 192.168.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 3ms, Average = 1ms

C:\Documents and Settings\Houman1>_
```

Figure 12: Successful ping

A failed ping test is shown in Figure 13. If the ping test fails, make sure the laptop PC's Network Interface Card (NIC) is properly installed and the laptop PC is properly configured to support DHCP.



```
C:\WINNT\system32\cmd.exe
Microsoft Windows 2000 [Version 5.00.2195]
(C) Copyright 1985-2000 Microsoft Corp.

C:\Documents and Settings\Houman1>ping 192.168.0.1

Pinging 192.168.0.1 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.0.1:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Documents and Settings\Houman1>_
```

Figure 13: Failed ping

If the NIC is installed properly and the laptop PC is configured properly, make sure all cable connections are secure. If they are, unplug the remote terminal from the surge protector or other power source; shut down and power off the computer; plug the remote terminal back in, and turn the computer back on. Also, make sure an Ethernet router or switch is not currently connected to the remote terminal and customer's computer. Then try the ping test again. If it is unsuccessful, call installer support for assistance.

## Uploading the sbc.cfg file to the remote terminal

The *sbc.cfg* file contains satellite information for SBC and the auto-commissioning server (ACS) to be used for the commissioning process. Once you have obtained the *sbc.cfg* file, save it on the installer PC making sure to note the location where the file is saved; then complete the steps below.

Skip to *Commissioning the remote terminal* on page 25 if you do not have to upload an *sbc.cfg* file to the remote terminal.

1. Open a browser on the installer laptop.
2. Type **<http://192.168.0.1/fs/registration/setup.html>** in the address bar and press **ENTER**.
3. Click **Config File Upload** on the Setup screen shown in Figure 14.

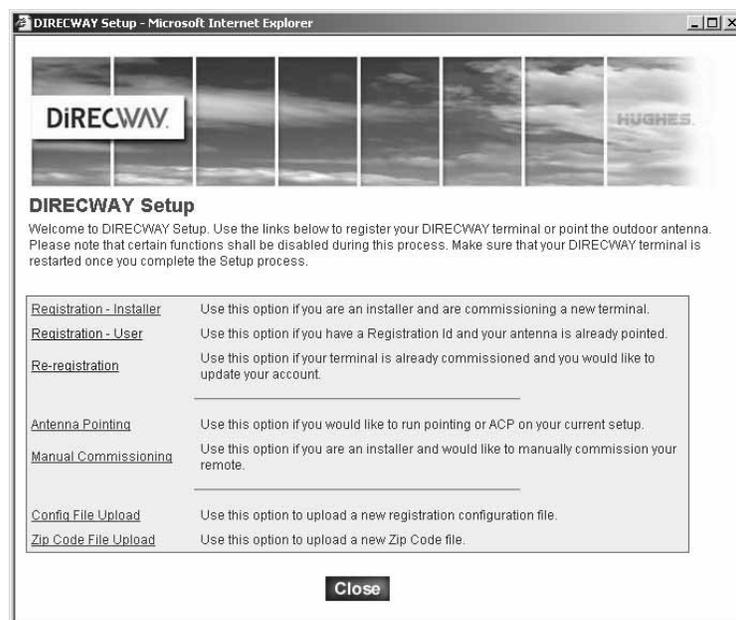


Figure 14: DIRECWAY Setup screen



Note: Do not click **Zip Code File Upload** because this link is used to update the zip code table in the remote terminal.

4. Click **Browse** on the Configuration File Upload screen shown in Figure 15.

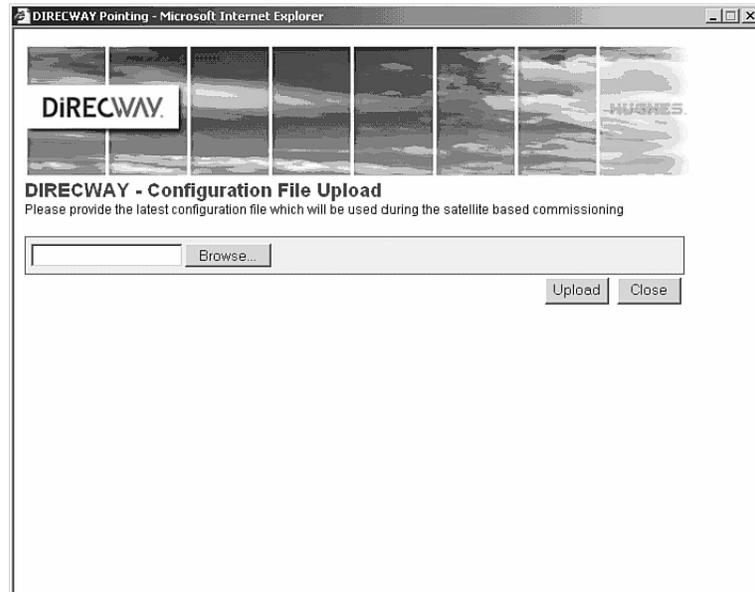


Figure 15: Configuration File Upload screen

5. Navigate to the location on the installer PC where the *sbc.cfg* file is saved.
6. Select the file and click **Open**. See Figure 16.

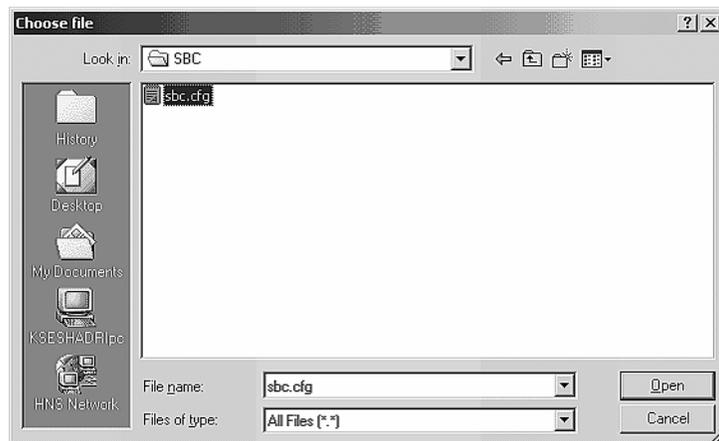


Figure 16: Locating the sbc.cfg file

7. Click **Upload**.
8. Click **Close** on the Configuration File Upload screen shown in Figure 17 to return to the Setup screen.

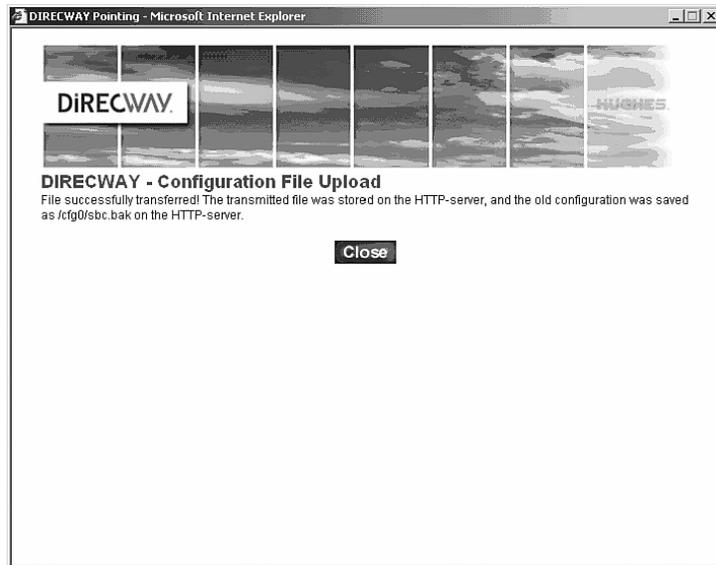


Figure 17: Confirming sbc.cfg file upload to the remote terminal

### Commissioning the remote terminal

Follow these steps to commission the remote terminal:

1. Open a browser on the installer laptop.
2. Type **http://192.168.0.1/fs/registration/setup.html** in the address bar and press **ENTER**.
3. Click **Registration - Installer** on the DIRECWAY Setup screen. See Figure 18.

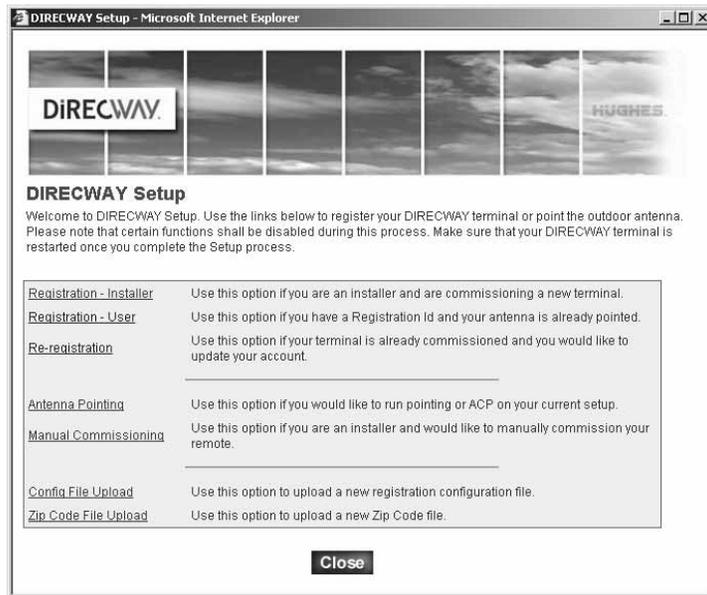


Figure 18: DIRECWAY Setup screen

4. Enter the ZIP code of the location where you are installing the remote terminal on the Antenna Location screen shown in Figure 19 and click **Next**.

If you are installing the remote terminal for an International customer, you may complete steps a - c on page 27 to manually enter the antenna location.

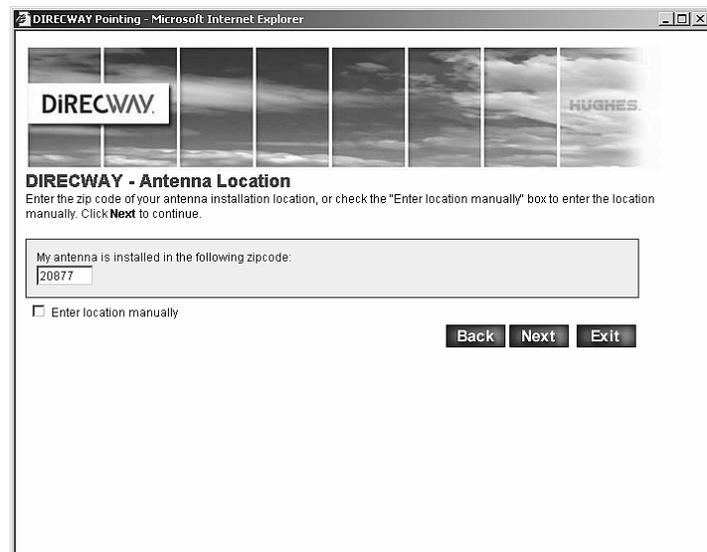


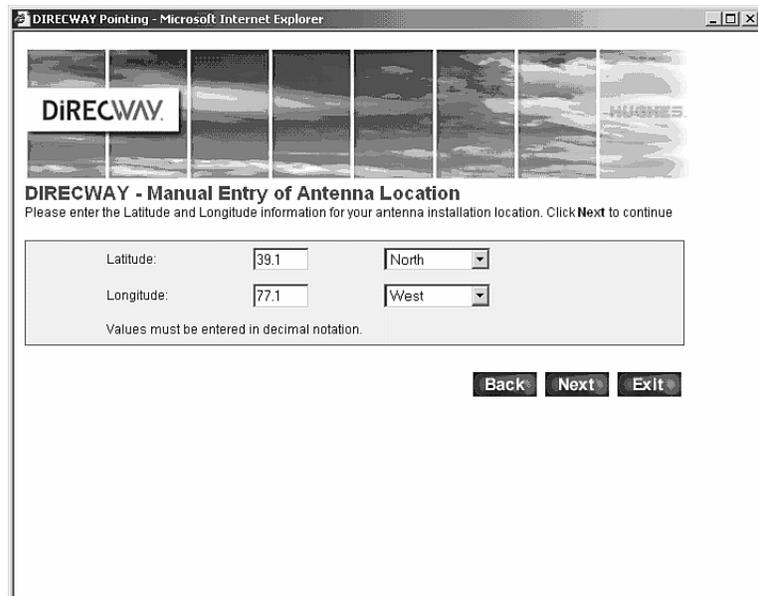
Figure 19: Antenna location

The location where the remote terminal is installed may also be entered manually. Follow steps a through c below to manually enter the antenna location.

- a. Select the Enter Location Manually check box on the Antenna Location screen shown in Figure 19.
- b. Enter the longitude and latitude for your location on the Manual Entry of Antenna Location screen shown in Figure 20.

Refer to Appendix E – *Lat/Long Decimals to Minutes Table*, on page 141 to determine latitude and longitude decimal to minutes conversion.

- c. Click **Next**.



The screenshot shows a web browser window titled "DIRECWAY Pointing - Microsoft Internet Explorer". The page header features the DIRECWAY logo and a banner image. The main heading is "DIRECWAY - Manual Entry of Antenna Location", followed by the instruction: "Please enter the Latitude and Longitude information for your antenna installation location. Click Next to continue". The form contains two rows of input fields: "Latitude:" with a text box containing "39.1" and a dropdown menu set to "North"; and "Longitude:" with a text box containing "77.1" and a dropdown menu set to "West". Below the form, a note states "Values must be entered in decimal notation." At the bottom right, there are three buttons: "Back", "Next", and "Exit".

Figure 20: Entering location manually

5. Verify the information displayed on the Verification of Antenna Location screen shown in Figure 21 is correct.

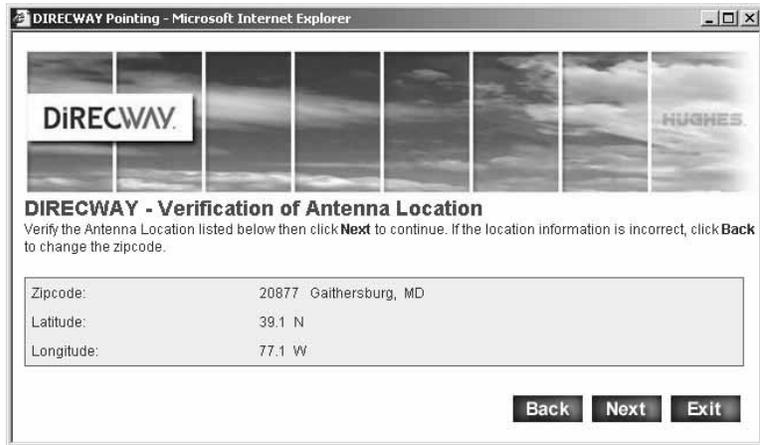


Figure 21: Verifying antenna location

6. Click **Next**.
7. Click the *Satellite Transponders* drop-down menu on the Satellite Parameters screen shown in Figure 22 and select the satellite and transponder listed on the work order or in the installation specification; then click **Next**.

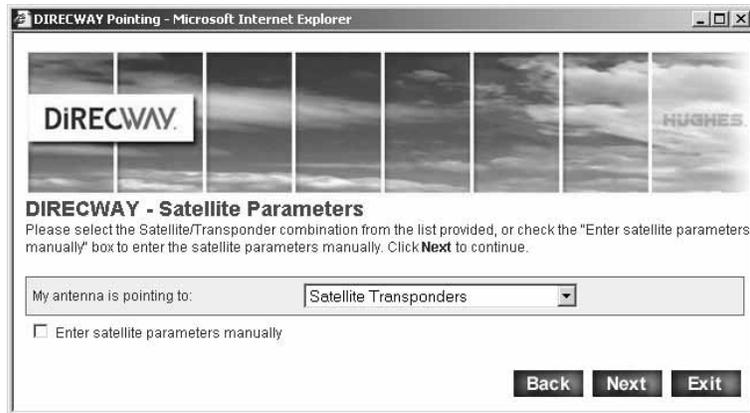


Figure 22: Selecting the satellite and transponder

If the satellite and transponder for your installation are not listed in the drop-down menu, and you were not provided with an *sbc.cfg* file, then you must complete steps a - d below to manually enter satellite parameters. The satellite parameters should have been provided to you in a technical update e-mail or in an installation specification.

- a. Select the Enter satellite parameters manually check box on the Satellite Parameters screen shown in Figure 22.
- b. Click **Next**.
- c. Enter or select the parameters on the Manual Entry of Satellite Parameters screen shown in Figure 23:
  - Longitude
  - Hemisphere
  - Frequency
  - Symbol rate
  - Receive polarization
  - Transmit polarization
  - 22KHz tone
  - Frequency Band/Modulation
  - DVB Mode
  - DVB Program Num (User Data)
  - DVB Program Num (DNCC Data)
  - Enable OPI Display
- d. Click **Next**.

The screenshot shows a web browser window titled "DIRECWAY Pointing - Microsoft Internet Explorer". The page header features the DIRECWAY logo on the left and the HUGHES logo on the right, set against a background of a satellite dish. Below the header, the main heading is "DIRECWAY - Manual Entry of Satellite Parameters", followed by the instruction "Please enter the Satellite Parameters below then click **Next** to continue."

The form contains the following fields and controls:

Longitude (Degrees):	117	West	22KHz Tone:	Off
Frequency:	1270.0	MHz	Frequency Band / Modulation:	Ku Band - QPSK
Symbol Rate:	30.00	Msp/s	DVB Mode:	DVB-S
Receive Polarization:	V		DVB Program Num(User Data):	20500
Transmit Polarization:	H		DVB Program Num(DNCC Data):	40000
			Enable OPI Display:	<input type="checkbox"/>

At the bottom right of the form, there are three buttons: **Back**, **Next**, and **Exit**.

Figure 23: Entering satellite parameters manually

- Verify the information on the Verification of Satellite Parameters screen shown in Figure 24 is correct.



Note: You are only required to verify the satellite parameters are correct if you selected the satellite and transponder as shown in Figure 22. If you manually entered the satellite parameters, the Verification of Satellite Parameters screen does not appear.

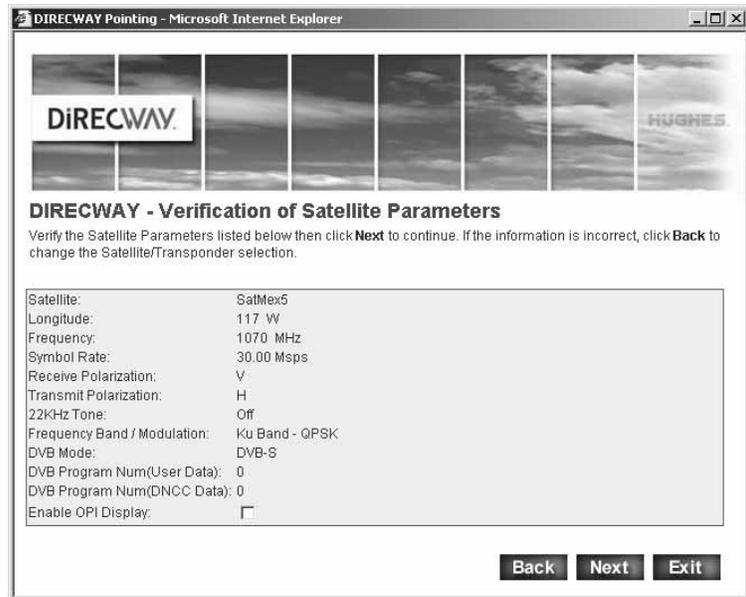


Figure 24: Verifying satellite parameters



Note: The Enable OPI Display box must be selected on the Verification of Satellite Parameters screen if an OPI is used to point the antenna.

- Click **Next**.

10. Select the transmit radio type on the Transmit Radio Parameters screen shown in Figure 25.  
If you are instructed to select the transmit radio part number, click the Select transmit radio part number check box and click **Next**. Then select the transmit radio part number from the drop-down menu on the screen that appears and click **Next**.

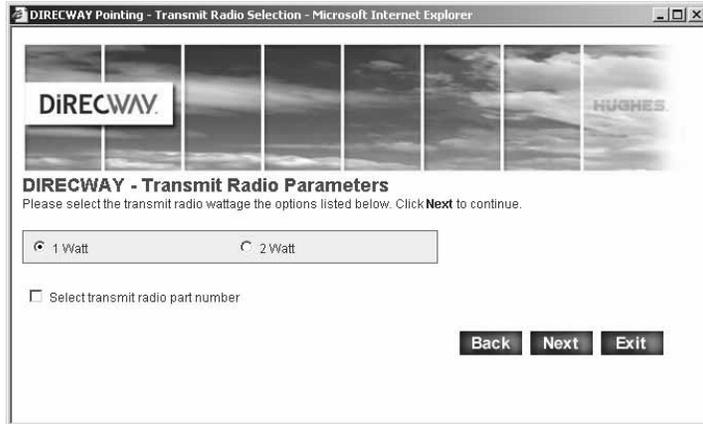


Figure 25: Selecting the transmit radio

11. Click **Next**.
12. Click **Display Signal Strength** on the Receive Antenna Pointing screen shown in Figure 26 to open the Signal Quality window.

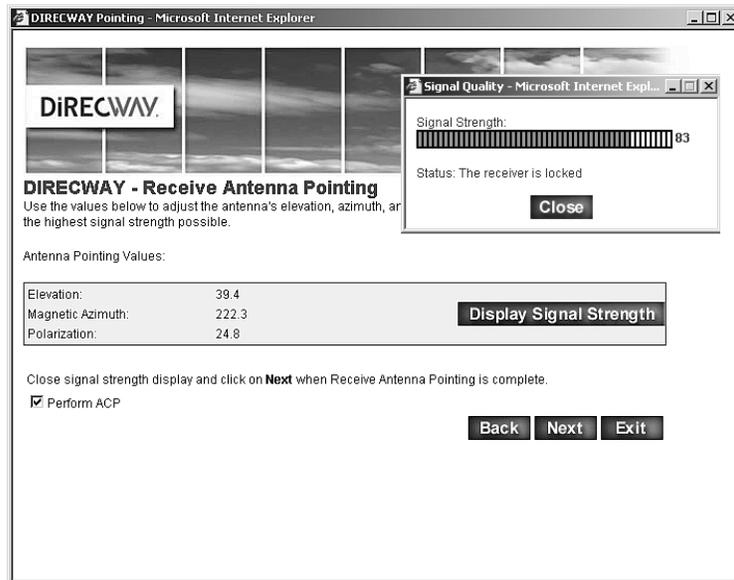


Figure 26: Receive pointing



Note: The Signal Quality window may not appear on top. Just minimize the other windows until you can see it.

13. Peak the receive pointing as instructed in the antenna installation manual.



Note: You must peak the signal even when the antenna is locked to it.

14. Click **Close** to close the Signal Quality window after peaking the signal.
15. Select the Perform ACP check box on the Receive Antenna Pointing screen if your service provider offers automated cross-polarization (ACP).



Note: In most cases, the Perform ACP check box is automatically selected when the antenna is locked to the signal.

16. Click **Next**.
17. Click **Manual** on the Transmit Antenna Pointing screen shown in Figure 27 to initiate the manual cross-pol test.

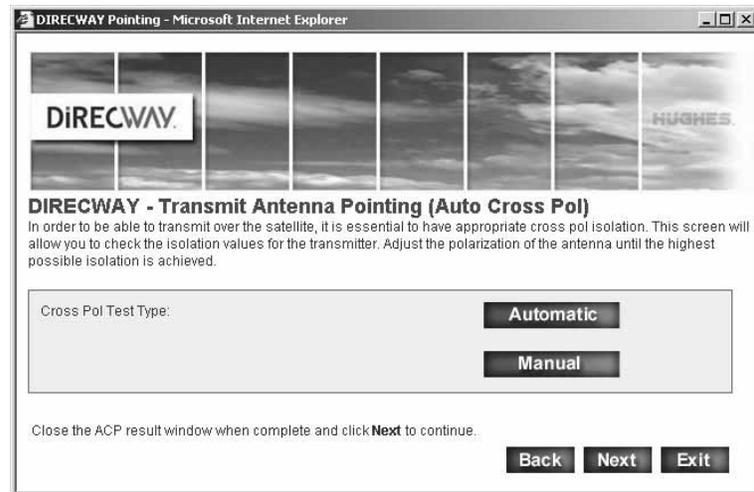


Figure 27: Executing a manual cross-polarization test

18. Click **Continue** on the Warning pop-up shown in Figure 28.

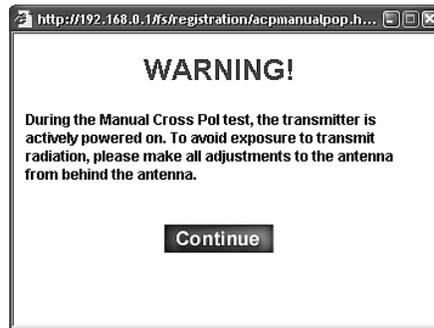


Figure 28: Manual cross-pol warning message

The test status, isolation value, and the pass/fail result are displayed in the Cross Pol Test window shown in Figure 29.

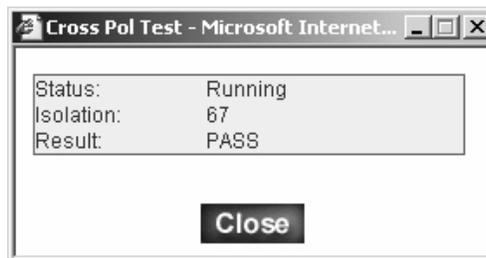


Figure 29: Manual cross-pol test results



Note: The manual cross-pol test times-out 3-5 minutes after clicking on the Manual button. Make sure any antenna adjustments required to achieve maximum transmit isolation are completed within this time frame.

19. Adjust the antenna during the manual cross-pol test to achieve maximum transmit isolation.
20. Bolt down the antenna when the unit consistently passes the manual cross-pol test.
21. Click **Close** to close the Cross Pol Test window.
22. Click **Automatic** on the Transmit Antenna Pointing screen to initiate the automatic cross-pol (ACP) test.  
Repeat step 19 if the unit does not pass the ACP test.
23. Click **Close** to close the Cross Pol Test Window if the unit passes the ACP test.
24. Click **Next** on the Transmit Antenna Pointing screen.

25. Select a registration server from the drop-down menu on the Registration Server Selection screen. See Figure 30. Refer to the installation specification or work order if you are unsure which server to select.



Figure 30: Selecting the registration server

You may also manually enter the registration server's address by following these steps:

- a. Select the Enter Registration Server address manually check box.
- b. Enter the registration server's address in the HTTP:// field.
- c. Select the Secure HTTP Mode check box to enable a secure connection to the registration server.

26. Click **Next**.

The Registration In Progress screen shown in Figure 31 appears. The screen displays registration status information.



Figure 31: Registration in progress

27. Click **Next** on the when prompted to do so.

28. Click **OK** on the pop-up window shown in Figure 32 to access the registration server.

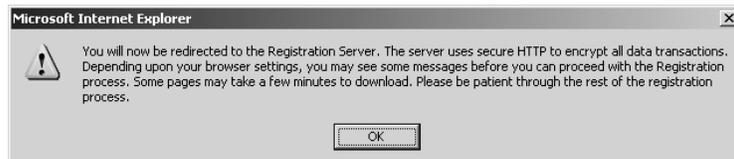


Figure 32: Accessing the registration server

29. If you receive the Security Alert pop-up window shown in Figure 33, click **Yes** to accept the security certificate.

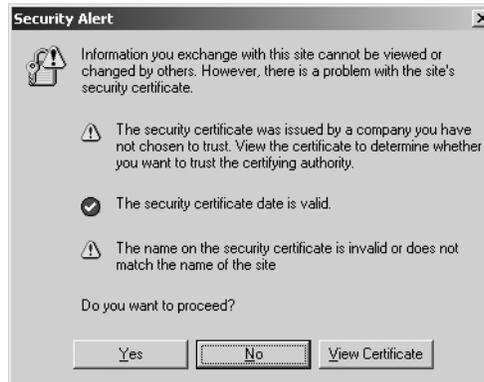


Figure 33: Accepting the security certificate

**If the SAN\_AND\_PIN\_Registration server was selected in step 25, complete steps 30 and 31; then continue with step 34.**

**If the SiteID\_Registration server was selected in step 25, continue with step 33.**

30. If you are installing the terminal for a customer in the United States, ask the customer to review and accept the subscriber agreement shown in Figure 34.

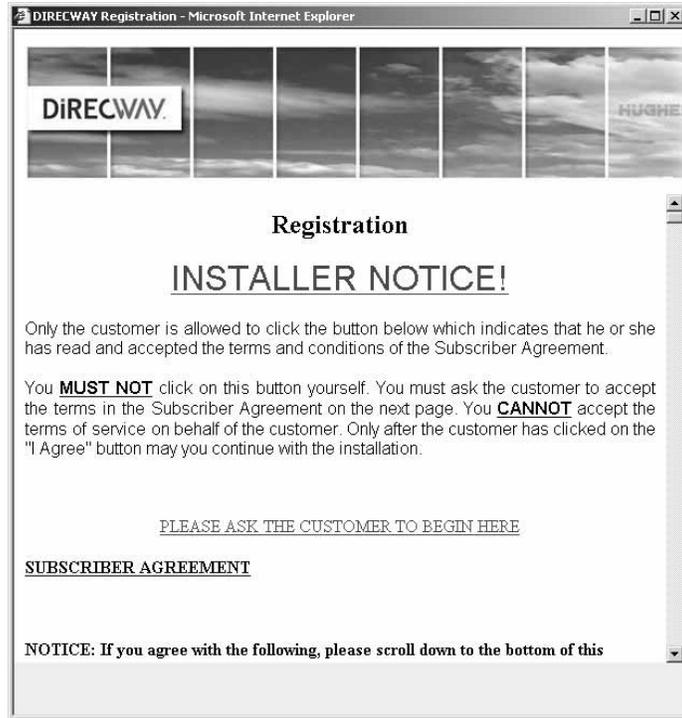


Figure 34: Accepting the subscriber agreement



Note: Subscriber agreements may vary by customer type

31. If you are installing the terminal for a customer in the United States, ask the customer to enter their site account number (SAN) and PIN and then click **Continue** on the consumer registration screen shown in Figure 35.  
If you are installing the terminal for an International customer, enter the appropriate registration information when prompted to do so.
32. Click **Continue** on the Welcome screen that appears.

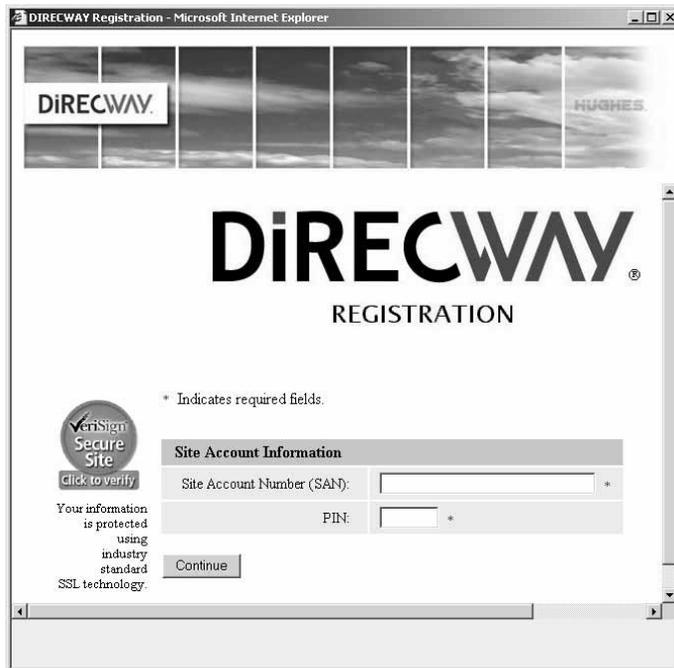


Figure 35: Registering a remote terminal: entering SAN and PIN

33. Enter the enterprise customer's site ID on the enterprise registration screen and click **Continue**. See Figure 36.



Figure 36: Registering a remote terminal: entering site ID

34. Click **Continue** on the Registration screen shown in Figure 37 to download configuration parameters to the remote terminal.



Figure 37: Completing registration

35. Click **Restart** on the Registration Complete screen shown in Figure 38 to restart the remote terminal.

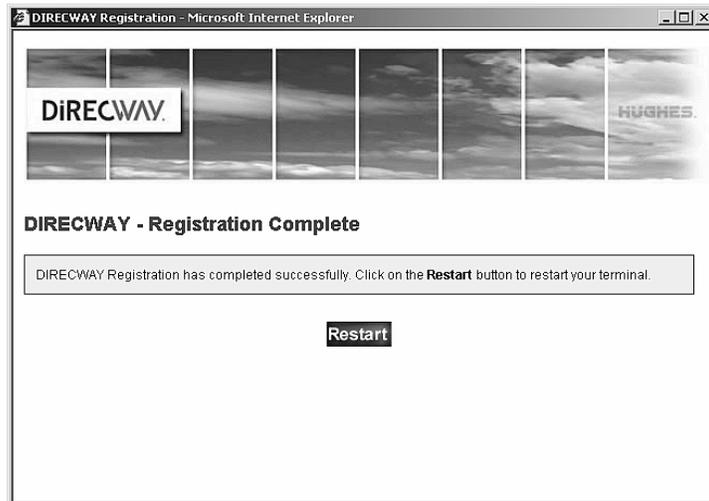


Figure 38: Restarting the remote terminal

36. Click **Close** on the Terminal Reset screen shown in Figure 39 to close the screen.

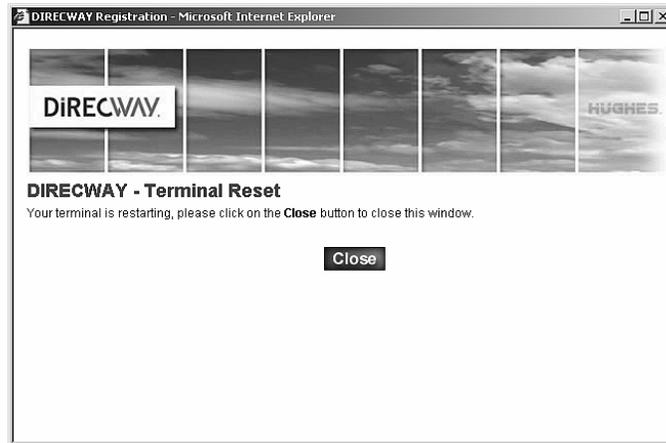


Figure 39: Completing the commissioning process

The remote terminal resets and is now commissioned. Continue with Chapter 5 – *Configuring the DW7700 for DVADB*, on page 61 if you are installing the remote terminal for an enterprise customer that will use the DIRECWAY Virtual Private Network Automatic Dial Backup (DVADB) feature.

Continue with Chapter 6 – *Completing the installation*, on page 71 if the customer will not use the DVADB feature.

---

## Dial-up commissioning

The dial-up commissioning method consists of the following tasks:

- *Installing the installation software*
- *Selecting the transmit radio type*
- *Registering the remote terminal for service*
- *Peaking the receive and transmit signals*

### Installing the installation software

The installation software CD contains a WebSetup feature that is used to register the remote terminal for service. The Antenna Pointing feature on the remote terminal’s web-based interface is used to peak the receive signal (from the NOC to the antenna assembly) and transmit signal (from the antenna assembly to the NOC).

The software on the installation software CD is different than the software that operates the remote terminal. The software that operates the remote terminal is downloaded to the terminal during the commissioning process.



Note: You may see a pop-up window stating the hardware driver for the IRU has not passed Windows logo testing. Click **Continue Anyway** to continue. HNS has tested the installer software and confirmed it functions on the operating systems identified in *Confirming installer laptop and customer site requirements* on page 11.

Follow these steps to install the software on the installer laptop:

1. Insert the installation software CD in the appropriate drive on the installer laptop PC.  
If the installation wizard does not appear, follow these steps:
  - a. Click **Start** on the Windows task bar.
  - b. Select *Run . . . .*
  - c. Click **Browse . . . .**
  - d. Click the *Look in* drop-down menu and select the drive that contains the installation software CD.
  - e. Select the setup.exe file.
  - f. Click **Open**.
2. Select **Install Software**. A Setup screen appears.



Figure 40: Installing DIRECWAY installation software

3. Select **Next**. An Agreement screen appears.

4. Select **Yes**. The Device Install Status screen shown in Figure 41 appears.



Figure 41: Device Installation Status

5. Connect the USB cable to the installer laptop and IRU. The installation completes and the WebSetup Welcome screen shown in Figure 42 appears.



Figure 42: WebSetup Welcome screen

If you are prompted for the location of your Windows .cab files, enter the location or insert your Windows installation CD, load the files, and re-insert the DIRECWAY installation CD.

If you continue to see the Device Install Status screen, follow these steps:

- a. Unplug the USB cable from the installer laptop PC and IRU and plug it in again.
  - b. Verify you are using the correct power supply.
  - c. Try a different cable.
  - d. Troubleshoot your USB port or cable.
  - e. Try a different IRU.
6. Select **Exit**.



Note: If you are using Windows XP as the installer laptop operating system, the laptop may reboot after you attach the USB cable. If this occurs, unplug the USB cable and repeat the installation process after the laptop reboots.

## Selecting the transmit radio type

Follow the steps below to select the transmit radio type. The transmit radio type must be selected before the antenna is pointed.

1. Open a web browser on the installer laptop.
2. Type **http://192.168.0.1/fs/registration/setup.html** in the browser's address or location bar and press **ENTER** to access the DIRECWAY Setup screen. See Figure 43.
3. Click **Manual Commissioning** to access the Manual Commissioning page shown in Figure 44.

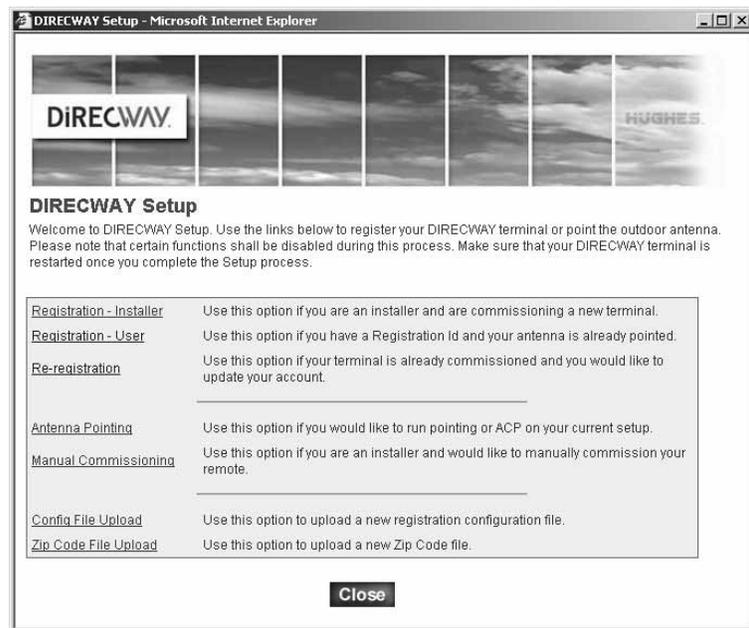


Figure 43: Accessing the DIRECWAY Setup screen

4. Select 1 Watt or 2 Watt in the Transmit Radio section at the bottom right section of the page.

You may also select More Options and choose the transmit radio from the *Transmit Radios Part Number* drop-down menu.

5. Click **Save Configuration**.

The screenshot shows a web browser window titled "VSAT Manual Commissioning - Microsoft Internet Explorer" displaying the "DIRECWAY DW7700 Manual Commissioning" page. The page is organized into four main sections:

- Satellite Parameters:** Includes fields for Longitude (Degrees/Hemisphere) set to 99 West, Frequency (x 100Khz) set to 13300, Symbol Rate (Sps) set to 30000000, LNB 22KHz Switch set to Off, DVB Mode set to DVB-S, Frequency Band/Modulation set to Ku Band - QPSK, Receive Polarization set to Horizontal, and Transmit Polarization set to Horizontal.
- VSAT Parameters:** Includes Longitude (Degree: 77, Minutes: 5, Hemisphere: West) and Latitude (Degree: 39, Minutes: 0, Hemisphere: North).
- LAN Parameters:** Includes LAN 1 IP Address (13.14.14.1), LAN 1 Subnet Mask (255.255.255.0), LAN 2 IP Address (optional) (13.13.13.12), and LAN 2 Subnet Mask (optional) (255.255.255.0).
- Management Parameters:** Includes IP Gateway IP Address (192.168.12.100), SDL Control Channel IP Address (224.1.1.6), DVB Program Num for User Data (20500), DVB Program Num for DNCC Data (40000), VSAT Management IP Address (10.1.1.61), Default Gateway IP Address (LAN RETURN only) (0.0.0.0), VSAT Return Path (Inroute), and Transmit Radio options (1 Watt, 2 Watt, More Options). A dropdown menu for "Transmit Radios Part Number" is also present.

At the bottom of the form, there are two buttons: "Save Configuration" and "Cancel".

Figure 44: Accessing the Manual Commissioning page

## Registering the remote terminal for service

Follow the steps below to use the WebSetup feature to register the remote terminal for service.

---

### CAUTION



Do not connect the power supply to the remote terminal, or connect the power supply to a power source, before instructed to do so.

---

1. Connect the installer laptop PC to an analog telephone line or alternate connection to the Internet.
2. On the Windows task bar, select **Start**→ *Programs*→ *Direcway Installer*→ *WebSetup*.
3. Select the registration server on the Welcome screen shown in Figure 45 and click **Next**.

Refer to the work order or installation specification for the correct registration server.



Figure 45: Selecting the registration server



**Note:** If the Welcome screen does not appear, make sure all cable connections are secure. If all cable connections are secure, restart the installer laptop PC. Contact technical support if the Welcome screen still does not appear.

4. Click **Next** on the Detection screen after the Gateway Host and remote terminal are detected. See Figure 46.

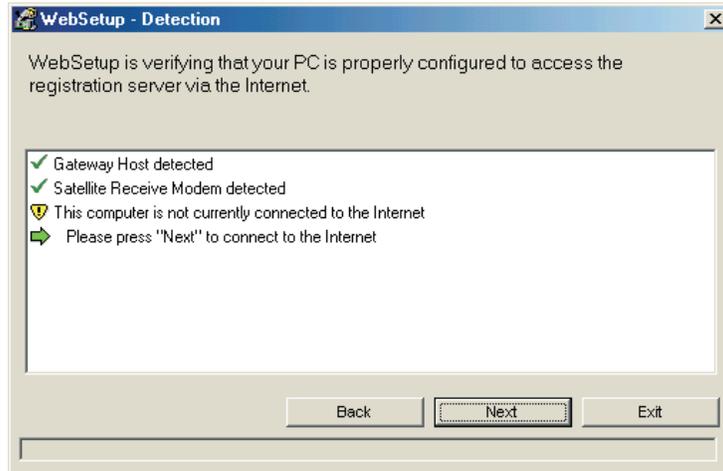


Figure 46: Detecting the Gateway Host and remote terminal

WebSetup checks for an existing connection to the WebACS in the Network Operations Center (NOC). If a connection is not detected, WebSetup launches the Registration Access screen shown in Figure 47. Click the drop-down menu, select the modem installed in the installer laptop PC, and click **Next**.



Figure 47: Accessing the registration server

5. Click **Next** on the Registration Connection screen shown in Figure 48 when prompted to do so.



Figure 48: Registration Connection - Authentication

**If the Consumer Registration Server was selected in step 3, complete steps 6 and 7 and then continue with step 11.**

**If the Enterprise Registration Server was selected in step 3, continue with step 8.**

6. Ask the customer to review and accept the subscriber agreement shown in Figure 49.

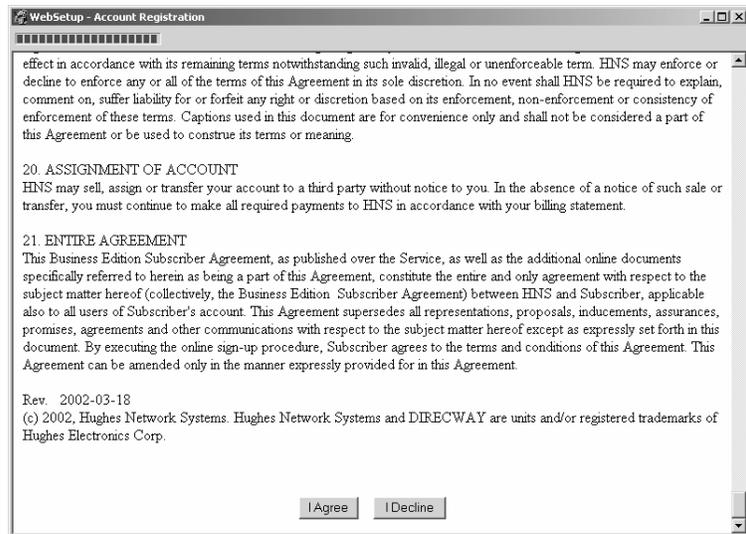


Figure 49: Accepting the subscriber agreement



Note: Subscriber agreements may vary by customer type and may be optional depending on the service provider.

7. Ask the customer to enter their site account number (SAN) and PIN and then click **Continue** on the consumer registration screen. See Figure 50.

If you are installing the terminal for an International customer, you do not enter a SAN and PIN. Enter the appropriate registration information when prompted to do so.



Figure 50: Registering a remote terminal: entering SAN and PIN

8. Enter the enterprise customer's site ID on the enterprise registration screen and click **Continue**. See Figure 51.



Figure 51: Registering a remote terminal: entering the site ID

9. Click **Next** when registration is complete.
10. Select **Continue** on the Registration screen. See Figure 52.



Note: For end consumers, record the information displayed on the Registration screen on their Quick Start Guide. The customer can then refer to their Quick Start Guide should they need to contact technical support for assistance.



Figure 52: Completing registration

11. Verify the zip code displayed on the Antenna Location screen matches the zip code for the installation site and click **Next**. Correct the zip code if necessary. See Figure 53.  
If you are installing the terminal for an International customer, you may need to select the *Enter location manually* check box to enter the antenna location.

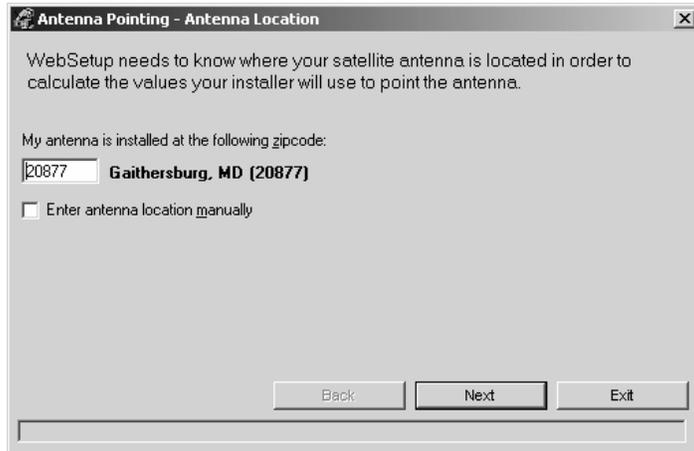


Figure 53: Verifying the site zip code is correct

12. Click **Next** on the Antenna Pointing - Receiver screen shown in Figure 54. Configuration parameters from the WebACS in the NOC are then downloaded to the terminal.

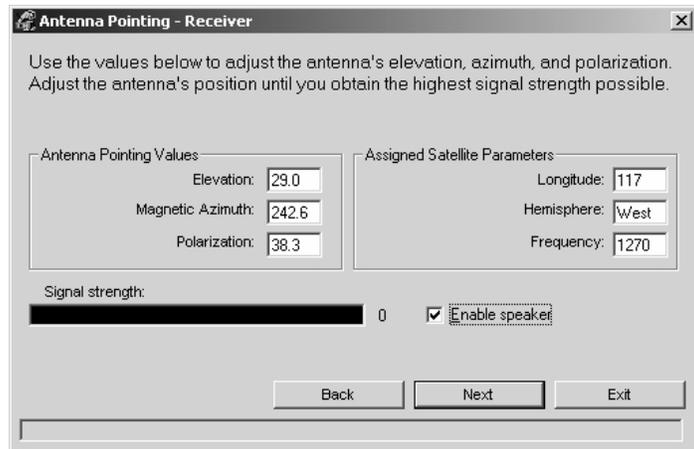


Figure 54: Antenna Pointing - Receiver



Note: Do not disconnect the power cables before completing step 13.

13. Click **Finish** on the WebSetup - Finish screen shown in Figure 55 when prompted to do so. The remote terminal is now commissioned.



Figure 55: Completing the commissioning process

### Peaking the receive and transmit signals

Follow these steps to use the Antenna Pointing feature on the remote terminal's web-based interface to peak the receive and transmit signals:

1. Unplug the remote terminal power cord from the power source.
2. Remove the phone line from the installer laptop PC.
3. Connect the receive and transmit coaxial cables to the remote terminal. Make sure to label the receive and transmit cables.
4. Place the outdoor pointing interface (OPI) in the receive cable line if applicable.
5. Power on the remote terminal.
6. Open a web browser on the installer laptop.
7. Type **http://192.168.0.1/fs/registration/setup.html** in the browser's address or location bar and press **ENTER** to access the DIRECWAY Setup screen. See Figure 61.
8. Click **Antenna Pointing**.

9. Click **Next** on the Antenna Pointing screen shown Figure 56. Select the Enable OPI check box if an OPI is used to point the antenna.



Figure 56: Dial-up commissioning: accessing the antenna pointing screens

10. Click **Display Signal Strength** on the Receive Antenna Pointing screen shown in Figure 57 to open the Signal Quality window.

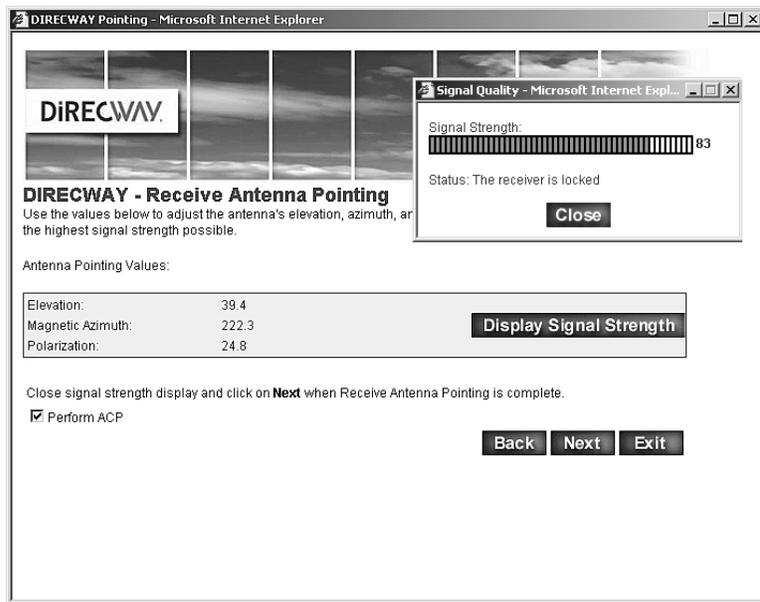


Figure 57: Receive pointing



Note: The Signal Quality window may not appear on top. Just minimize the other windows until you can see it.

11. Peak the receive pointing as instructed in the antenna installation manual.



Note: You must peak the signal even when the antenna is locked to it.

12. Click **Close** to close the Signal Quality window after peaking the signal.

If you do not wish to transmit point the antenna, click **Exit** on the Receive Antenna Pointing screen to quit Antenna Pointing.

13. Select the Perform ACP check box on the Receive Antenna Pointing screen if your service provider offers automated cross-polarization (ACP).



Note: In most cases, the Perform ACP check box is automatically selected when the antenna is locked to the signal.

14. Click **Next**.
15. Click **Manual** on the Transmit Antenna Pointing screen shown in Figure 58 to initiate the manual cross-pol test.

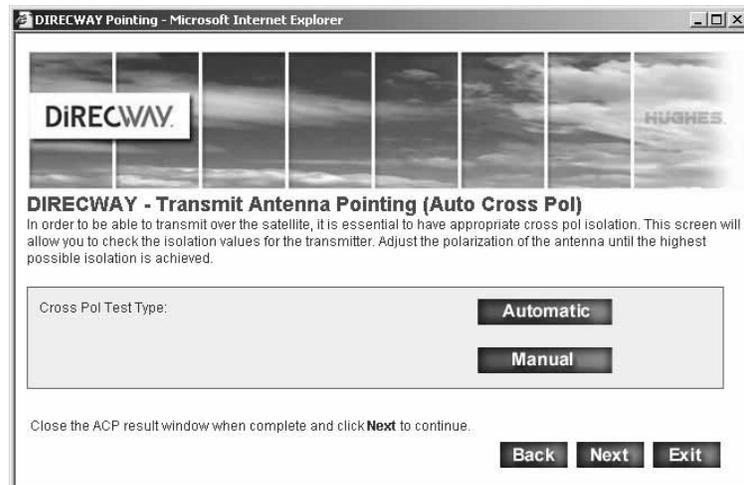


Figure 58: Executing a manual cross-polarization test

16. Click **Continue** on the Warning pop-up shown in Figure 59.

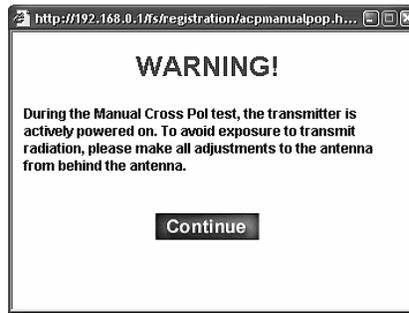


Figure 59: Manual cross-pol warning message

The test status, isolation value, and the pass/fail result are displayed in the Cross Pol Test window shown in Figure 60.

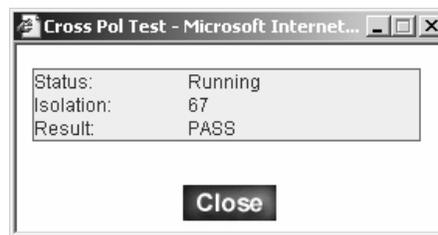


Figure 60: Manual cross-pol test results



Note: The manual cross-pol test times-out 3-5 minutes after clicking on the Manual button. Make sure any antenna adjustments required to achieve maximum transmit isolation are completed within this time frame.

17. Adjust the antenna during the manual cross-pol test to achieve maximum transmit isolation.
18. Bolt down the antenna when the unit consistently passes the manual cross-pol test.
19. Click **Close** to close the Cross Pol Test window.
20. Click **Automatic** on the Transmit Antenna Pointing screen to initiate the automatic cross-pol (ACP) test.  
Re-peak the transmit isolation in manual mode if the unit does not pass the ACP test.
21. Click **Close** to close the Cross Pol Test Window if the unit passes the ACP test.
22. Click **Exit** on the Transmit Antenna Pointing screen to exit the Antenna Pointing feature.

## Manual commissioning

Manually commissioning a remote terminal consists of the following tasks:

- *Entering manual commissioning parameters*
- *Antenna pointing*



Note: The terminal's serial number must be loaded at the NOC by a NOC representative in order to complete the manual commissioning process.

### Entering manual commissioning parameters

Follow these steps to enter manual commissioning parameters:

1. Open a web browser on the installer laptop.
2. Type **`http://192.168.0.1/fs/registration/setup.html`** in the browser's address or location bar and press **ENTER** to access the DIRECWAY Setup screen. See Figure 61.
3. Click **Manual Commissioning** to access the Manual Commissioning page shown in Figure 62.



Figure 61: Accessing the DIRECWAY Setup screen

4. Enter or select parameters on the Manual Commissioning page.

The parameters may be provided to you in an installation specification, work order, or in another form of communication from your installation point-of-contact.

5. Click **Save Configuration**.

The terminal reboots after saving the parameters.

**Satellite Parameters**

Longitude [Degrees/Hemisphere]   Frequency [x 100Khz]

Symbol Rate [Sps]  LNB 22kHz Switch

DVB Mode  Frequency Band/Modulation

Receive Polarization  Transmit Polarization

**VSAT Parameters**

Longitude	Degree	Minutes	Hemisphere	Latitude	Degree	Minutes	Hemisphere
<input type="text" value="77"/>	<input type="text" value="5"/>	<input type="text" value="West"/>	<input type="text" value="39"/>	<input type="text" value="0"/>	<input type="text" value="North"/>		

**LAN Parameters**

LAN 1 IP Address  LAN 1 Subnet Mask

LAN 2 IP Address (optional)  LAN 2 Subnet Mask (optional)

**Management Parameters**

IP Gateway IP Address  SDL Control Channel IP Address

DVB Program Num for User Data  DVB Program Num for DNCC Data

VSAT Management IP Address  Default Gateway IP Address (LAN RETURN only)

VSAT Return Path  Transmit Radio  1 Watt  2 Watt  More Options

Figure 62: Accessing the Manual Commissioning page

**Antenna pointing** Follow these steps to complete antenna pointing:

1. Open a web browser on the installer laptop.
2. Type **http://192.168.0.1/fs/registration/setup.html** in the browser's address or location bar and press **ENTER** to access the DIRECWAY Setup screen. See Figure 61.
3. Click **Antenna Pointing**.

4. Click **Next** on the Antenna Pointing screen shown Figure 63. Select the Enable OPI check box if an OPI is used to point the antenna.



Figure 63: Manual commissioning: accessing the antenna pointing screens

5. Click **Display Signal Strength** on the Receive Antenna Pointing screen shown in Figure 64 to open the Signal Quality window.

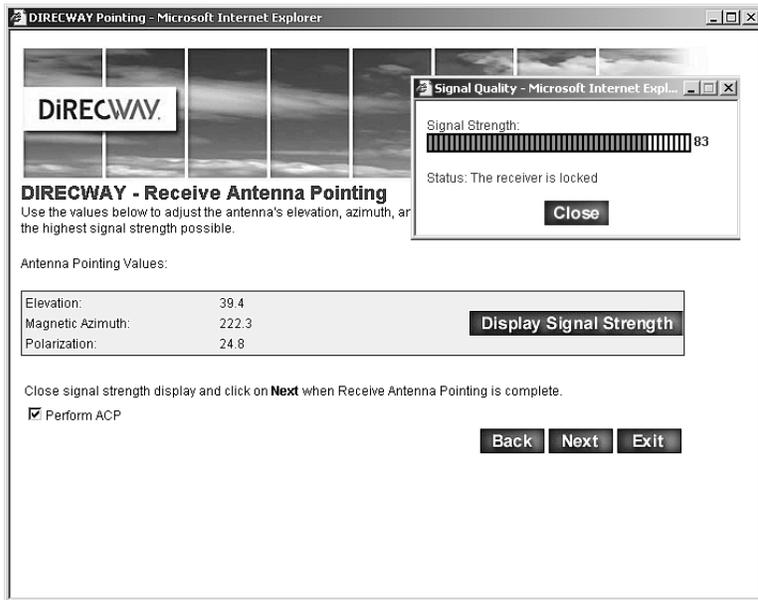


Figure 64: Receive pointing



Note: The Signal Quality window may not appear on top. Just minimize the other windows until you can see it.

6. Peak the receive pointing as instructed in the antenna installation manual.



Note: You must peak the signal even when the antenna is locked to it. A check mark appears in the **Perform ACP** check box on the Receive Antenna pointing screen when the signal is locked.

7. Click **Close** to close the Signal Quality window after peaking the signal.

If you do not wish to transmit point the antenna, click **Exit** on the Receive Antenna Pointing screen to quit Antenna Pointing.

If you need to transmit point the antenna, select the **Perform ACP** check box on the Receive Antenna Pointing screen and continue with step 8.



Note: In order to complete the ACP test, there must be an ACP server in your NOC.

8. Click **Next**.
9. Click **Manual** on the Transmit Antenna Pointing screen shown in Figure 65 to initiate the manual cross-pol test.

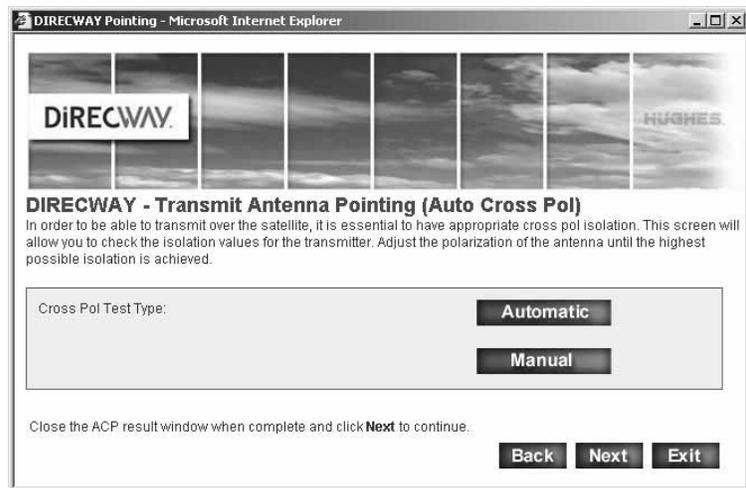


Figure 65: Executing a manual cross-polarization test

10. Click **Continue** on the Warning pop-up shown in Figure 66.

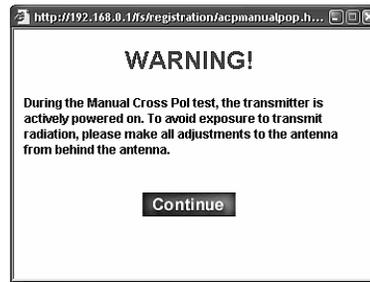


Figure 66: Manual cross-pol warning message

The test status, isolation value, and the pass/fail result are displayed in the Cross Pol Test window shown in Figure 67.

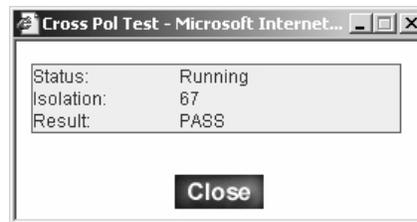


Figure 67: Manual cross-pol test results



Note: The manual cross-pol test times-out 3-5 minutes after clicking on the Manual button. Make sure antenna adjustments are completed within this time frame.

11. Adjust the antenna during the manual cross-pol test to achieve maximum transmit isolation.
12. Bolt down the antenna when the unit consistently passes the manual cross-pol test.
13. Click **Close** to close the Cross Pol Test window.
14. Click **Automatic** on the Transmit Antenna Pointing screen to initiate the automatic cross-pol (ACP) test.  
Re-peak the transmit isolation in manual mode if the unit does not pass the ACP test.
15. Click **Close** to close the Cross Pol Test Window if the unit passes the ACP test.
16. Click **Exit** on the Transmit Antenna Pointing screen to exit the Antenna Pointing feature.

# Chapter 5

## Configuring the DW7700 for DVADB

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This chapter explains how to configure the DW7700 for DVADB operation. The following topics are discussed:

- *Overview* on page 61
- *DVADB pre-installation* on page 62
- *Installation procedure* on page 62
- *DW7700 LED appearance during DVADB operation* on page 68
- *Troubleshooting DVADB* on page 69

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### Overview

The DIRECWAY Virtual Private Network (VPN) Automatic Dial Backup (ADB) (DVADB) feature provides a backup infrastructure to the DW7700 should the satellite link fail or degrade below an acceptable threshold.

The DW7700 contains an internal modem to support DVADB functionality. The DW7700 connects to a national network of dial access numbers, which are known as a Points of Presence (POP). Each POP acts as a Virtual Private Network (VPN) entry point into the customer's network or the Internet. Packets are sent from the DW7700 through the POP to the DIRECWAY Network Operations Center (NOC), which forwards the packets to the destination server.

DVADB automatically switches the DW7700 to a terrestrial dial-up telephone network with minimal interruption and loss of customer traffic. DVADB introduces no additional load on the DW7700 and does not affect any existing DW7700 features, but it does make the DW7700 send and receive traffic at a slower rate.

---

## DVADB pre-installation

The following requirements must be fulfilled before DVADB can be used:

- The DW7700 must be configured for DVADB operation before the system is installed and commissioned.



Note: The DW7700 can be upgraded to support DVADB operation after it is installed.

- The site must have an analog telephone line to support DVADB operation. A dedicated telephone line is preferred but not required. The DW7700 can share the telephone line with other devices when it is connected to a splitter.

The following tasks must be completed for DVADB to work properly:

- The installer must dial the DVADB access phone number with a phone handset before testing DVADB functionality. Refer to *Testing the telephone line* on page 65 for more details.
- The telephone cable must be plugged into the TEL LINE port on the DW7700 and a telephone jack or splitter.



Note: The user name is generated automatically and cannot be changed.

---

## Installation procedure

Installing DVADB consists of the following tasks:

- *Verifying the DVADB profile is loaded on the DW7700*
- *Testing the telephone line*
- *Connecting the DW7700 to the telephone line*
- *Testing DVADB functionality*

Before beginning the installation, check the telephone line local dialing rules. If it does not match the sequence in the installation specification, or as shown in the Advanced pages, (see *Troubleshooting DVADB* on page 69), contact installer support.

## Verifying the DVADB profile is loaded on the DW7700

Follow these steps to verify the DVADB profile is loaded on the DW7700 after it is installed and commissioned:

1. Go to the System Control Center.
2. Click the **System Info** indicator.
3. Verify the software release number is the most current. If it is not, contact installer support to make sure the correct software is downloaded to the unit.
4. Open a web browser on the installer PC.
5. Access the System Control Center Advanced pages shown in Figure 68 by using one of the following methods:
  - Type **192.168.0.1/fs/advanced/advanced.html** in the browser's address bar and press **ENTER**.
  - Type the customer-specific IP address or LAN IP address and the path to the Advanced pages in the browser's address bar and press **ENTER**. For example, if the address is 68.57.18.3, type **68.57.18.3/fs/advanced/advanced.html** in the browser's address bar and press **ENTER**.

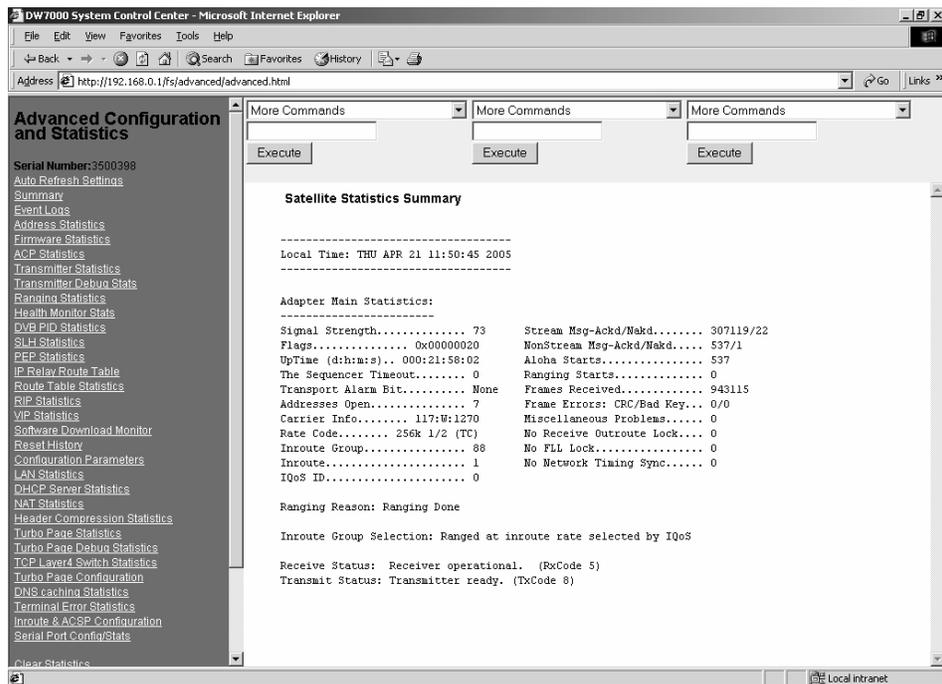


Figure 68: Advanced pages

6. Select `vadb_config_show()` from the right-most drop-down menu as shown in Figure 69 and then click **Execute**.
7. Verify `ENABLED` appears in the `vadb_net_enabled` and `vadb_rem_enabled` fields. See Figure 69. If they are not, contact Technical Support and request the values be updated.
8. Verify DVADB access phone numbers appear in the `prim phone_num` and `bkup phone_num` fields. See Figure 69.
9. Make a note of the VADB gateway address. See Figure 69. You need this address to test DVADB functionality.



Note: The DVADB access phone numbers and VADB gateway address shown in Figure 69 are examples for illustrative purposes only. Actual values may vary by site and/or location.

ENABLED appears in `vadb_net_enabled` and `vadb_rem_enabled` fields.

Select `vadb_config_show()` and click Execute.

```

VADB CONFIG PARAMETERS :
vadb_net_enabled : ENABLED      vadb_rem_enabled : ENABLED
vadb_mode        : ANYTIME      ON DEMAND idle timeout (sec) : 30
TOD start time   : 0            TOD stop time      : 0

encryption key : 1234567898765432
poll timeout (sec) : 50         stale pkt timeout (ms) : 100000
annual timeout (sec) : 0         retry timeout (sec) : 5
retry limit      : 5            ppp auth retry + 1   : 5
ppp auth timeout (sec) : 5       ppp debug enabled    : DISABLED
port num         : 2             baud rate            : 57600

init modem str  : ATV0EOHO
actv modem str  : AT+F1EQVX&AS2=12856=2&C1&D230=1&M&K1&L&H1&R2&B1
idle modem str  : AT+F1EQVX&AS2=12856=2&C1&D230=1&M&K1&L&H1&R2&B1&W0

vadb gw prim addr : 206.71.100.191  vadb gw ip in use : 206.71.100.191
vadb gw bkup addr : 0.0.0.0         vadb gw udp port  : 7123
ipgw addr         : 0.254.0.2
ppp local IP addr : 206.71.100.36   local udp port    : 123
username          : direccp
  
```

The VADB gateway address will be used to test DVADB functionality.

DVADB access phone numbers appear in `prim phone_num` and `bkup phone_num` fields.

Figure 69: Verifying the DVADB profile is loaded on the DW7700

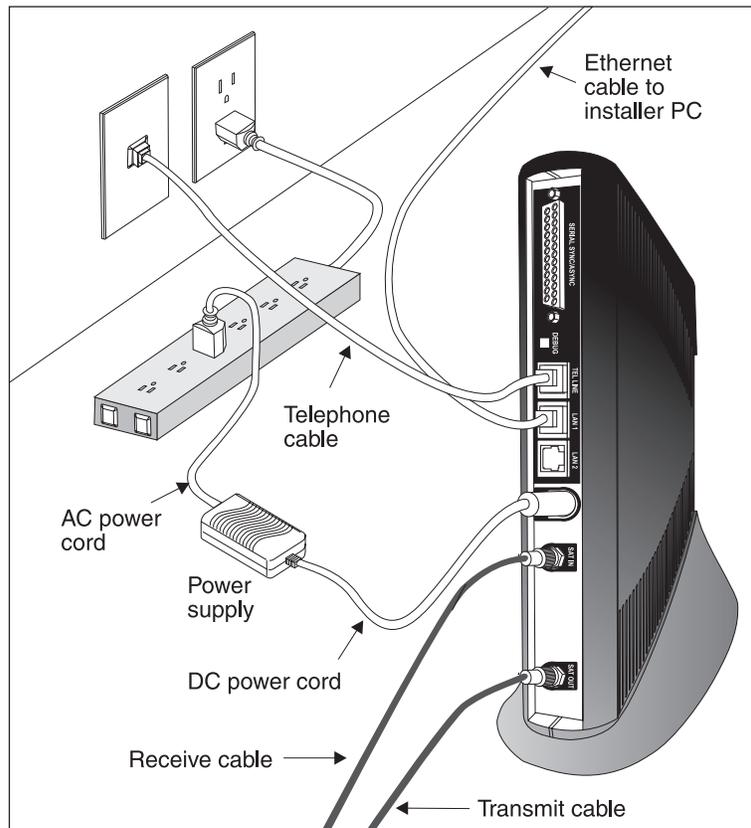
**Testing the telephone line** Follow these steps to test the telephone line the DW7700 will be connected to:

1. Connect a telephone handset to the telephone jack or splitter.
2. Dial the DVADB access phone number listed in the prim phone\_num field.
3. Listen for modem tones, which indicate the connection is being established between the access number and the handset.

If you do not hear modem tones, you might need to modify the DVADB access phone number to account for site-specific dialing rules. For example, if dialing an 8 or 9 is required to access an outside line at the site, you must add an 8 or 9 to the DVADB access phone number. Ask a site contact for site-specific dialing rules and then refer to the installation specification for instructions explaining how to modify the DVADB access phone number.

**Connecting the DW7700 to the telephone line** The DW7700 contains an internal modem which means an external modem is not required to support DVADB functionality. Follow these steps to connect the DW7700 to a telephone line:

1. Connect one end of the modem cable to the TEL LINE port on the DW7700.
2. Connect the other end of the modem cable to a telephone jack or to a splitter if other devices share the telephone line.
3. If a splitter is used, connect the splitter to a telephone jack. The final configuration is shown in Figure 70 on page 66.



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Figure 70: DVADB cable connections

### Testing DVADB functionality

Follow these steps to test DVADB functionality:

1. Open a web browser on the installer PC.
2. Access the System Control Center Advanced pages by using one of the following methods:
  - Type **192.168.0.1/fs/advanced/advanced.html** in the browser's address bar and press **ENTER**.
  - Type the customer-specific IP address or LAN IP address and the path to the Advanced pages in the browser's address bar and press **ENTER**. For example, if the address is 68.57.18.3, type **68.57.18.3/fs/advanced/advanced.html** in the browser's address bar and press **ENTER**.
3. In the right-most drop-down menu choose *vadb\_manual\_init* and click **Execute**.

4. Once the VADB modem connects, verify the VADB link is enabled:
  - a. Open the Advanced page if it is not still open.
  - b. From the right-most drop-down menu, select *vadb\_call\_status\_show* as shown in Figure 71 and then click **Execute**.
  - c. Verify VADBLINK appears in the Link in use field circled in Figure 71.

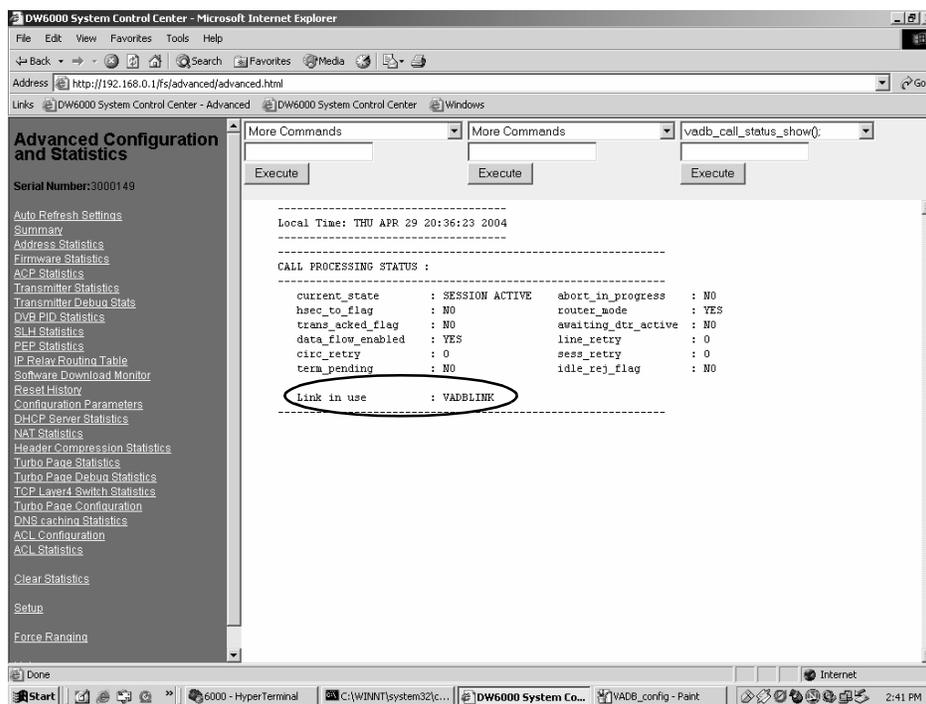


Figure 71: Verify VADBLINK

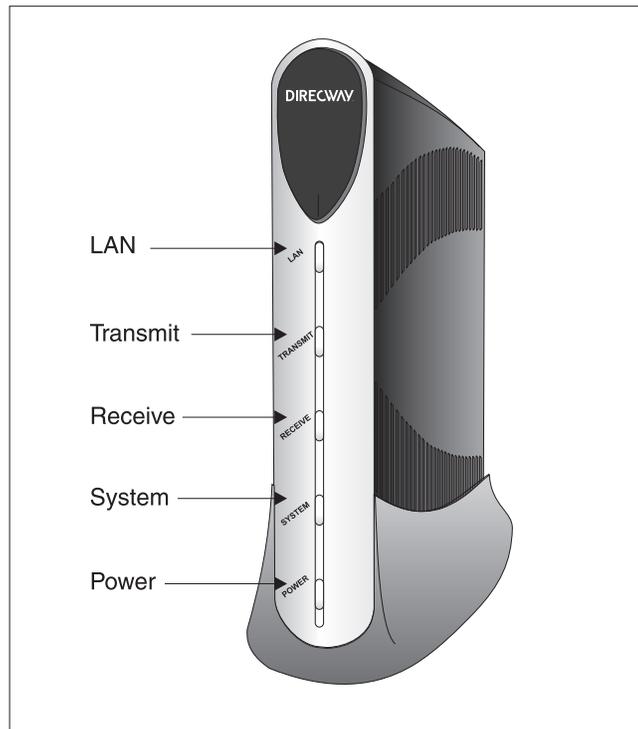
5. Verify the DW7700 can ping the VADB gateway:
  - a. Open the **Run** dialog box by selecting **Start**→ *Run*. Type **Command** and click **OK**.
  - b. Type **ping <VADB gateway address>** and press **ENTER**. See Figure 69 on page 64.

If the client fails to ping the host, the computer reports that no packets were received. There are issues with either the network hardware or configuration. Check the LAN connections and refer to the instructions that were provided with the network hardware, and retry the ping test.
6. Select *vadb\_manual\_term()* from the right-most drop-down menu and click **Execute** to terminate the VADB link and re-activate the spacelink.

7. Select *vadb\_call\_status\_show* from the right-most drop-down and click **Execute**.
8. Verify *SPACELINK* appears in the Link in Use field.
9. Make sure all of the LEDs on the front panel of the DW7700 are blue.

## DW7700 LED appearance during DVADB operation

The System LED steadily flashes when DVADB is enabled. The System LED is solid blue when the satellite link is enabled. The DW7700 LEDs are shown in Figure 72. Table 2 on page 69 describes the appearance of the LEDs during DVADB operation.



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Figure 72: DW7700 LED appearance during DVADB operation

Table 2: DW7700 LED appearance during DVADB operation

LED	Appearance	Description
LAN	Solid blue	LAN is connected and usable
	Flashing blue	There is transmit or receive activity on the LAN
Transmit	Solid blue	OK
	Flashing blue	Transmitting frames
	Off	Condition preventing transmission
Receive	Solid blue	OK
	Flashing blue	Receiving frames
	Off	Condition preventing acquisition of outroute (preventing receipt)
System	Flashing blue	System is operating normally and DVADB mode is enabled (a solid blue LED indicates the satellite link is active and DVADB is inactive)
	Off	Condition preventing full operation
Power	Solid blue	Power is on and unit is functioning normally
	Blinking	Unit is operating with the fallback.bin (backup) version of software
	Off	No power
	Off with other LED flashing	Fatal error

## Troubleshooting DVADB

Use the troubleshooting procedure below if the DW7700 is unable to connect through DVADB, or not able to authenticate with the server. Before starting the procedure, verify the DW7700 is commissioned.

1. Verify the telephone cable is securely attached to the TEL LINE port on the DW7700 and the telephone jack or splitter.
2. Complete the instructions in *Verifying the DVADB profile is loaded on the DW7700* on page 63 to confirm the DVADB profile is loaded on the DW7700.
3. Connect a telephone handset to the telephone jack or splitter and dial the DVADB access phone number listed in the prim phone\_num field. See Figure 69 on page 64.

4. Make sure the access phone number is accessible from the site.

If necessary, refer to the installation specification for instructions explaining how to change the access code required to obtain an outside telephone line or to change the area code.

5. Complete the instructions in *Testing DVADB functionality* on page 66 to test DVADB functionality.
6. Contact Technical Support if completing steps 1 - 5 does not resolve the DVADB issue.

# Completing the installation

---

This chapter discusses tasks that must be completed after the remote terminal is installed and commissioned.

The following topics are discussed:

- *Confirming all files are current* on page 71
- *Connecting the remote terminal to the customer's computer* on page 73
- *Connecting serial devices to the model DW7700 remote terminal* on page 74
- *Printing the System Information page* on page 76
- *Creating a shortcut to the System Control Center* on page 77

---

## Confirming all files are current

Follow these steps to confirm the terminal is operating with the most current version of software:

1. Access the remote terminal's System Control Center by using one of the following methods:
  - Type **www.systemcontrolcenter.com** in the browser's address bar and press **ENTER**.
  - Type the customer-specific IP address or LAN IP address in the browser's address bar and press **ENTER**. For example, if the address is 68.57.18.3, type **68.57.18.3** in the browser's address bar and press **ENTER**.

The System Control Center Home page is shown in Figure 73.

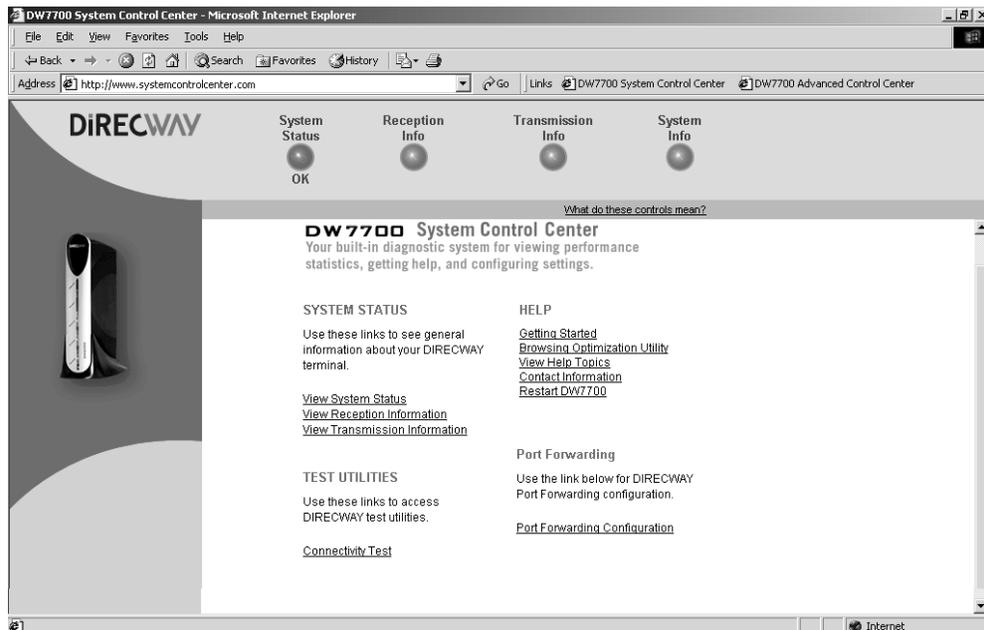


Figure 73: System Control Center

2. Click **System Status**. The System Status page appears. See Figure 74.

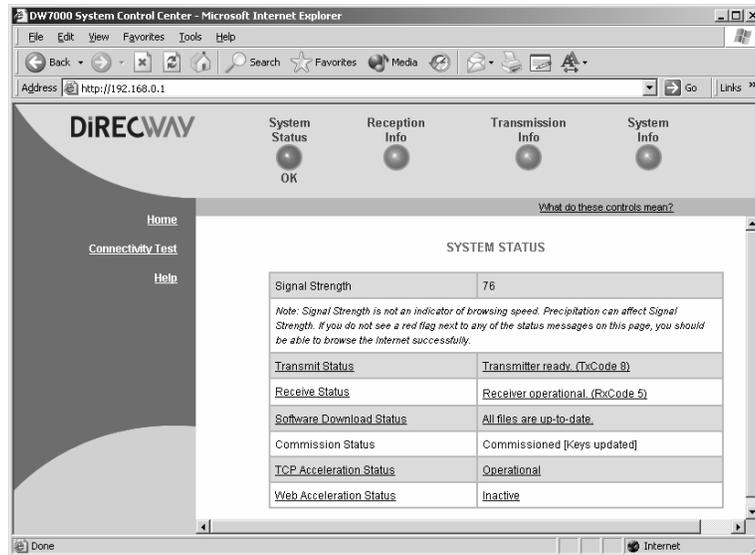


Figure 74: System Status page

3. Check the Software Download Status line message. If it reads `All files are up-to-date`, the unit has been commissioned.

Wait 15 minutes after completing the registration process for all files to be downloaded to the terminal from the NOC.

If `All files up-to-date` does not appear after 15 minutes, power cycle the unit by unplugging it from the power source and plugging it back in. If the message still does not appear, contact installer support.

---

## Connecting the remote terminal to the customer's computer

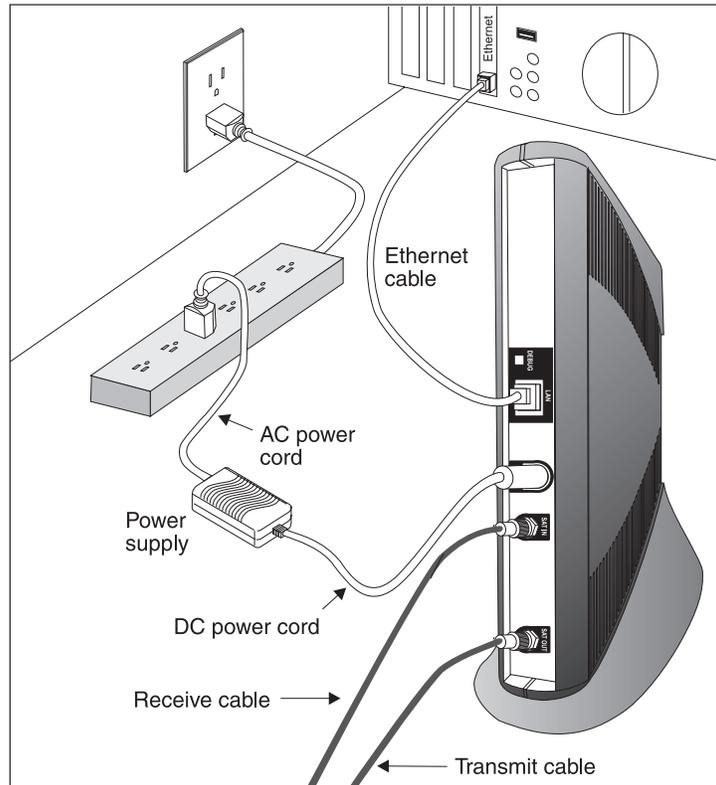
Connect the customer's computer to the remote terminal with an Ethernet cable. See Figure 75. You can also connect an Ethernet hub, router, or switch to the remote terminal to support additional computers that may be connected to the customer's LAN.

### *If the customer cannot browse*

Configure the installer laptop so its network properties match those of the customer's PC. Refer to *Appendix D* for detailed instructions for setting network properties. Then:

1. Connect the installer laptop to the remote terminal with an Ethernet cable.
2. Open a web browser on the installer PC.
3. Attempt to access the remote terminal's System Control Center by using one of the following methods:
  - Type `192.168.0.1` or `www.systemcontrolcenter.com` in the browser's address bar and press **ENTER**.
  - Type the customer-specific IP address or LAN IP address in the browser's address bar and press **ENTER**. For example, if the address is `68.57.18.3`, type `68.57.18.3` in the browser's address bar and press **ENTER**.If the remote terminal is functioning, the System Control Center appears.
4. Type `www.hns.com` or some other known site in the browser URL location bar and press **ENTER**. If the site appears, the remote terminal is functioning.

The customer should refer to the contact information on the System Control Center's Help page to get technical support.



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Figure 75: Final configuration

## Connecting serial devices to the model DW7700 remote terminal

The DW7700 remote terminal has one DCE/DTE RS-232 serial port that supports any type of serial device. Common serial devices that may be connected to the DW7700 include:

- Point of Sale (POS) devices
- Credit card readers
- Automatic Teller Machines (ATMs)

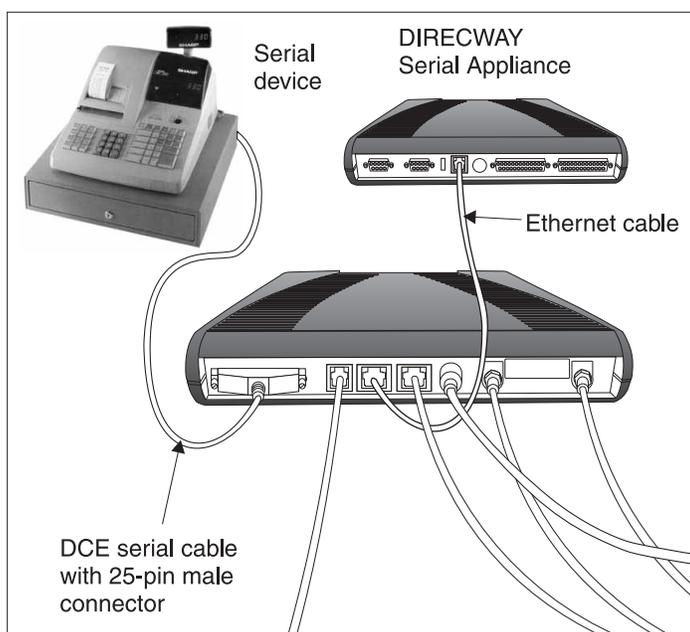
The serial port is programmable for synchronous or asynchronous operation. A single serial device can be connected to the port. A DIRECWAY Serial Appliance connected to a remote terminal Ethernet port can support multiple serial devices.

The serial port supports a variety of protocols. See the service provider for a list of supported protocols.



Note: HNS recommends the installer work with a point of sale (POS) technician to verify the physical connection between the POS device and the serial appliance port. There are many serial port parameters that must be verified to ensure the POS device and the serial appliance port are communicating properly. At a minimum, baud rate, parity, character bits, and stop bits need to be matched. HNS suggests using a break-out box with 25-pin ribbon cables to verify the POS device and the serial appliance are communicating through the physical leads RTS, CTS, CD, DSR, and DTR.

Figure 76 illustrates typical serial device connections to the DW7700 remote terminal.



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Figure 76: Connecting a serial device to the DW7700

Some considerations for connecting devices to the DW7700 are:

- You do not need to power off the DW7700 remote terminal to connect devices or change devices.
- Most serial devices are **not** *plug and play*. A telecommunications technician may be required to configure devices.

## Printing the System Information page

Follow the steps below to assist the customer with printing a copy of the System Control Center's System Information page. The System Information page may not be accessible if a problem occurs; the customer can use the printed copy of the page if they need to contact customer support for assistance.

1. Have the customer access the System Control Center by typing **www.systemcontrolcenter.com** in a web browser location bar and pressing **ENTER**. The System Control Center in Figure 73 appears.
2. Click the **System Info** indicator. The System Information page appears. See Figure 77.



Note: The System Information page shown in Figure 77 is for illustrative purposes only. The fields and values displayed may vary by customer type and location.

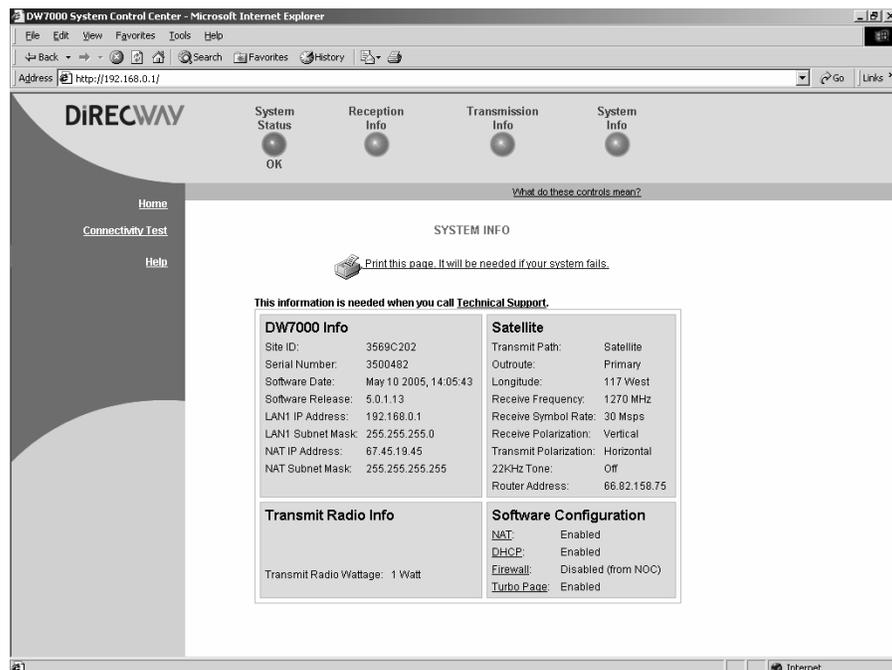


Figure 77: Printing the System Information page

3. Have the customer print the page. If they do not have a printer then they can press **Alt+Print Scrn** to capture it and paste it into a word processing, Microsoft Paint, or similar file and save that.

## Creating a shortcut to the System Control Center

Follow these steps to create a shortcut to the remote terminal's System Control Center on the customer computer's desktop:

1. Place your cursor on the computer desktop.
2. Right-click and select **New**→*Shortcut* as shown in Figure 78.

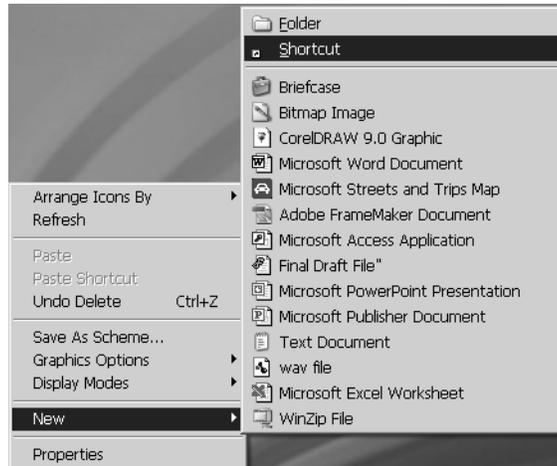


Figure 78: Creating a shortcut to the System Control Center

3. Type **192.168.0.1** in the field on the Create Shortcut window as shown in Figure 79.

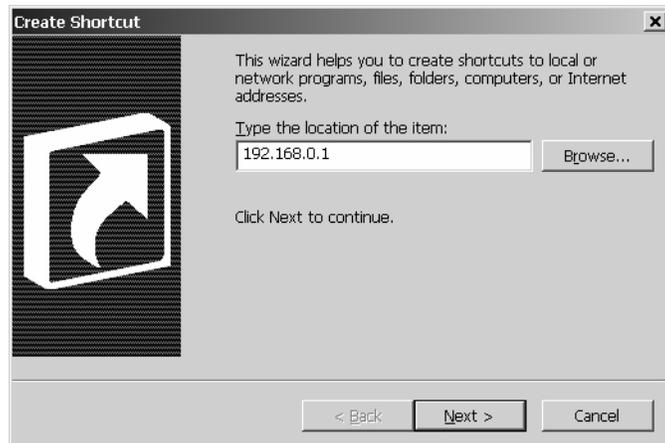


Figure 79: Entering the System Control Center URL in the Create Shortcut window

4. Click **Next**.

5. Type **System Control Center** in the field on the Select a Title for the Program window as shown in Figure 80.

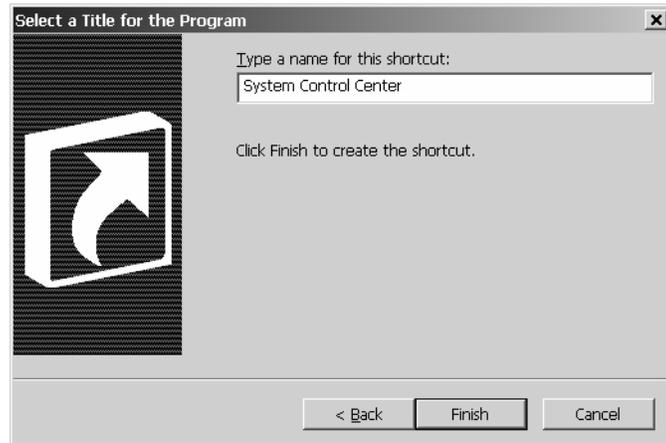


Figure 80: Entering the name of the shortcut

6. Click **Finish** to save the shortcut to your desktop.



Note: You can also add the System Control Center to your browser's Favorites or Bookmark list; refer to your browser's documentation for instructions.

## Chapter 7

# Remote terminal LEDs and troubleshooting

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This chapter discusses the remote terminal's LEDs and the following general troubleshooting topics.

- *Cannot browse but can access the System Control Center on page 79*
- *Cannot access the System Control Center on page 88*
- *Using the remote terminal LEDs to troubleshoot on page 89*
- *Device other than computer connected to the remote terminal on page 96*



### CAUTION

This chapter and the chapters that follow may contain procedures instructing you to power-cycle the remote terminal. Never unplug the DC power cord from the remote terminal while it is powered on. If the terminal uses an AC/DC power supply, disconnect the AC power cord from the power strip, wall outlet, or surge protector. If the remote terminal uses a DC/DC power supply, always disconnect the DC input cable connector from the power supply.

---

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### Cannot browse but can access the System Control Center

The procedures in this section may be used to troubleshoot web browsing issues for customers who primarily use their terminal to access the Internet.

Complete the troubleshooting procedures in this section in sequence if you are able to access the System Control Center but cannot browse the Internet. If completing the procedures does not resolve the issue, repeat the procedures once more prior to contacting technical support for assistance.

Access the remote terminal's System Control Center by opening a web browser on a computer connected to the remote terminal and using one of the following methods:

- Type **192.168.0.1** or **www.systemcontrolcenter.com** in the browser's address bar and press **ENTER**.

- Type the customer-specific IP address or LAN IP address in the browser's address bar and press **ENTER**. For example, if the address is 68.57.18.3, type **68.57.18.3** in the browser's address bar and press **ENTER**. This method is typically used for enterprise customers.

## Checking that the unit is commissioned

Follow these steps to confirm the remote terminal is commissioned:

1. At the System Control Center, click the **System Info** indicator. The System Information page appears. See Figure 81.
2. In the DW7000 Information box, check the Site ID line. If the numeric site ID appears, the unit is commissioned. Proceed to the next troubleshooting step. If **Not Commissioned** appears, the remote terminal is not commissioned. Contact installer support.

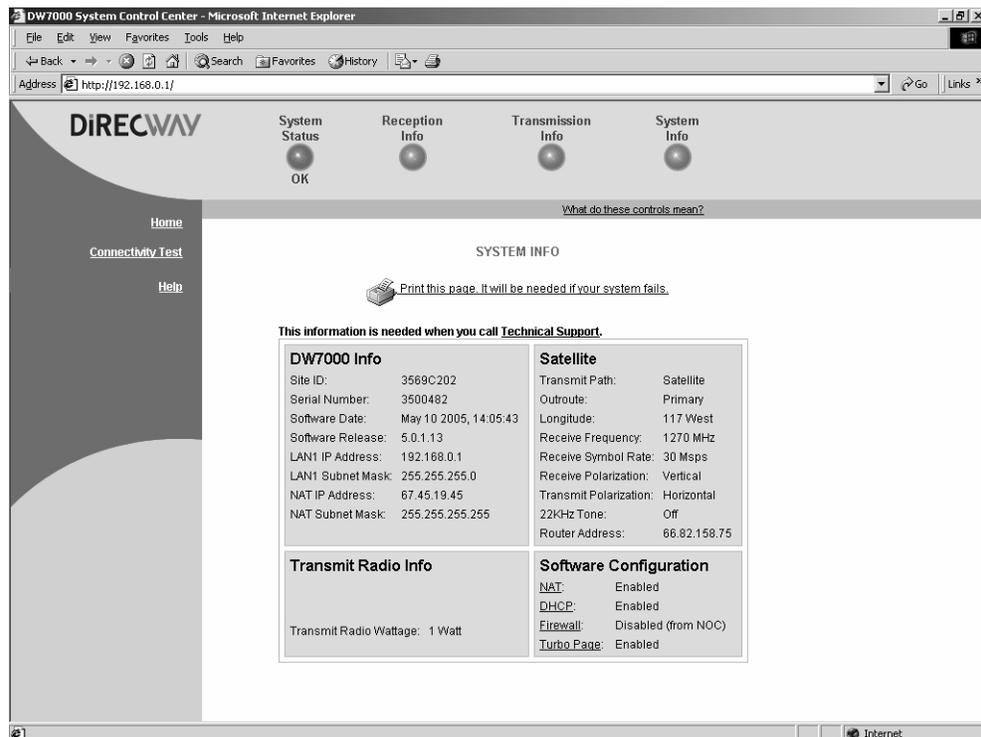


Figure 81: System Information page



Note: Figure 81 depicts a System Information page for an end customer whose terminal was registered with a SAN and PIN. The figure is for illustrative purposes only and may not reflect the System Information page for your installation.

**Checking receive signal** Follow these steps to confirm the remote terminal is properly receiving satellite signals:

1. At the System Control Center, click the **Reception Info** indicator. The Reception Information page appears. See Figure 82.

2. In the Receive Status field, check the Rx Code.

If the Rx Code is The receiver is operational (RxCode 5) the remote terminal is receiving signals properly. Proceed to the next troubleshooting step.

If any other Rx Code appears, the remote terminal is not receiving signals properly. Click on the Rx Code. Follow the troubleshooting procedure that appears.

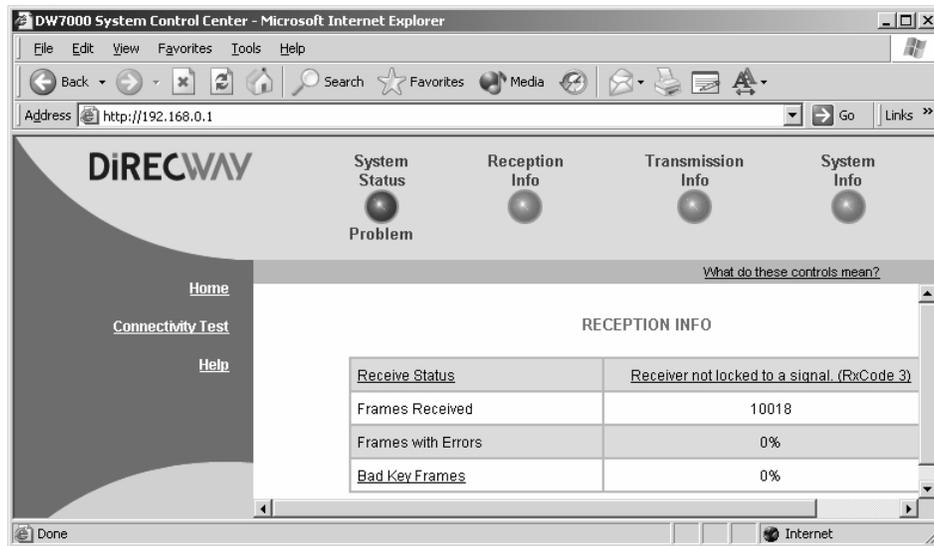


Figure 82: Reception info

**Checking transmit signal** Follow these steps to confirm signals are properly transmitted to the satellite:

1. At the System Control Center, click the **Transmission Info** indicator. The Transmission Information page appears. See Figure 83.
2. In the Transmit Status field, check the Tx Code.  
If the Tx Code is Transmitter available for Normal Operation (TxCode 8) the remote terminal is transmitting signals properly. Proceed to the next troubleshooting step.  
If any other Tx Code appears, the remote terminal is not transmitting signals properly. Click on the Tx Code. Follow the troubleshooting procedure that appears.



Note: The transmit code shown in Figure 83 is an example for illustrative purposes only.

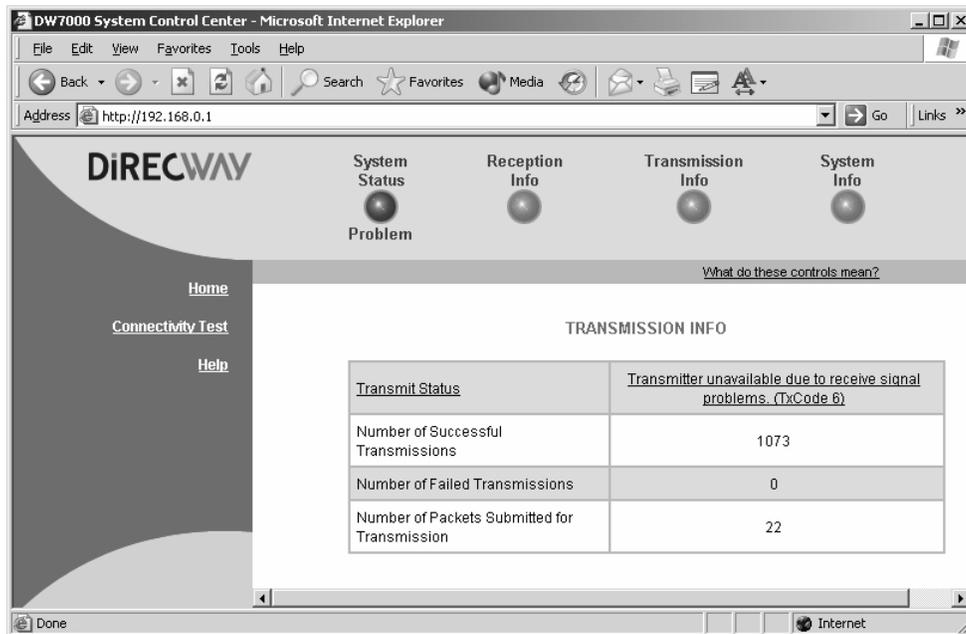


Figure 83: Transmission info

## Checking that TCP acceleration is operational

TCP Acceleration is a proprietary protocol provided by DIRECWAY. It optimizes performance for TCP/IP-based applications, including faster downloads over satellite.

1. At the System Control Center, click the **System Status** indicator. The System Status page appears. See Figure 84.
2. Check the message in the TCP Acceleration Status field.  
If the message says `Enabled`, TCP Acceleration is enabled. Proceed to the next troubleshooting step.  
If the message says `Disabled`, TCP Acceleration is disabled. Perform the following steps:
  - a. Power cycle the remote terminal by unplugging the power cord from the power source, waiting 10 seconds, and plugging it back in.
  - b. Check the TCP Acceleration Status field again. If it is enabled but you still cannot surf the Internet, proceed to the next troubleshooting step.

If TCP Acceleration is still disabled, contact technical support for assistance.

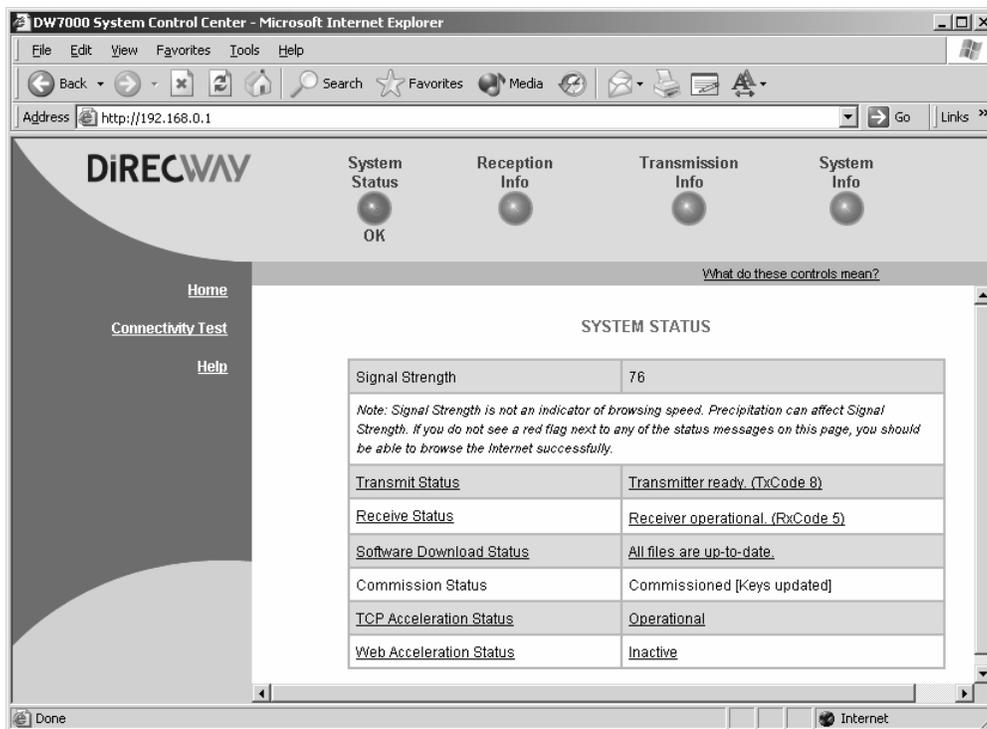


Figure 84: Confirming TCP Acceleration is operational

## Checking that Web Acceleration is operational

Web Acceleration is a feature provided by DIRECWAY that enhances the browsing experience on non-secure web sites. Follow these steps to confirm Web Acceleration is operating properly:

1. Observe the **System Status** indicator.  
If the indicator is yellow, Web Acceleration may not be operational. Continue with step 2.
2. Click the **System Status** indicator to access the System Status page. See Figure 85.

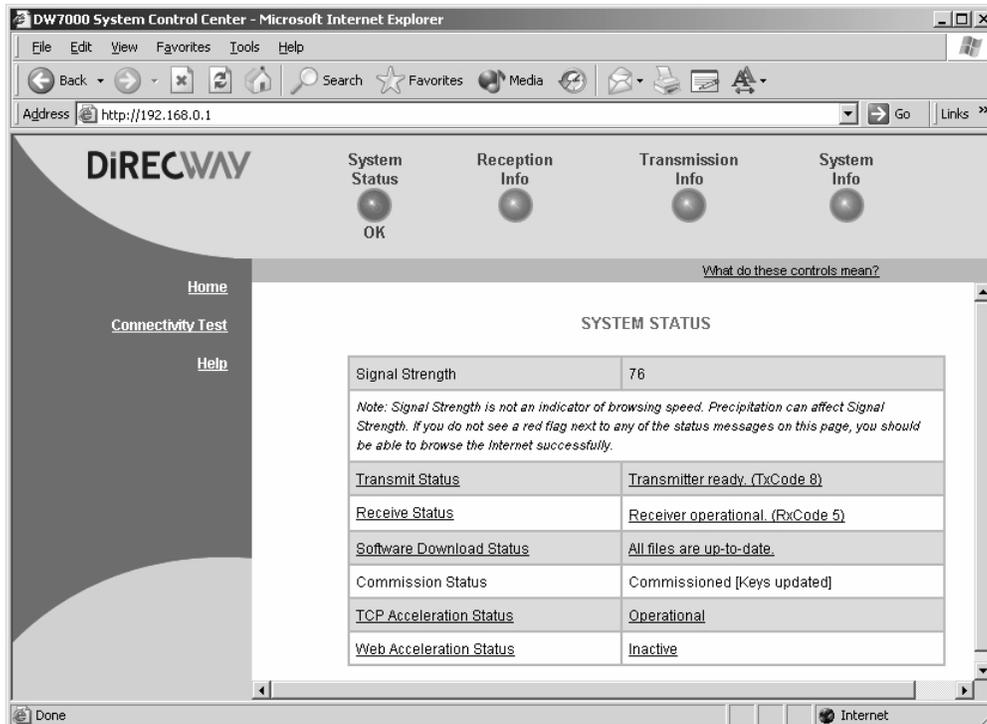


Figure 85: Confirming Web Acceleration is operational

3. Observe the message in the Web Acceleration Status field.  
If the message says *Operational*, Web Acceleration is enabled. Proceed to the next troubleshooting step.  
If the message says *Not Operational*, Web Acceleration is disabled. Instruct the customer to refer to the *Remote Terminal User Guide, Models: DW7000, DW7700* (1035978-0001) for troubleshooting procedures.

## Checking Network Operations Center (NOC) connectivity

Use the **Connectivity Test** link to check connectivity to the NOC. You may want to open a second web browser to access the Help page while you execute a connectivity test.

1. Click **Connectivity Test** on the left hand side of the System Control Center. The Connectivity Test page shown in Figure 86 appears.

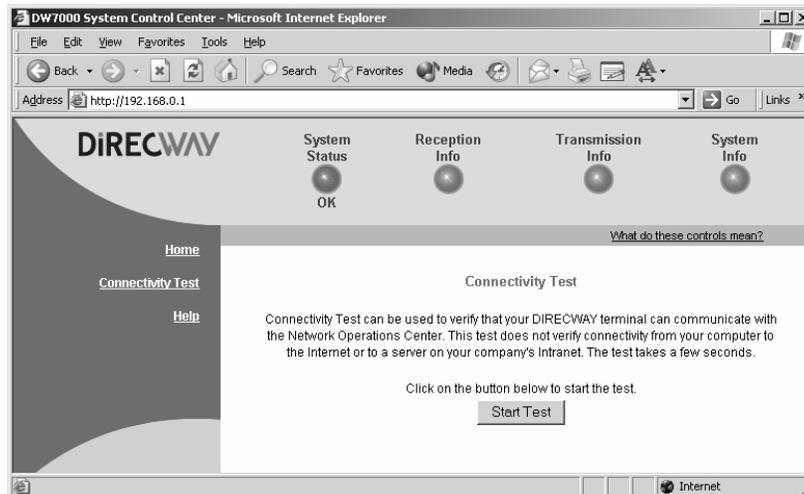


Figure 86: Connectivity Test

2. Click **Start Test**.
3. If the connectivity test succeeds but you still cannot surf the Internet, ping the Router Address from your computer. Ping is a DOS command that helps you check connectivity on any network a DOS-supporting computer is connected to. Ping is used diagnostically to ensure that a host computer you are trying to reach is actually operating. Ping operates by sending a packet to a designated address and waiting for a response. Windows and MacIntosh operating systems both support ping tests.
  - a. At the System Control Center, click the **System Info** indicator. The System Information page appears.
  - b. Record the router address listed in the DW7000 Information box.
  - c. In Windows, go to **Start** → **Run**. The Run box appears.
  - d. Type **command** in the Open field and click **OK**. The Command window appears.
  - e. At the prompt, type **ping** followed by a space and the router address and press **ENTER**. For example, if the router address is 66.82.158.75, as shown in Figure 77 on page 76, type **ping 66.82.158.75** and press **ENTER**.
  - f. Close the window to end the Command session.

If pinging the Router Address succeeds but you still cannot surf the Internet, skip to the Internet Connectivity test below. If pinging the Router Address fails, and DHCP is disabled on the terminal, the default gateway address is probably not set correctly in the computer's operating system settings. The default gateway address should be the remote terminal IP address as received during commissioning and displayed in the System Information DW7000 Info box in the IP address line. Fix this in the computer's operating system settings. Then repeat the sequence above.

If the tests still fail, power cycle the remote terminal by unplugging the power cord from the power source, waiting 10 seconds, and plugging it back in. If you still cannot surf the Internet, call your service provider.

**Internet connectivity** This section explains how to troubleshoot Internet connectivity issues for customers whose service providers offer Internet connectivity.

1. Open a command prompt on a computer connected to the terminal.
2. Ping the DIRECWAY web server:
  - a. Type **ping www.direcway.com**.
  - b. Press **ENTER**.



Note: If you are installing the terminal for an International customer, obtain an address from the customer and ping that address instead of www.direcway.com.

If the ping test succeeds, there may be a temporary problem with the web server for the web site you originally tried to access. Wait awhile and then try to access the web site again. If the ping test failed, continue with step 3.

3. Ping the DNS address:
  - a. Type **ping 66.82.4.8** if you are installing the terminal for a DIRECWAY customer in the United States. If you are installing the terminal for an International customer, obtain the customer-specific DNS address and use that address instead of 66.82.4.8.
  - b. Press **ENTER**.

If the ping test is successful but you still cannot browse the Internet, complete the procedures in the next section, *Checking DNS settings*.

If the ping test fails, contact technical support for assistance.

**Checking DNS settings** Follow the steps below to check the DNS settings on your computer if you can ping your DNS address but cannot browse the Internet. The steps may vary slightly based on your computer's operating system, but they may be used as a guideline.

1. On the Windows task bar, click **Start** → *Run*.
2. Type **command** in the Run window.
3. Click **OK**.
4. Type **ipconfig /all** at the command prompt and press **ENTER**.
5. Locate the DNS addresses in the DNS Servers field.  
For United States customers, verify 66.82.4.8 appears in this field.  
For International customers, verify the customer-specific DNS address appears in this field.
6. Close the Command window.

If the DNS address is correct, wait awhile and try to access a web site again. There may be a temporary Internet connection outage. If you are still unable to access a web site after waiting, complete the procedures in the next section, *Checking for viruses and firewall issues*.

If the DNS address is not correct, contact technical support for assistance.

**Checking for viruses and firewall issues** If you have completed all the steps in this section and still cannot browse the Internet, check the computer for viruses. You must have customer approval to do this. A virus can prevent a computer from operating normally. If you find a virus, delete or disable it and try surfing again.

If you are using a firewall, check that none of your settings are blocking access to the Internet or the DIRECWAY servers. If you do not know how to do this, disable the firewall. If you can surf after disabling the firewall, you need to learn how to set up the firewall so that it does not block DIRECWAY. Refer to the firewall manufacturer's instructions. Finally, check and make sure you are using the latest version of your virus and/or firewall program. These are updated frequently. If you are not using the latest version, update and run the programs again.

---

## Cannot access the System Control Center

Follow these steps if you cannot access the System Control Center:

1. Confirm the customer's computer is configured to support DHCP.

Refer to Appendix B for instructions explaining how to configure a computer to support DHCP.

2. Open a web browser on a computer connected to the remote terminal.
3. Type **192.168.0.1**, **www.systemcontrolcenter.com**, or the customer-specific IP address in the browser's address or location bar; then press **ENTER**.

If the System Control Center does not appear, continue with step 4.

4. Make sure the remote terminal is powered up. The Power and LAN LEDs should be solidly illuminated.



Note: The LAN LED may blink if there is LAN activity.

5. Make sure the DC power cord adapter is securely attached to the remote terminal.
6. If the LEDs are not illuminated, power cycle the remote terminal by unplugging the AC power cord from the power source, waiting 10 seconds, and plugging it back in. Contact technical support if the LEDs do not come on after power-cycling the terminal. Continue with step 7 if the LEDs come on.
7. Make sure the Ethernet cable is securely attached to the remote terminal and customer's computer.
8. Ping the remote terminal:
  - a. Open a command prompt or window.
  - b. Type **ping 192.168.0.1**.
  - c. Press **ENTER**.

If the ping results show `request timed out`, power cycle the unit by unplugging the AC power cord from the power source, waiting 10 seconds, and plugging it back in.

If you are still unable to access the System Control Center, repeat the procedures before contacting technical support for assistance.

---

## Using the remote terminal LEDs to troubleshoot

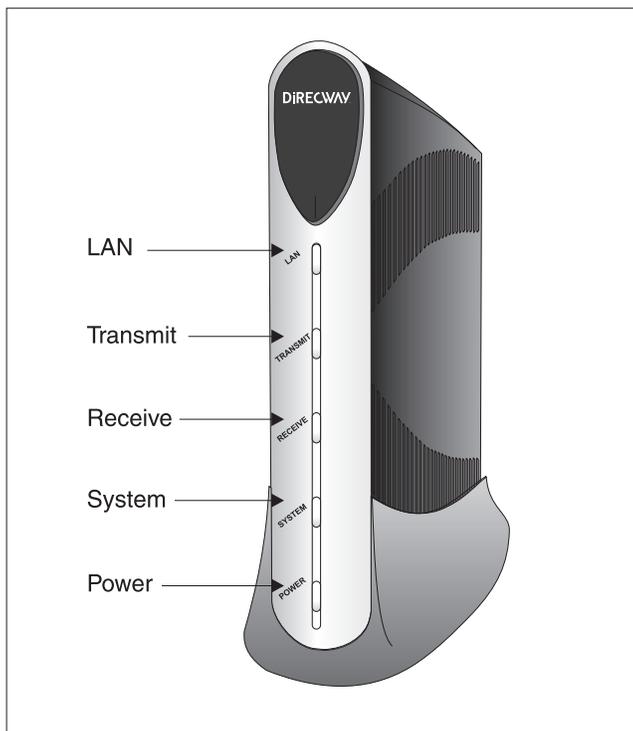
The remote terminal has five LEDs on its front panel as shown in Figure 87. Follow the procedures on pages 89 - 97 in sequence to troubleshoot using the LEDs if the System Control Center is not accessible.

Refer to Figures 88 and 89 for DW7000 and DW7700 cable connections while completing the procedures. Table 3 on page 91 lists more LED appearances and their corresponding descriptions.



Note: Whenever the LEDs do not function properly as described in this section, make sure you have the correct power supply. Refer to page 14 for more information on power supplies.

- **LAN** - The LAN indicator shows whether the LAN is connected and usable, and whether there is receive or transmit activity.
- **Transmit** - The Transmit indicator shows whether the remote terminal can transmit or is transmitting, or if some condition is preventing transmission.
- **Receive** - The Receive indicator shows whether the remote terminal has acquired the correct outroute, is receiving, or if some condition is preventing reception.
- **System** - The System indicator shows whether the remote terminal is operational or not. This indicator may also indicate a DW7700 is operating in DVADB mode.
- **Power** - The Power indicator shows if the remote terminal is powered on and operating normally.



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Figure 87: Remote terminal LEDs

Table 3: Remote terminal LED operation

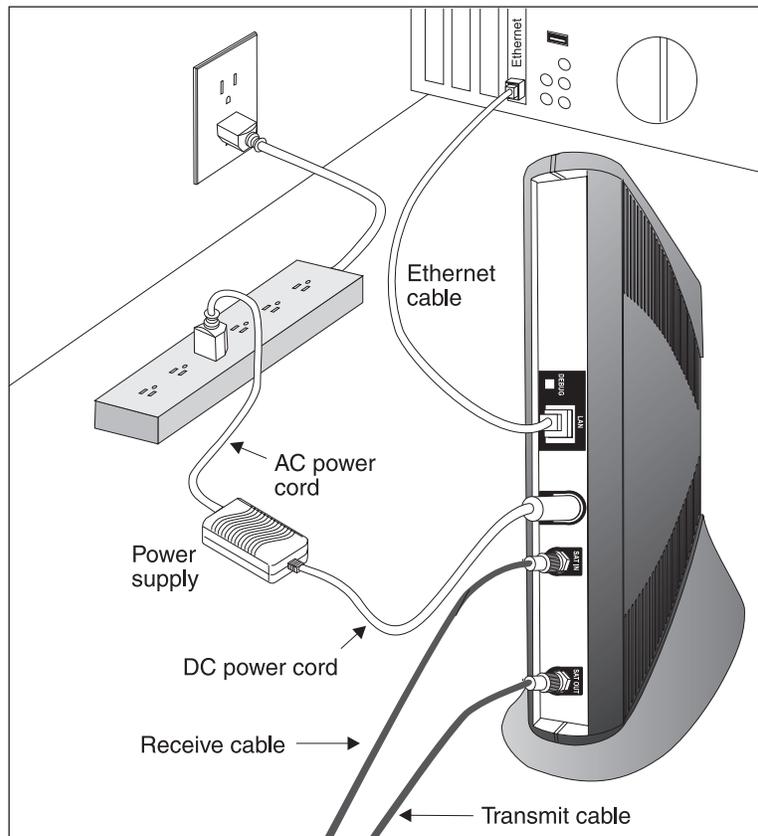
LED	Appearance	Description
LAN	Solid blue	LAN is connected and usable
	Flashing blue	There is transmit or receive activity on the LAN
Transmit	Solid blue	OK
	Flashing blue	Transmitting frames
	Off	Condition preventing transmission
Receive	Solid blue	OK
	Flashing blue	Receiving frames
	Off	Condition preventing acquisition of outroute (preventing receipt)
System	Solid blue (DW7000)	System is operational
	Flashing blue (DW7700)	System is operating normally and DVADB mode is enabled
	Off	Condition preventing full operation
Power	Solid blue	Power is on and unit is functioning normally
	Blinking	Unit is operating with the fallback.bin (backup) version of software
	Off	No power
	Off with other LED flashing	Fatal error

**Fatal error indication** Follow these steps if the Power LED is off and one or more of the other LEDs is flashing:

1. Power cycle the remote terminal:
  - a. Unplug the remote terminal's power cord from the power source.
  - b. Wait 10 seconds.
  - c. Plug the power cord back into the power source.  
Continue with step 2 if the problem persists.
2. Disconnect the receive and transmit cables from the remote terminal.  
If any of the LEDs come on and remain on, continue with step 3.  
If the Power LED is still off and one or more of the other LEDs is still flashing, continue with step 5.
3. Replace the receive and transmit cables that connect the antenna assembly to the remote terminal.  
Continue with step 4 if the problem persists.

4. Replace the antenna assembly.  
Continue with step 5 if the problem persists.
5. Contact technical support for assistance.  
You may be instructed to replace the remote terminal.

**All LEDs off** If all the LEDs on the front panel are off, make sure all power connections are secure. If they are, power cycle the remote terminal by unplugging the power cord from the power source, waiting 10 seconds, and then plugging it back in. If the LEDs do not come on, contact installer support.



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Figure 88: DW7000 power and cable connections

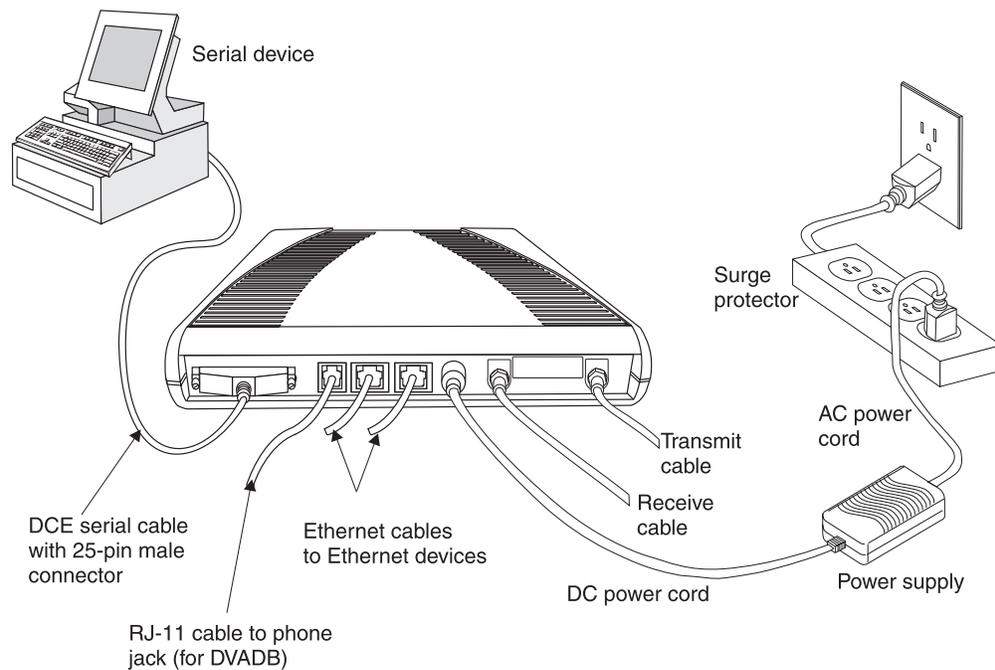


Figure 89: DW7700 power and cable connections

**Checking the Power LED** Check the Power LED on the front panel. If it is lit, proceed to the next troubleshooting step. If it is not lit, perform the following steps.

1. Power cycle the remote terminal by unplugging the power cord from the power source, waiting 10 seconds, and plugging it back in.
2. If the Power LED is still not lit, make sure the DC power cord is tightly connected to the remote terminal.
3. If the Power LED is still not lit, plug a small appliance, such as a radio, into both the power strip or surge protector and the wall outlet or other power source. If it works, the power sources are functional. Call installer support for assistance.

**Checking the LAN LED** Check the LAN LED on the front panel. If it is lit, proceed to the next troubleshooting step. If it is not lit, perform the following steps:

1. Check that the Ethernet cable is connected to the remote terminal LAN port and to the computer's Ethernet port.
2. If the LAN LED is still not lit, power cycle the remote terminal by unplugging the power cord from the power source, waiting 10 seconds, and plugging it back in.

3. If the LAN LED is still not lit, check the Windows Device Manager to see if your computer's NIC is installed correctly.
  - a. In Windows 2000, for example, right-click on My Computer on the desktop and choose *Properties*→*Hardware*→*Device Manager*. A screen appears listing all the devices installed on the computer.
  - b. If the NIC is not properly installed, a red X appears next to its listing. Troubleshoot the NIC installation using the manufacturer's instructions and Windows documentation. If the My Computer icon is not available, click **Start**→*Settings*→*Control Panel*→*Administrative Tools*→*Computer Management*→*System Tools*→*Device Manager*.
4. If the LAN LED is still not lit after fixing any NIC problems, check the back panel LEDs.
  - a. If the Orange LED is lit and the front panel LAN LED is NOT, please contact Technical Support for further assistance.
  - b. If both the Orange LED and the front panel LAN LED are not lit, check all network equipment that connects the computer with the remote terminal, including the computer's Ethernet card, Ethernet cable(s) and any switch or hub. Swap out one or more of the items to isolate the problem.
  - c. If all the equipment seems alright, power cycle the remote terminal by unplugging the power cord from the power source, waiting 10 seconds, and plugging it back in. If this does not solve the issue, refer to the vendor that supplied the network equipment.
5. If the LAN LED is still not lit, try connecting the remote terminal to another computer. If the Power and LAN LEDs are lit, the problem is with your computer. If they are not lit, contact installer support.

**LAN LED is lit** If the LAN LED on the front panel is lit, disconnect the Ethernet cable. The LAN LED either stays lit or goes dark. Follow the appropriate instructions below.

*If LAN LED stays lit* If the LAN LED stays lit, power cycle both the remote terminal and the computer by unplugging their power cords from the power source, waiting 10 seconds, and plugging them back in.



Note: Do not re-connect the Ethernet cable.

If the LAN LED is lit after the remote terminal powers back on, call installer support.

*If LAN LED goes dark*

1. If the LAN LED goes dark, plug the Ethernet cable back into the remote terminal Ethernet port.
2. Check the IP address assigned to the computer.
  - a. On the Windows task bar, go to **Start**→ *Run*. The Run box appears.
  - b. Type **command** in the Open field and click **OK**. The Command window appears.
  - c. Type **ipconfig** at the prompt and press **ENTER**. Information related to the computer's network configuration appears.
  - d. Check the value in the IP Address field.

If the IP address is 0 . 0 . 0 . 0 or an address that begins with 169.254, make sure the computer is configured to automatically obtain an IP address from the remote terminal. Refer to *System Information page* on page 113 for the location of the IP Address field. Refer to *Appendix B – Configuring a computer to support DHCP*, on page 119 for instructions explaining how to configure the computer to automatically receive an IP address from the terminal.

If the TCP/IP settings are correct, power cycle the computer; this sets the IP address correctly.

If the ipconfig command did not display IP address information, there is probably a problem with the NIC. Refer to the manufacturer's documentation.

3. If the System Control Center is still not available, ping the remote terminal by typing **ping 192.168.0.1** or the customer-specific IP address at a DOS command line prompt or Command window and pressing **ENTER**.

If ping does not work, power cycle the remote terminal by unplugging it from the power source, waiting 10 seconds, and plugging it back in. If you still cannot ping, contact installer support.

If the ping results show `request timed out` power cycle the unit.

You should now be able to access the System Control Center. If you cannot, contact installer support.

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## Device other than computer connected to the remote terminal

If a device other than a computer is connected to the remote terminal, the System Control Center is probably never accessible. However, you can still use the LED indicators to troubleshoot, as described below.

### Problem: Receive LED not on

If the remote terminal is not operating normally and the receive LED is not lit, follow these steps:

- Check all cable connections. See Figure 88. Tighten any that seem loose.
- If the LED still does not come on, power cycle the remote terminal by unplugging the power cord from the power source, waiting 10 seconds, and plugging it back in.
- If the problem persists, contact installer support.



Note: Often, if the Receive LED is not lit, the other LEDs may not be lit either.

### Problem: System LED not lit

If the System LED is not on, but the Transmit and Receive LEDs are on, there may be a problem at the NOC. Take the following steps.

- Wait 15 minutes. If there is a problem at the NOC, it may soon be corrected and the System LED comes on. You can then resume normal operation.
- If the LED does not come on after you have waited 15 minutes, power cycle the remote terminal by unplugging the power cord from the power source, waiting 10 seconds, and plugging it back in.
- If the problem persists, contact installer support.

**Problem: Power LED not on** If the Power LED is not lit, take the following steps. Note that if the Power LED is not on, other LEDs may not be on or come on.

- Check to make sure the power cable is securely attached. See Figure 88.
- If securing the power cable does not solve the problem, check all cable connections. Tighten any that seem loose.
- If the Power LED still does not come on continuously, power cycle the remote terminal by unplugging the power cord from the power source, waiting 10 seconds, and plugging it back in.
- If the problem persists, contact installer support.

**Problem: Power LED blinking** If the Power LED is blinking, take the following steps.

- Check to make sure the power cable is securely attached. See Figure 88.
- Wait 15 minutes before proceeding to the next step because the terminal may need to finish downloading its configuration files from the NOC.
- If securing the power cable does not solve the problem, check all cable connections. Tighten any that seem loose.
- If the Power LED still does not come on continuously, power cycle the remote terminal by unplugging the power cord from the power source, waiting 10 seconds, and plugging it back in.
- If the problem persists, contact installer support.



## Appendix A

# The System Control Center

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This appendix describes the remote terminal's System Control Center. Access the System Control Center to view system status, system configuration, and online documentation. Each terminal's software is periodically updated over the satellite link to the NOC. Refer to the System Control Center's Help page for current information about the System Control Center and remote terminal software.

Refer to *Cannot access the System Control Center* on page 88 if you are not able to access the System Control Center.

This appendix discusses:

- *Accessing the System Control Center* on page 100
- *Home page* on page 101
- *System Status page* on page 103
- *Reception Information page* on page 104
- *Transmission Information page* on page 107
- *System Information page* on page 113
- *Connectivity Test page* on page 115
- *Help page* on page 116
- *Advanced pages* on page 117

## Accessing the System Control Center

The System Control Center is accessed through any browser, such as Internet Explorer or Netscape. Follow the steps below to set up an entry for the System Control Center in a browser. The steps are written for Internet Explorer or Netscape, but you can use a similar procedure for any browser.

1. On the Windows task bar, click **Start**→ *Programs*→ *Internet Explorer* (or Netscape) to open a web browser.
2. Place the cursor in the Internet Explorer Address bar or the Netscape Location Bar.
3. Type **192.168.0.1**, **www.systemcontrolcenter.com**, or the customer-specific LAN IP address in the browser's address or location bar.
4. Press **ENTER**. The System Control Center home page appears. See Figure 90.

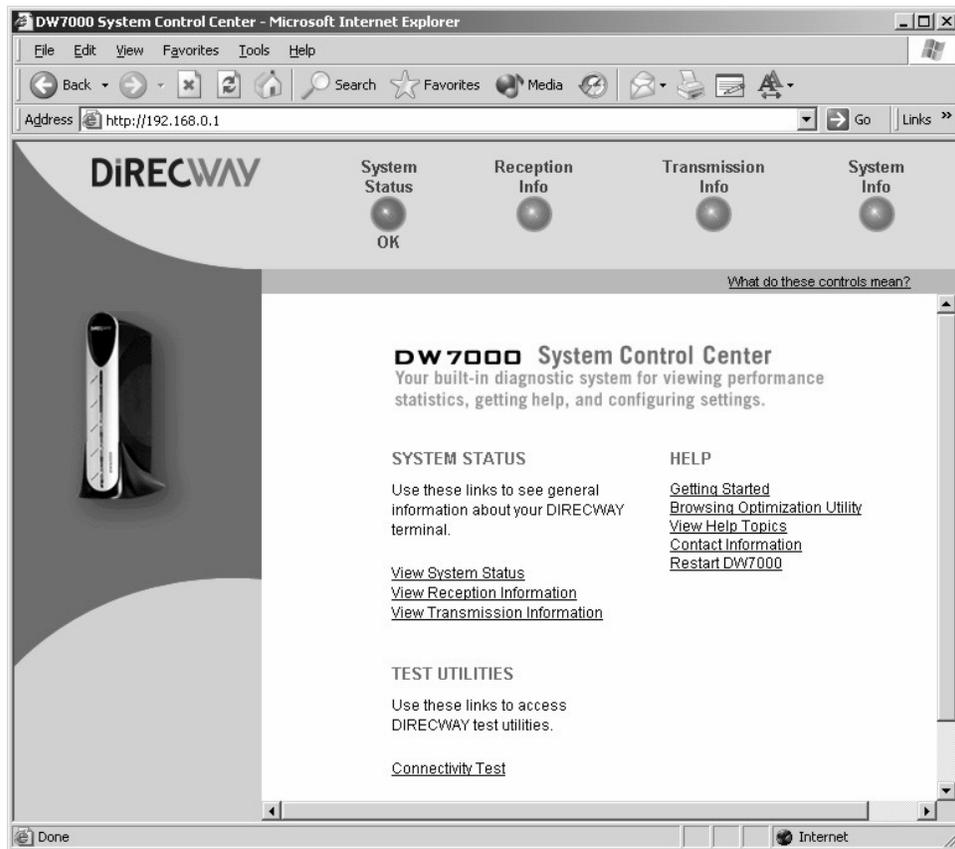


Figure 90: System Control Center home page

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## Home page

The System Control Center home page has system indicators and links to remote terminal features and important information regarding the operation of your remote terminal.

### System indicators

The system indicators appear at the top of the home page and are described below.



Note: The System Status indicator may be red, yellow, or green, while other indicators are always blue.

- **System Status** provides access to the System Status page. The System Status page displays general system status information such as signal strength and commissioning status. See *System Status page* on page 103.

If the indicator is green and **OK** appears below it as shown in Figure 91, the satellite connection is operating properly.



Figure 91: System indicators

If the indicator is red and **Problem** appears below it as shown in Figure 92, there is a problem with satellite connectivity. Click on the indicator to access the System Status page to view problem details.



Figure 92: System Status indicator reporting a problem

If the indicator is yellow, the Web Acceleration feature may not be functioning.

- **Reception Info** provides access to the Reception Information page. The Reception Information page displays remote terminal receive data. See *Reception Information page* on page 104.
- **Transmission Info** provides access to the Transmission Information page. The Transmission Information page displays remote terminal transmit data. See *Transmission Information page* on page 107.

- **System Info** provides access to the System Information page. The System Information page displays system information such as the remote terminal IP address, Site Account Number (SAN), and the site ID. See *System Information page* on page 113.

**Links** The System Control Center home page has four groups of links:

- System Status
- Test Utilities
- Help

**System Status** The following links provide access to system status information:

- **View System Status** provides access to the System Status page. The System Status page displays general system status information such as signal strength and commissioning status. For more information, see *System Status page* on page 103.
- **View Reception Information** provides access to the Reception Information page. The Reception Information page displays remote terminal receive data. For more information, see *Reception Information page* on page 104.
- **View Transmission Information** provides access to the Transmission Information page. The Transmission Information page displays remote terminal transmit data. For more information, see *Transmission Information page* on page 107.

**Test Utilities** The **Connectivity Test** link provides access to the Connectivity Test page, which can be used to test the connection between your remote terminal and the Network Operations Center (NOC). See *Connectivity Test page* on page 115.

**Help** The following links provide access to help-related information:

- **Getting Started** explains how the remote terminal works and provides access to remote terminal operating instructions and recommended settings.
- **Browsing Optimization Utility** provides access to a utility that enhances web browsing performance. The utility has no effect on download and upload speeds.
- **View Help Topics** provides access to the Help page. Refer to the Help page for a variety of help topics ranging from an overview of the remote terminal to answers to frequently asked questions. See *Help page* on page 116.
- **Contact Information** provides access to technical support information. Contact information may vary by service plan.
- **Restart DW7000** enables you to restart the terminal.

## System Status page

The System Status page is shown in Figure 93. The page's fields are described below the figure.

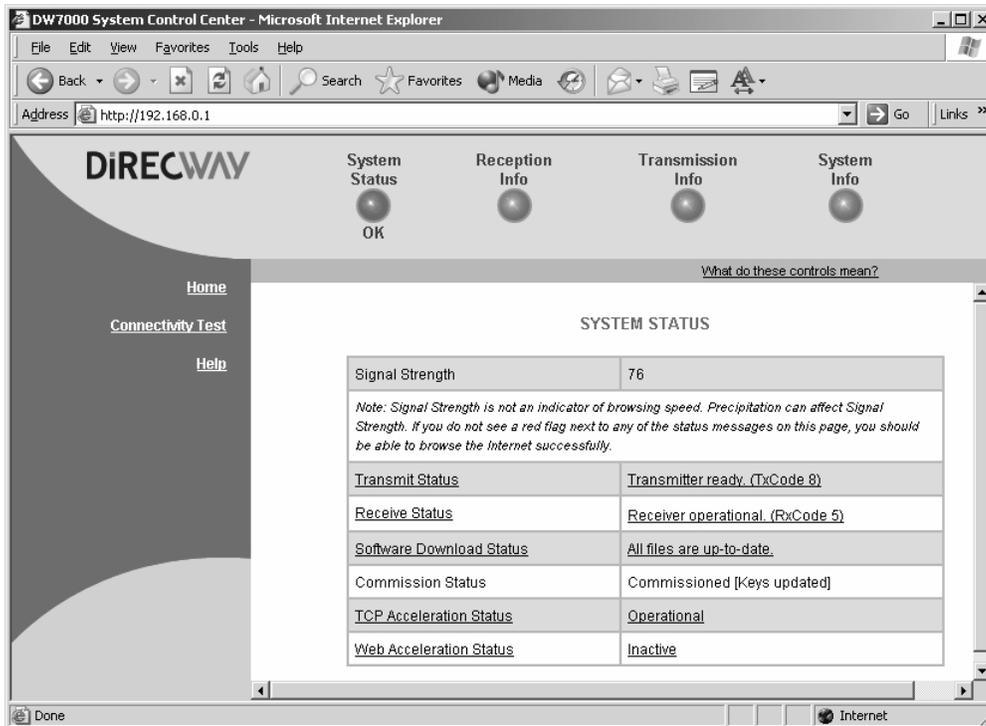


Figure 93: System Status page

- Signal Strength - receive signal strength.
- Transmit Status - indicates whether the transmit data path is operational. Clicking on the status message displays corresponding help information.
- Receive Status - indicates if the receive data path is operational. Clicking on the status message displays corresponding help information.
- Software Download Status - indicates whether remote terminal software and configuration is up-to-date.
- Commission Status - indicates if the unit is commissioned.
- TCP Acceleration Status - indicates if TCP Acceleration is operational. TCP acceleration provides the expected performance on a remote terminal.
- Web Acceleration Status - indicates if Web Acceleration is operational. Web Acceleration is operational if you are browsing HTTP-based web sites. Web Acceleration may be inactive if you are browsing on a secure HTTP site (https).

## Reception Information page

The Reception Information page is shown in Figure 94. The page's fields are described below the figure.

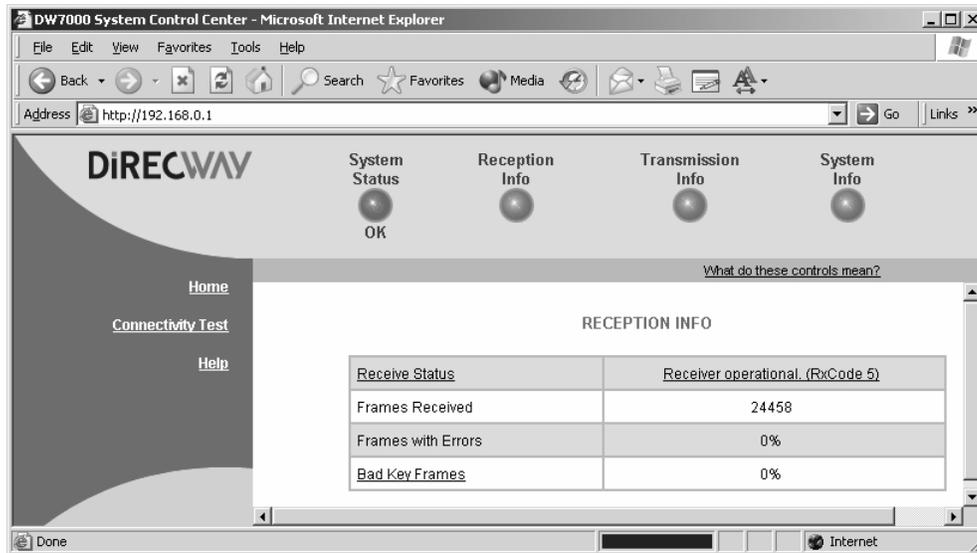


Figure 94: Reception info

- Receive status - reports the status of the receive data path. Clicking on the blue status message displays corresponding help information. Table 4 describes the RxCodes in detail.
- Frames received- reports the number of data messages received by the remote terminal over the satellite link.
- Frames with Errors- reports the percentage of received frames that were found to be corrupted. A continuously increasing value indicates problems in the receive path. This may happen in adverse weather conditions or if there is a problem with the receive cable or the antenna. However, if a low non-increasing value is displayed and the system is functioning, there is no reason for concern. You do not need to do any troubleshooting or contact installer support.
- Bad Key Frames- indicates the percentage of received frames that could not be decrypted successfully. All data received over the satellite is encrypted. A continuously increasing value indicates the unit is not commissioned.

**Receive Status messages** The following messages may appear in the Receive Status field. The Comments section in Table 4 gives more information about each code and describes any possible corrective measures.

If corrective measures do not solve a problem, contact installer support.

RxCODE 5 means receive is working properly. It is the code you see most of the time.

Table 4: Receive code (RxCODE) messages and corrective actions

Code	Message	Corrective actions
1	The receiver is in pointing mode	This condition indicates the installer is performing antenna pointing. In this mode, the transmitter is disabled for safety reasons since the installer is working near the dish. If this occurs during normal operation, try power-cycling the remote terminal by unplugging the power cord from the power source and then plugging it back in.
2	The receiver is in factory or NOC mode	This status is for remote terminal testing purposes only. You should never see it. If this occurs during normal operation, try power-cycling the remote terminal by unplugging the power cord from the power source and then plugging it back in.
3	The receiver is not locked to a signal	If the remote terminal had been operating previously, this status is probably due to inclement weather conditions and may be corrected when the weather improves. This condition can also indicate that the unit is unable to receive the signal from the NOC. This is also associated with a signal level less than 30. This occurs if there is a weather outage at the user location, a NOC outage due to inclement weather or other reasons, a misaligned or faulty antenna, or faulty cabling. If this keeps happening under normal weather conditions, make sure the power supply is correct. The power supply should be Part # 1031105-0001. If the power supply is correct, try power-cycling the remote terminal by unplugging the power cord from the power source and then plugging it back in.

Table 4: Receive code (RxCode) messages and corrective actions (Continued)

Code	Message	Corrective actions
4	The receiver is locked to the wrong network	This condition should only be seen during installation and occurs when the receiver is locked to an incorrect DIRECWAY satellite. This could also happen if the installer enters incorrect information during manual pointing. If this occurs during normal operation, it may be due to the user changing satellite parameters, or the antenna becoming misaligned. Make sure the antenna is aimed at the correct satellite and verify the correct satellite parameters were entered or selected during the registration process.
5	The receiver is operational	This is the normal operating state where the receiver is receiving data from the NOC. Only when the receiver is in this state does the transmitter operate correctly.
6	The receiver is not detecting a signal	This condition occurs when the unit is not detecting any type of radio signal from the antenna. This could indicate that the cabling between the receiver and the antenna is faulty or that the receiver itself is faulty. Check that the cables are firmly connected on the remote terminal. Also, make sure that the power supply is correct. The power supply should be Part # 1031105-0001. Try power-cycling the remote terminal by unplugging the power cord from the power source and then plugging it back in.
7	The receiver is locked to an unknown network	This condition should only be seen during installation and occurs when the receiver is locked to a non-DIRECWAY satellite. In rare cases it may be due to a transient outage at the NOC. If this occurs during pointing or commissioning, the antenna has not been pointed correctly. If it occurs during normal operation, it may be due to the user changing satellite parameters, or the antenna becoming misaligned. The former condition can be corrected by re-commissioning the site. The latter requires an antenna repointing.

---

 **CAUTION**

**Never unplug the DC power cord from the remote terminal while it is powered on. If the remote terminal uses an AC/DC power supply, always disconnect the AC power cord from the power strip, wall outlet, or surge protector. If the remote terminal uses a DC/DC power supply, always disconnect the DC input cable connector from the power supply.**

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## Transmission Information page

The Transmission Information page is shown in Figure 95. The page's fields are described below the figure.

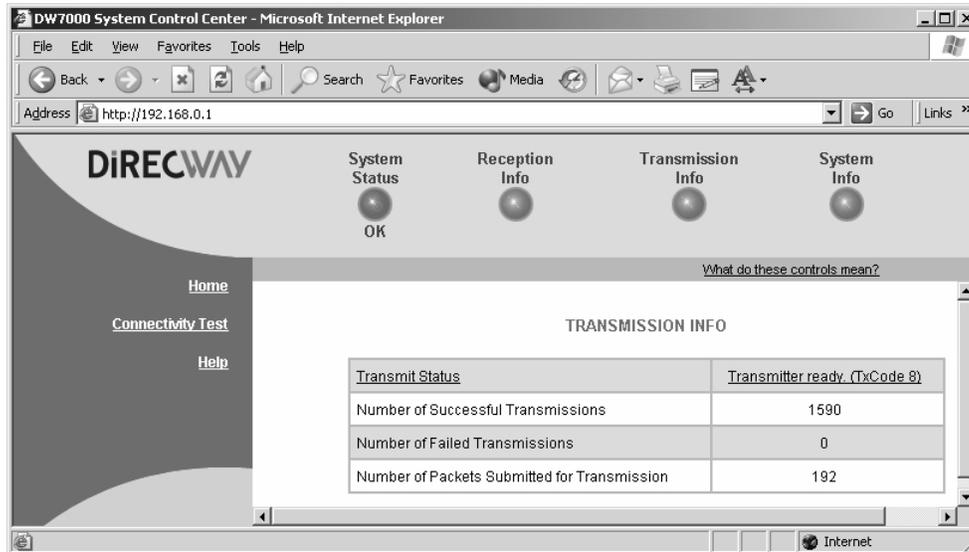


Figure 95: Transmission Information page

- Transmit status - reports the status of the transmit data path. Clicking on the blue status message displays corresponding help information.
- Number of successful transmissions- reports the number of frames transmitted to the satellite.
- Number of failed transmissions- reports the number of frames that could not be sent. A continuously increasing value indicates a problem with transmitting. However, if a low non-increasing value is displayed and the system is functioning, there is no reason for concern. You do not need to do any troubleshooting or contact installer support.
- Number of packets submitted for transmission- indicates total number of data queued for transmission to the satellite.

**Transmit status messages** The following messages may appear in the Transmit field. The Comments section gives more information about each code, and describes any possible corrective measures.

If corrective measures do not solve a problem, contact installer support.

TxCODE 8 means the transmitter is working properly. It is the code you see most of the time.

Table 5: Transmit code (TxCode) messages and corrective actions

Code	Message	Corrective actions
1	The transmitter has been disabled by the Network Operations Center	This condition occurs when the transmitter is not enabled. A transmitter may be disabled for short periods of time by the NOC for service or troubleshooting. It may also be disabled if the user discontinues the satellite service. If this condition persists, it can only be corrected by requesting that the unit be enabled.
2	The transmitter has been placed in test mode by the Network Operations Center	This status requires no user action and this test usually completes in 15 minutes or less. This condition occurs when the NOC places the transmitter into special transmission modes to measure the performance of the transmitter. When in this mode, the unit is unable to transmit normal user data to the NOC.
3	The transmitter is locking to the receive carrier	This condition occurs during initial startup or when the receiver is locking to the receive signal. It is normal for this condition to persist for up to 10 seconds. If this condition persists for more than 10 seconds, try disconnecting and reconnecting the receiver coaxial cable and waiting 10 seconds. If the situation still persists, then the remote terminal may need to be replaced.
5	The transmitter is not locked to the network timing	No action is necessary if this condition occurs from time to time and quickly resolves itself. If this issue persists, it is likely due to a NOC-related service issue. The condition may also be due to remote terminal failure; in rare cases, the unit may fail and may have to be replaced.

Table 5: Transmit code (TxCode) messages and corrective actions (Continued)

Code	Message	Corrective actions
6	The transmitter is not available because the receiver is not detecting a signal or is not locked to the correct network	Check your receive signal. This condition occurs when the remote terminal is not detecting a good signal. The receiver must be locked to the correct network in order for the transmitter to operate. If the receiver is not locked (no signal) or is locked to the wrong network, the transmitter is unable to transmit data. Please verify that you have a good signal strength by going to the System Status page. This could also be caused by inclement weather.
7	The transmitter is not available because the satellite receiver is not tuned for normal operation	This condition occurs when the transmitter is disabled for safety reasons. If this happens during installation or commissioning, the installer closes the Antenna Pointing program and resolves the condition.
8	The transmitter is available	This is the normal operational state and indicates that the transmitter is ready to transmit data.
9	The transmitter is adjusting for optimal network timing	This condition typically occurs when the remote terminal is first commissioned or the first time it is used for data traffic. This must occur before the remote terminal is able to transmit successfully. Typically, this process usually takes less than a minute.
10	The transmitter is unable to communicate with the Network Operations Center	This condition indicates that the unit has stopped attempting to transmit user data because there were a number of failures in sending data to the NOC over the satellite link. This could be the result of weather conditions causing lost packets or, rarely, return channel equipment failures in the NOC.
11	The transmitter is not available because the receiver software is out of date	This condition indicates that the installed software version is not recent enough to operate on the network. New software is required from time to time due to network infrastructure and capability upgrades and in order to maintain network efficiency and fix any known problems. The system automatically updates the software version to ensure that you can enjoy uninterrupted operation. If you do not use the remote terminal for a long period of time and miss the updates, you may need to contact your service provider.
12	The transmitter is not receiving network control messages from the Network Operations Center	This condition indicates a NOC equipment outage. This should be a transient condition and the system should recover automatically.

Table 5: Transmit code (TxCode) messages and corrective actions (Continued)

Code	Message	Corrective actions
13	The transmitter is unable to range because it cannot communicate with the Network Operations Center	<p>Ranging is the process that adjusts the satellite transmitter timing and power. The satellite transmitter conducts ranging as needed to ensure that it can communicate successfully with the Network Operations Center. This condition can indicate any of the following:</p> <ul style="list-style-type: none"> <li>• The NOC is not receiving ranging information from the transmitter. This may indicate a transmit problem at the NOC. This should get cleared in a few minutes.</li> <li>• The transmitter is unable to achieve enough transmit power to send ranging information to the NOC. Make sure that the power supply is correct. The power supply should be Part #1031105-0001.</li> <li>• The transmitter is sending incorrect timing data because incorrect ZIP code or incorrect latitude/longitude information was entered during installation.</li> <li>• The outdoor transmitter unit (ODU)--that is, the antenna--is not operating properly or is not properly connected to the remote terminal. Please ensure that the transmit cable is securely fastened to the satellite out connector.</li> </ul>
14	The transmitter is not available because ranging has failed	<p>This condition indicates the transmitter is not operational because ranging has failed. Ranging is the process that adjusts the satellite transmitter timing and power. The satellite transmitter conducts ranging as needed to ensure that it can communicate successfully with the Network Operations Center. The ranging failure may happen due to the antenna becoming misaligned or if repeated attempts to range do not succeed. This condition may also be caused due to adverse weather conditions. In rare cases, this may also indicate NOC issues but should clear within a few minutes. If the system was operational in the past and you see these messages repeatedly, you can try to force range by performing the Connectivity Test.</p>
15	The transmitter is waiting for a ranging request to be processed by the Network Operations Center	<p>This condition occurs if the system is busy adjusting power and timing for other users. This process may take up to a minute or more.</p>
16	The transmitter is waiting for a transmit request to be processed by the Network Operations Center	<p>This condition occurs when the system is unable to provide transmit bandwidth. This occurs when many users sign-on simultaneously. It should clear in a few minutes automatically.</p>

Table 5: Transmit code (TxCode) messages and corrective actions (Continued)

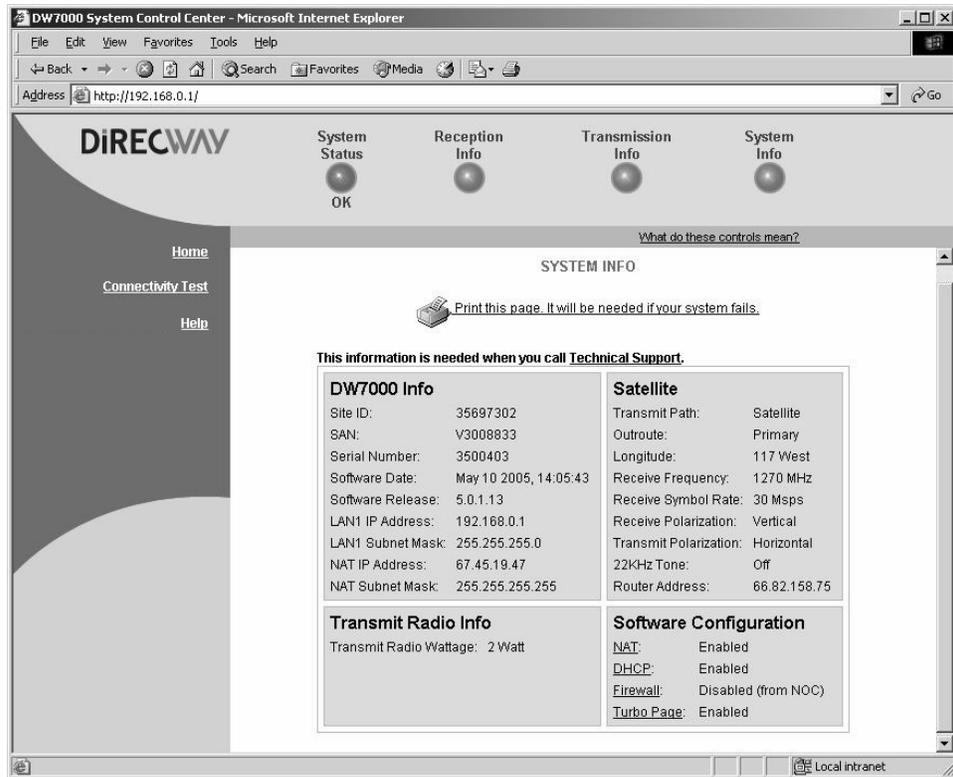
Code	Message	Corrective actions
17	The satellite transmitter is unable to obtain an available transmission rate	This condition occurs if the transmitter cannot successfully range. Ranging is the process that adjusts the satellite transmitter timing and power. The satellite transmitter conducts ranging as needed to ensure that it can communicate with the Network Operation Center. A possible cause is that the transmitter could not achieve enough power to transmit. This is likely caused because the antenna is not accurately pointed. However, it may also be a transmitter power problem. Check the power supply and make sure that it is Part # 1031105-0001. Also, this condition may be caused by incorrect bit rate mask usage.
18	The transmitter is requesting a transmit pointing test	This condition can occur during installation when the Antenna Pointing program requests that the transmitter perform a transmit pointing test. This condition persists until the NOC responds that the transmitter is either actively performing the pointing test or is queued to perform the test when test resources become available in the NOC. This is a normal condition for initial installation. The transmitter may also periodically go into this condition for short periods of time (less than 5 seconds) to perform periodic transmit pointing tests. These periodic tests are performed to ensure that the antenna is pointed accurately.
19	The transmitter is queued for a transmit pointing test	This condition can occur during installation when the Antenna Pointing software requests a transmit pointing test and the NOC has responded that the transmitter is queued for the next available test time. It may also occur when the transmitter is performing periodic background transmit pointing tests at the same time that other users on the network have requested tests. This is a normal state after initial installation.

Table 5: Transmit code (TxCode) messages and corrective actions (Continued)

Code	Message	Corrective actions
20	The transmitter is performing a transmit pointing test	<p>This condition occurs when one of the following tests are active:</p> <ul style="list-style-type: none"> <li>• During installation, the Antenna Pointing software requests that the transmitter perform a transmit pointing test. This condition persists until the Antenna Pointing software exits from the transmit pointing test mode.</li> <li>• The remote terminal performs a periodic background transmit pointing test to make sure that the antenna is still pointed correctly. This periodic test takes less than 5 seconds. If the problem persists, try power-cycling the remote terminal by unplugging the power cord from the power source and plugging it back in.</li> </ul>
21	The transmitter is disabled because a transmit pointing test failed	<p>This condition occurs when the transmitter fails a transmit pointing test. This indicates that the transmitter did not meet the minimum specifications required. This is likely due to an antenna installation problem. The antenna installer needs to fine-point the antenna. The transmitter does not transmit until the transmit pointing test passes.</p>
22	The transmitter is disabled pending a transmit pointing test	<p>This condition occurs when the transmitter is required to perform a periodic background transmit pointing test, but has not been able to perform the test within the time window required. The transmitter is expected to be in this condition for no more than two minutes at random periodic intervals. This condition can also occur after the transmitter is first powered on after it has been powered off for more than a day. If the unit remains in this condition for more than two minutes, then the automated transmit pointing components in the NOC are likely experiencing problems. This condition should clear in a few minutes.</p>
23	The transmitter is disabled because a transmit pointing test cannot be performed	<p>This condition occurs when the transmitter cannot perform the transmit pointing test when initially installed or when the transmitter is required to range. The condition indicates that the NOC components needed to perform the transmit pointing test are not operational.</p>
24	The transmit cable is disconnected	<p>This message is displayed if the DIRECWAY unit is not able to detect the transmit cable connection. Make sure the transmit cable is securely attached to the DIRECWAY unit and to the transmitter on the antenna assembly. Inspect the transmit cable and the antenna assembly to make sure they are not damaged.</p>

## System Information page

The System Information page is shown in Figure 96. While all the information displayed on the page may be useful at some time, only the most important items are discussed below.



The screenshot shows a web browser window titled "DW7000 System Control Center - Microsoft Internet Explorer". The address bar shows "http://192.168.0.1/". The page features the "DIRECWAY" logo and four status indicators: "System Status" (OK), "Reception Info", "Transmission Info", and "System Info". A navigation menu on the left includes "Home", "Connectivity Test", and "Help". The main content area is titled "SYSTEM INFO" and includes a "Print this page" icon and text: "Print this page. It will be needed if your system fails." Below this, a note states: "This information is needed when you call Technical Support." The page is divided into four sections:

DW7000 Info	
Site ID:	35697302
SAN:	V3008833
Serial Number:	3500403
Software Date:	May 10 2005, 14:05:43
Software Release:	5.0.1.13
LAN1 IP Address:	192.168.0.1
LAN1 Subnet Mask:	255.255.255.0
NAT IP Address:	67.45.19.47
NAT Subnet Mask:	255.255.255.255

Satellite	
Transmit Path:	Satellite
Outroute:	Primary
Longitude:	117 West
Receive Frequency:	1270 MHz
Receive Symbol Rate:	30 Msp/s
Receive Polarization:	Vertical
Transmit Polarization:	Horizontal
22KHz Tone:	Off
Router Address:	66.82.158.75

Transmit Radio Info	
Transmit Radio Wattage:	2 Watt

Software Configuration	
NAT:	Enabled
DHCP:	Enabled
Firewall:	Disabled (from NOC)
Turbo Page:	Enabled

Figure 96: System Information page



Note: Print the System Information page and tell the customer to save it. The customer might need it if they cannot access the System Control Center and they need to call their service provider for assistance.

- DW7000 Info section
  - SAN - identifies the customer's site account number.
  - Serial number - the terminal's serial number. The terminal's serial number may be required to troubleshoot.
  - Software Date - software build date.
  - Software Release - version of the software on the remote terminal. This is typically the factory-installed software version. However, if the NOC downloads a newer version of the Gateway software to the remote terminal, the newer version is displayed.
  - IP Address - the address of the remote terminal.

- Subnet Mask - defines range of addresses assigned to the remote terminal.
- Site ID - site identification number.
- Satellite section
  - Longitude - satellite's longitude.
  - Receive frequency - transponder frequency configured for the remote terminal.
  - Receive Polarization - polarization orientation, which is either horizontal or vertical.
  - Router Address - IP address of the primary router at the NOC used to route data sent by the remote terminal.
- Software Configuration section - network address translation (NAT), DHCP, Turbo Page, and Firewall features are enabled or disabled as per a customer's service offering. The customer cannot use the terminal to change these features.
  - Network Address Translation (NAT) - typically used to allow multiple computers to share a single address on the Internet. It also allows pre-configured remote networks to be integrated easily with the DIRECWAY network.
  - Dynamic Host Configuration Protocol (DHCP) if enabled, this simplifies the network configuration of the computers. The computers just need to be set up to "Obtain IP address automatically."
  - Turbo Page - if enabled, speeds web surfing.
  - Firewall - if enabled, allows you to specify packet filtering rules.
- Transmit Radio Info
  - Transmit Radio Wattage - wattage of the transmit radio. This field may list the transmit radio part number if it was selected during the commissioning process instead of the wattage.

## Connectivity Test page

The Connectivity Test page shown in Figure 97 may be used to test the connection between the remote terminal and the NOC. Instructions for executing a connectivity test are provided in *Checking Network Operations Center (NOC) connectivity* on page 85.

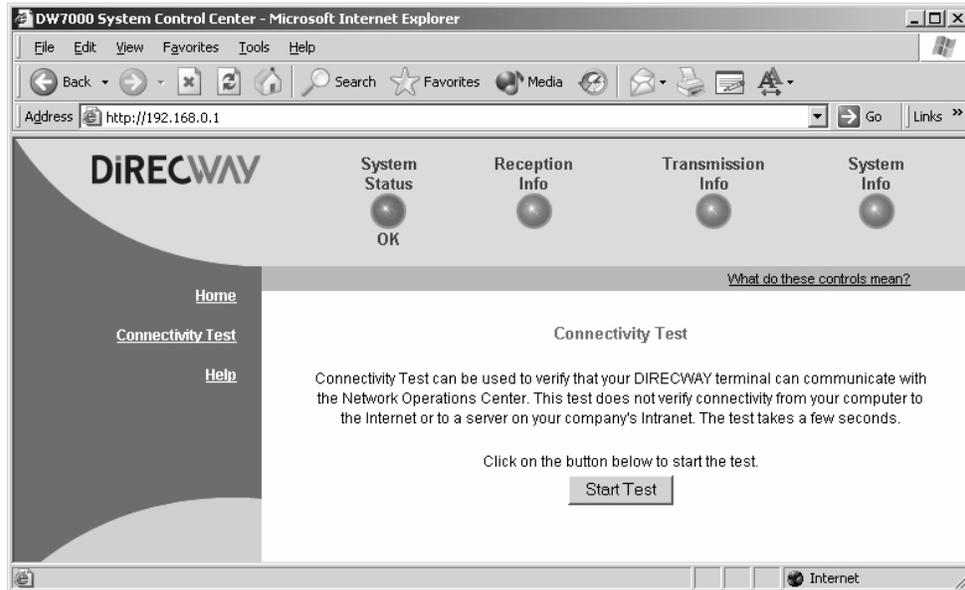


Figure 97: Connectivity Test

A successful connectivity test is shown in Figure 98.

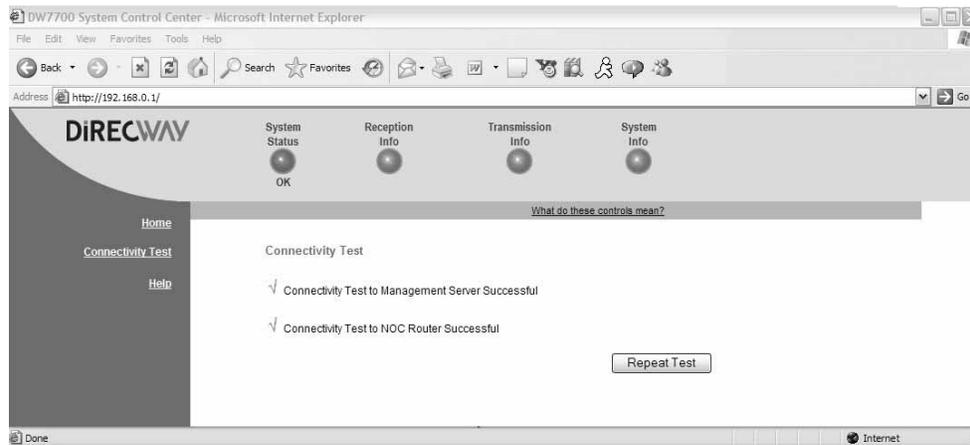


Figure 98: Successful connectivity test

## Help page

The Help page contains information about receive and transmit status messages, installation, troubleshooting, and other topics. Review it to become familiar with the System Control Center and the remote terminal. Access the Help page by clicking **View Help Topics** on the System Control Center home page or clicking **Help** on the page you are currently on.



Note: Print the answer to the entry in the System Control Center Troubleshooting page, “I am unable to access the DW7000 Web interface. Ping doesn’t work also.” The information on this page helps you if you cannot access the System Control Center.

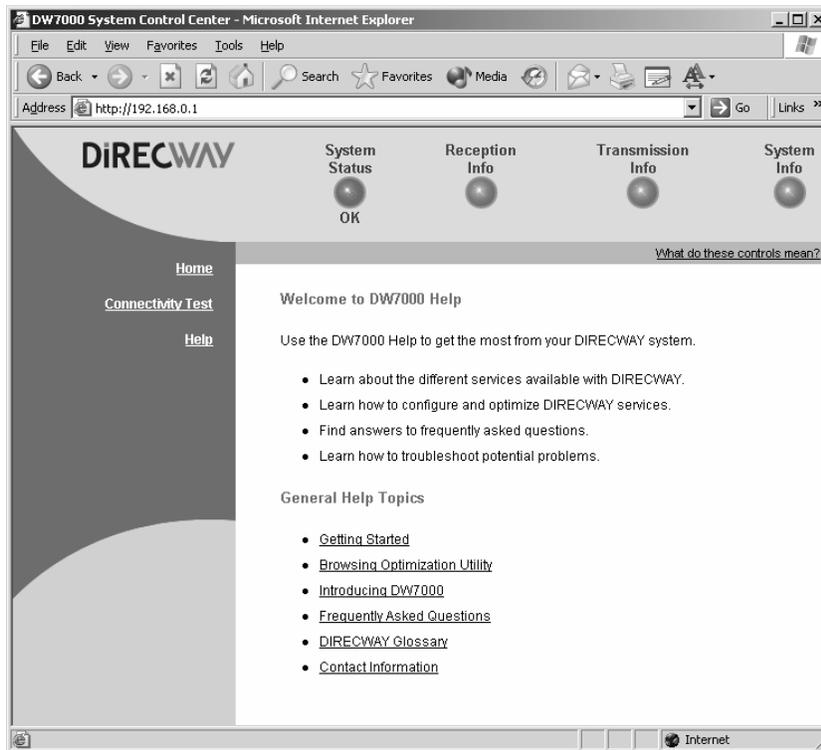


Figure 99: Help page

## Advanced pages

The Advanced pages contain a great deal of information. You may need to access them to communicate with installer support or to configure special features, such as DIRECWAY Virtual Private Network Automatic Dial Backup (DVADB).

To access Advanced pages, in the browser address bar type:

**192.168.0.1/fs/advanced/advanced.html** and press **ENTER**. A page like the one in Figure 100 appears.



Note: Never show the Advanced pages to a customer. Never use a customer's computer to access the Advanced pages.

**Advanced Configuration and Statistics**

Serial Number: 3500398

- Auto Refresh Settings
- Summary
- Event Logs
- Address Statistics
- Firmware Statistics
- ACP Statistics
- Transmitter Statistics
- Transmitter Debug Stats
- Remote Statistics
- Health Monitor Stats
- DVB PID Statistics
- SLH Statistics
- PEP Statistics
- IP Relay Route Table
- Route Table Statistics
- RIP Statistics
- VIP Statistics
- Software Download Monitor
- Reset History
- Configuration Parameters
- LAN Statistics
- DHCP Server Statistics
- NAT Statistics
- Header Compression Statistics
- Turbo Pane Statistics
- Turbo Pane Debug Statistics
- TCP Level4 Switch Statistics
- Turbo Pane Configuration
- DNS caching Statistics
- Terminal Error Statistics
- Inroute & ACSP Configuration
- Serial Port Config/Stats
- Clear Statistics

More Commands [ ] [ ] [ ]

Execute Execute Execute

### Satellite Statistics Summary

-----  
Local Time: THU APR 21 11:50:45 2005  
-----

Adapter Main Statistics:

Signal Strength.....	73	Stream Msg-Ackd/Nakd.....	307119/22
Flags.....	0x00000020	NonStream Msg-Ackd/Nakd....	537/1
UpTime (d:h:m:s).....	000:21:58:02	Aloha Starts.....	537
The Sequencer Timeout.....	0	Ranging Starts.....	0
Transport Alarm Bit.....	None	Frames Received.....	943115
Addresses Open.....	7	Frame Errors: CRC/Bad Key... 0/0	
Carrier Info.....	117:M:1270	Miscellaneous Problems.....	0
Rate Code.....	256k 1/2 (TC)	No Receive Outroute Lock....	0
Inroute Group.....	88	No FLL Lock.....	0
Inroute.....	1	No Network Timing Sync.....	0
IQoS ID.....	0		

Ranging Reason: Ranging Done

Inroute Group Selection: Ranged at inroute rate selected by IQoS

Receive Status: Receiver operational. (RxCode 5)

Transmit Status: Transmitter ready. (TxCode 8)

Figure 100: Advanced page



# Configuring a computer to support DHCP

This chapter explains how to configure a computer to support DHCP. All remote terminals come from the factory with Dynamic Host Configuration Protocol (DHCP) enabled. Therefore, your computer must have DHCP enabled and set to automatically obtain IP addresses.

## Windows 98SE and Me

1. On the computer, go to **Start**→ **Settings**→ **Control Panel** and double-click **Network**. See Figure 101.

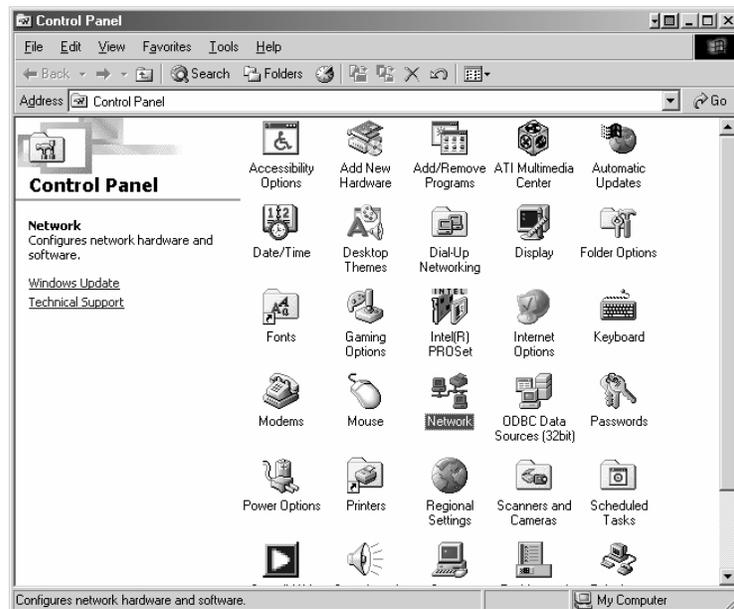


Figure 101: Control Panel



Note: On Windows Me computers, choose View All Control Panel Options to see the Network icon.

2. A list of network components appears. See Figure 102.

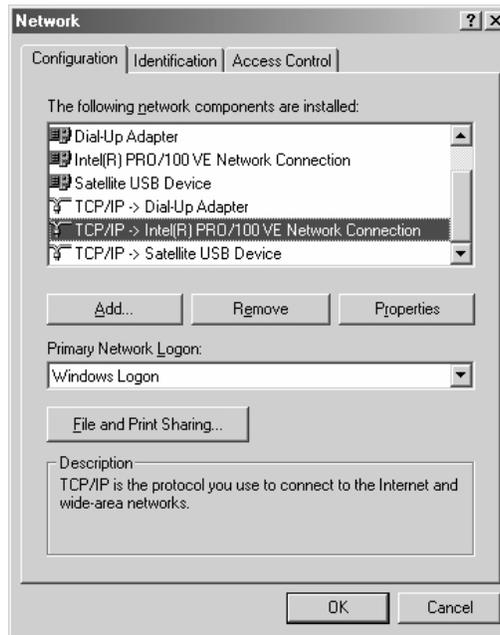


Figure 102: Network window

3. Select the TCP/IP entry associated with the Network Interface Card (NIC) and then select Properties. The TCP/IP Properties window appears. See Figure 103.

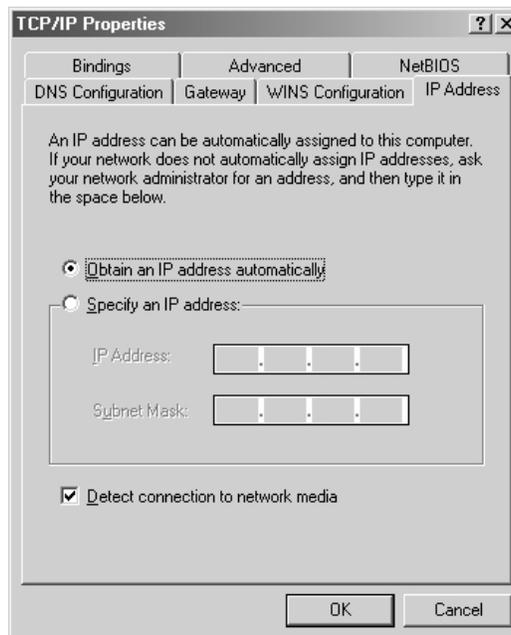


Figure 103: TCP/IP Properties

4. In the IP Address tab, select Obtain an IP address automatically.
5. Select the Gateway tab. Remove any installed gateways by selecting them and selecting **Remove**. See Figure 104.

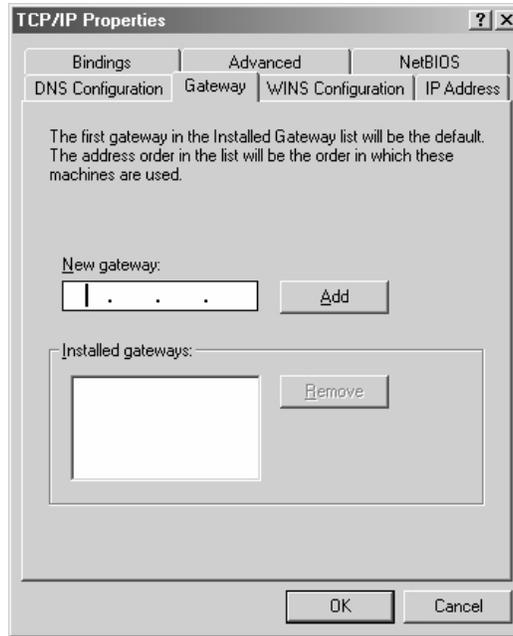


Figure 104: Gateway tab

6. Select the **Disable DNS** radio button on the DNS Configuration tab.
7. Select **OK** to accept the updates for the TCP/IP properties.
8. Select **OK** to close the list of network components. Windows may request the installation CD-ROM to complete updating the TCP/IP settings.
9. Restart the computer if it does not do so automatically.

## Windows 2000

1. On the client computer, go to **Start**→ *Settings*→ *Control Panel* and double-click Network and Dial-up Connections.
2. A list of network connections appears. See Figure 105. The Local Area Connection icon must be listed. If it is not, the network is not installed correctly.

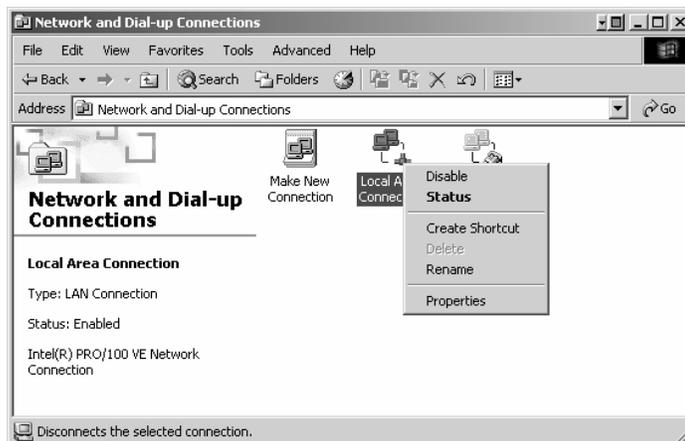


Figure 105: Network and Dialup Connections

3. Right-click the Local Area Connection icon that represents the terminal network connection and select Properties. The Local Area Connections Properties window appears. See Figure 106.

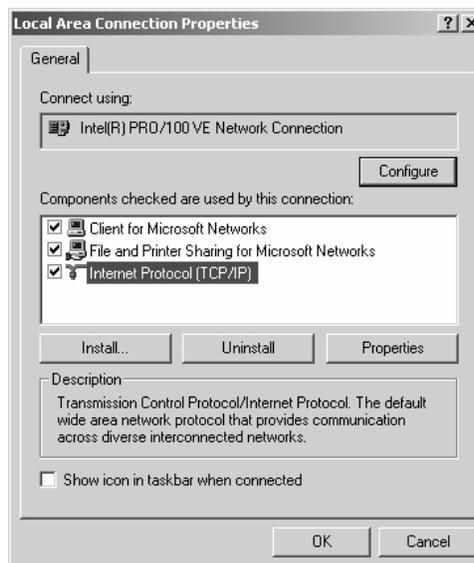


Figure 106: Local Area Connection Properties

4. Ensure that the Client for Microsoft Networks and Internet Protocol (TCP/IP) are installed and checked. If NetBEUI is installed, uninstall it.
5. Select Internet Protocol (TCP/IP). Be careful not to uncheck the check box.
6. Select the Properties button. The Internet Protocol Properties window appears. See Figure 107.

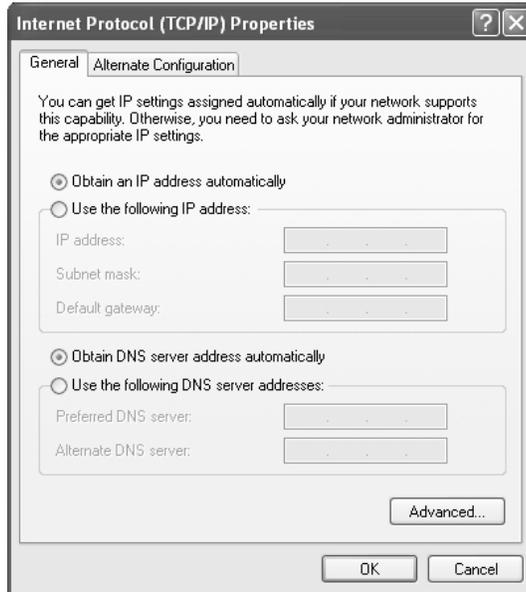


Figure 107: Internet Protocol Properties

7. Ensure that both Obtain an IP Address Automatically and Obtain DNS Server Address Automatically are selected. If not, select them.
8. Select **OK** to close the open dialog boxes and finish the configuration.
9. Restart the computer even if Windows does not require you to do so. This ensures the network settings are automatically reset.

## Windows XP

1. Go to **Start** → *Settings* → *Control Panel*. Double-click the Network and Dial-up Connections icon.



Note: If the Control Panel is in category view select Network and Internet Connections then select Network Connections.

2. A list of network adapters appears. A Local Area Connection must be listed under LAN or High-Speed Internet. See Figure 108. If not, the network is not installed correctly.

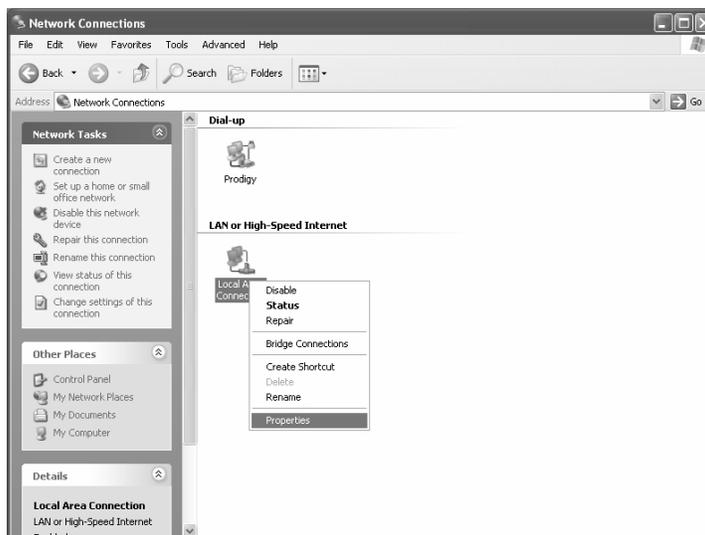


Figure 108: Network Connections

3. Right-click the Local Area Connection icon that represents the Network adapter that connects the computer to the Satellite Gateway and select Properties.



Note: If the Local Area Connection icon appears with a red X then check your connections. The red X must not be present in order for you to successfully configure your system.

4. Ensure that the Client for Microsoft Networks and Internet Protocol (TCP/IP) are installed and checked. See Figure 109. If NetBEUI is installed, uninstall it.

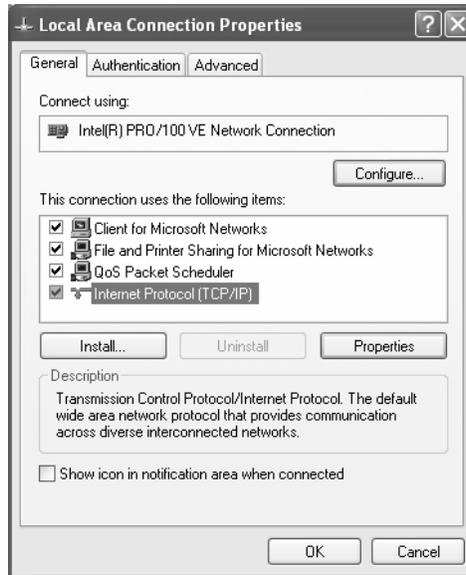


Figure 109: Local Area Connection Properties

5. Select Internet Protocol (TCP/IP) and select Properties. See Figure 110.



Note: Be careful not to uncheck the Internet Protocol when you select it.

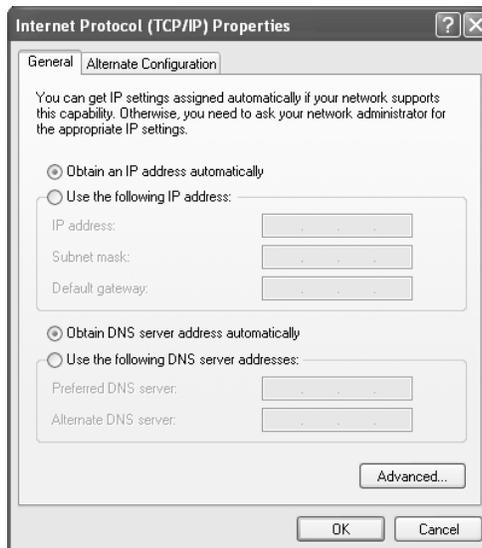


Figure 110: Internet Protocol Properties

6. Ensure that both Obtain an IP address automatically and Obtain DNS server address automatically options are selected. If not, select them.
7. Select **OK** to close the open dialog boxes and finish the configuration.
8. Restart the computer even if Windows does not require you to do so. This ensures the network settings are automatically reset.

# Updating the remote terminal's PID

This appendix explains how to use the Fallback Updater utility to update the fallback.bin file on a remote terminal to the current software release. Only use the procedures in this appendix when instructed to do so by Hughes Network Systems (HNS).

The utility must be saved on the installer laptop prior to updating the fallback.bin file and installing the remote terminal. The utility is distributed to installers in an e-mail and is also available for download on an installation support web site. Installers are notified by HNS of the web address for the site from where the utility can be downloaded.

## Saving the utility on the installer laptop

Follow these steps to save the utility on the installer laptop:

1. Obtain the self-extracting file containing the utility and its supporting files.
2. Save the self-extracting file on the installer laptop.
3. Open the self-extracting file.
4. Select the location where the utility and its supporting files will be unzipped and saved. See Figure 111.



Note: Make a note of the location where the utility and its supporting files are saved. You need to locate them before using the utility.

5. Click **Unzip**. See Figure 111.

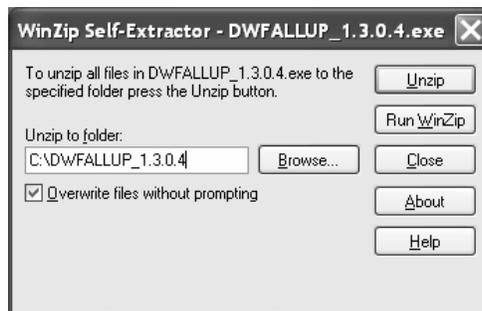


Figure 111: Saving the Fallback Updater utility on the installer laptop

## Configuring the TCP/IP properties on the installer laptop

You must manually configure the TCP/IP properties on your installer laptop before you can use the utility. This section explains how to configure TCP/IP properties for Windows 98 Second Edition (SE), Windows Millennium Edition (Me), Windows 2000, and Windows XP operating systems.

You must connect your installer laptop to the remote terminal with an Ethernet cable before configuring TCP/IP properties.

1. On the installer laptop, go to **Start**→ **Settings**→ **Control Panel** and double-click **Network**. See Figure 112.

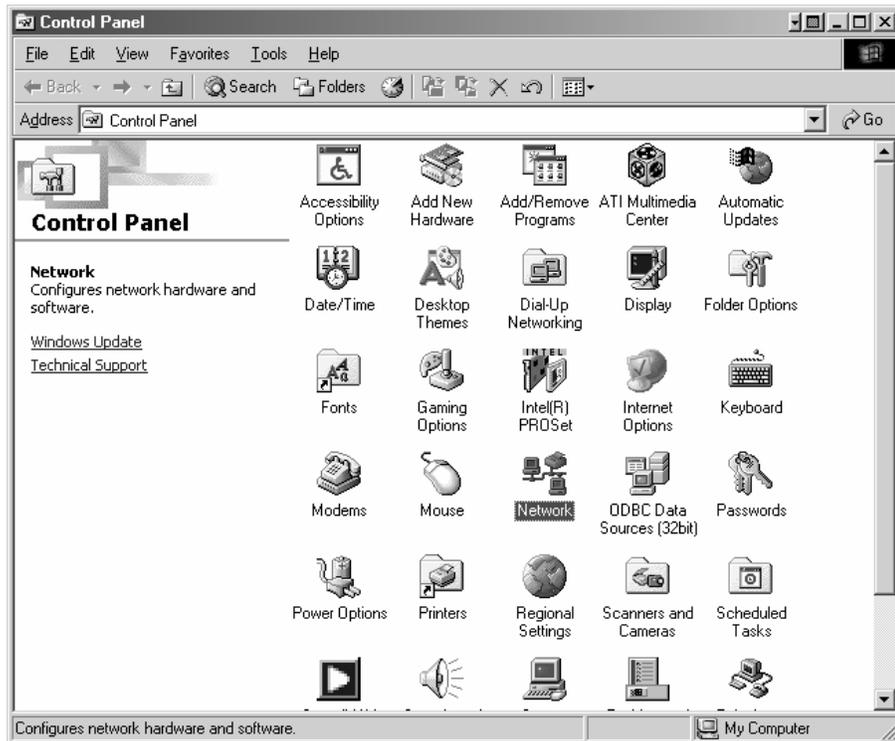


Figure 112: Control Panel



Note: On Windows Me computers, choose View All Control Panel Options to see the Network icon.

2. A list of network components are displayed. See Figure 113.

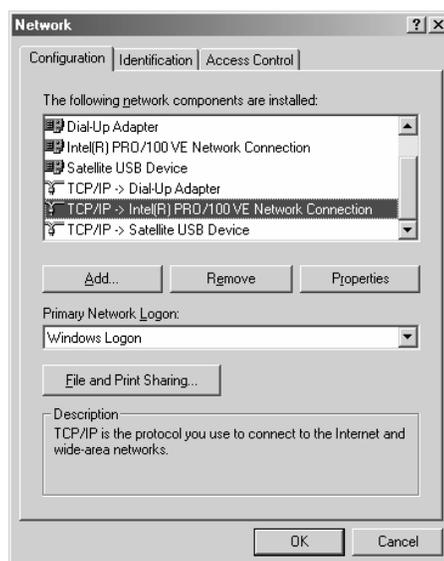


Figure 113: Network window

3. Select the TCP/IP entry associated with the installer laptop's Network Interface Card (NIC) and click **Properties**. The TCP/IP Properties window appears. See Figure 114.

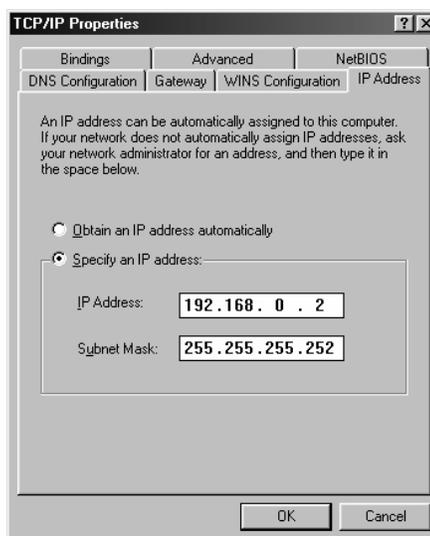


Figure 114: TCP/IP Properties

4. On the IP Address tab, select Specify an IP address.
5. Type **192.168.0.2** in the IP Address field.
6. Type **255.255.255.252** in the Subnet Mask field.

7. Click **OK**.
8. Restart the computer even if Windows does not require you to do so. This ensures the network settings are automatically reset.

## Windows 2000

1. On the installer laptop, go to **Start**→ *Settings*→ *Control Panel* and double-click Network and Dial-up Connections.
2. A list of network adapters appears. See Figure 115. The Local Area Connection adapter must be listed. If it is not, the network is not installed correctly.

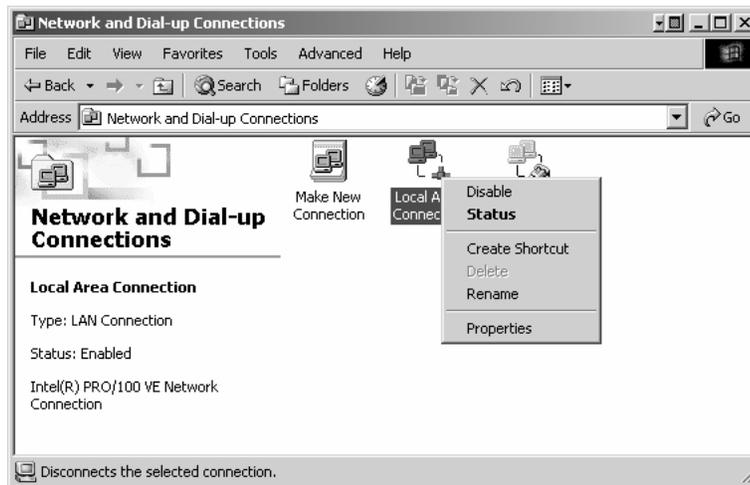


Figure 115: Network and Dial-up Connections

3. Right-click the Local Area Connection icon that represents the network adapter that connects the computer to the remote terminal and select *Properties*. The Local Area Connections Properties window appears. See Figure 116.

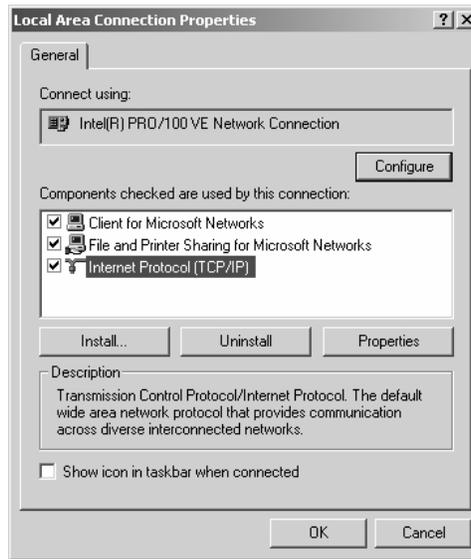


Figure 116: Local Area Connection Properties

4. Make sure the Client for Microsoft Networks and Internet Protocol (TCP/IP) are installed and checked. If NetBEUI is installed, uninstall it.
5. Select Internet Protocol (TCP/IP). Be careful not to uncheck the checkbox.
6. Click the **Properties** button. The Internet Protocol Properties window appears. See Figure 117.

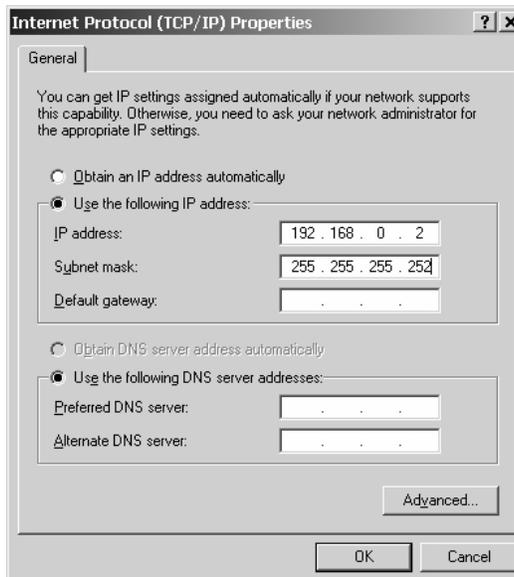


Figure 117: Internet Protocol Properties

7. Select Use the following IP address.
8. Type **192.168.0.2** in the IP address field.
9. Type **255.255.255.252** in the Subnet mask field.



Note: You do not need to enter information in the Default gateway, Preferred DNS server, or Alternate DNS server fields.

10. Click **OK**.
11. Restart the computer even if Windows does not require you to do so. This ensures the network settings are automatically reset.

### Windows XP

1. On the installer laptop, go to **Start**→ *Settings*→ *Control Panel*. Double-click the Network and Dial-up Connections icon.



Note: If the Control Panel is in category view, select Network and Internet Connections then select Network Connections.

2. A list of network adapters are displayed. A Local Area Connection must be listed under LAN or High-Speed Internet. If not, the network is not installed correctly. See Figure 118.

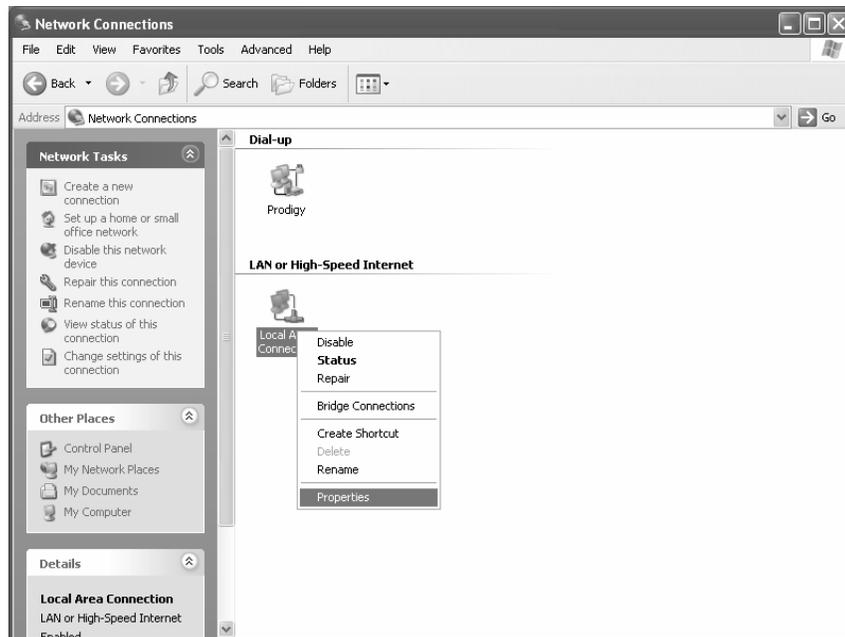


Figure 118: Network Connections

3. Right-click the Local Area Connection icon that represents the Network adapter that connects the computer to the Satellite remote terminal and click **Properties**.



Note: If the Local Area Connection icon appears with a red X then check your connections. The red X must not be present in order to successfully configure TCP/IP properties.

4. Ensure the Client for Microsoft Networks and Internet Protocol (TCP/IP) are installed and checked. If NetBEUI is installed, uninstall it. See Figure 119.

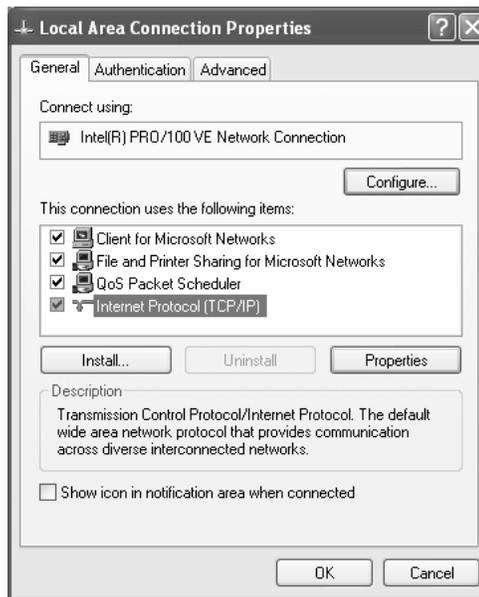


Figure 119: Local Area Connection Properties

5. Select Internet Protocol (TCP/IP) and click **Properties**. See Figure 120.



Note: Be careful not to uncheck the Internet Protocol when you select it.

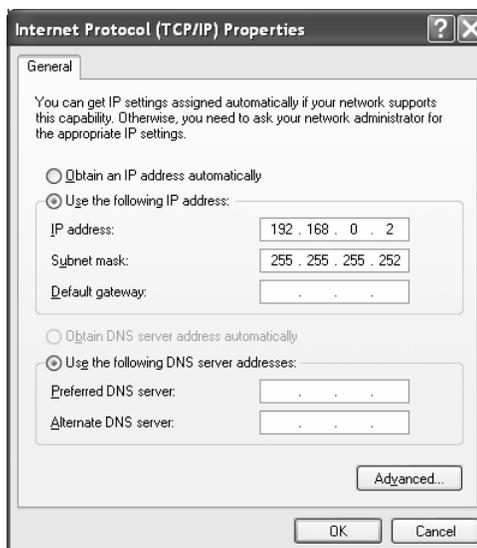


Figure 120: Internet Protocol Properties

6. Select Use the following IP address.
7. Type **192.168.0.2** in the IP address field.
8. Type **255.255.255.252** in the Subnet mask field.



Note: You do not need to enter information in the Default gateway, Preferred DNS server, or Alternate DNS server fields.

9. Click **OK**.

---

## Updating the fallback.bin file

Follow the steps below to update the fallback.bin file. During the update process, the files containing the current software release are transferred to the remote terminal and the files containing the older software release are deleted from the remote terminal.

1. Confirm the installer laptop Ethernet cable is connected to the remote terminal by performing a ping test:
  - a. Open a DOS command line prompt or Command window on the installer laptop.
  - b. Type **ping 192.168.0.1**.
  - c. Press **ENTER**.

Continue with step 2 if the ping test is successful. Refer to *Troubleshooting* on page 135 if the ping test fails.

2. Navigate to the location on the laptop where the utility and its supporting files are saved.

3. Launch the utility by opening the *DirecWay\_Updater.exe* file.
4. Type **192.168.0.1** in the IP address field on the DirecWay Updater window as shown in Figure 121. This value is the IP address for the remote terminal.

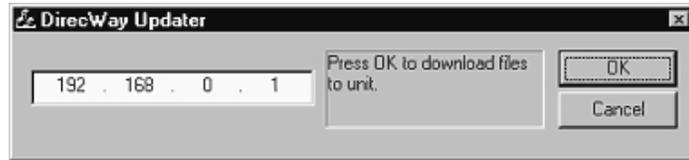


Figure 121: Entering the remote terminal's IP address

5. Click **OK**.

During the update process, status messages appear in the message window between the address field and the **OK** and **Cancel** buttons. The utility automatically closes after the update is complete and the remote terminal reboots.

Refer to *Troubleshooting* on page 135 if the utility does not automatically close and the remote terminal does not reboot.

---

## Troubleshooting

Complete these troubleshooting procedures if you are unable to update the *fallback.bin* file using the updater utility:

1. Observe the message in the message field on the DirecWay Updater window.  
Continue with step 2 if one of the following messages appears in the message window:  
Waiting for remote to come up...  
Unable to get login prompt
2. Test LAN connectivity between the installer laptop and remote terminal by performing a ping test:
  - a. Open a DOS command line prompt or Command window on the installer laptop.
  - b. Type **ping 192.168.0.1**.
  - c. Press **ENTER**.Continue with step 3 if the ping test fails. Verify the Ethernet cable is securely attached to the installer laptop and the remote terminal.
3. Verify the installer laptop has an IP address of 192.168.0.2. Refer to *Configuring the TCP/IP properties on the installer laptop* on page 128 for instructions explaining how to assign an IP address of 192.168.0.2 to the installer laptop.

4. After verifying the installer laptop is connected to the remote terminal and its TCP/IP properties are properly configured, power cycle the remote terminal:
  - a. Unplug the remote terminal power cord from the power source.
  - b. Wait 10 seconds.
  - c. Plug the power cord back into the power source.
5. Restart the utility and repeat the instructions in *Updating the fallback.bin file* on page 134.
6. Contact Technical Support if you are unable to update the fallback.bin file on the remote terminal after completing steps 1 - 5.

# Disabling a web browser's proxy connection

This appendix explains how to configure Internet Explorer and Netscape web browsers not to connect to the Internet through a proxy server. The procedures may be used to configure the browser on your installer laptop or the customer's computer.

## Internet Explorer

1. Turn the computer on.
2. Open Internet Explorer.
3. Select **Tools** → *Internet Options*.
4. Select the Connections tab as shown in Figure 122.

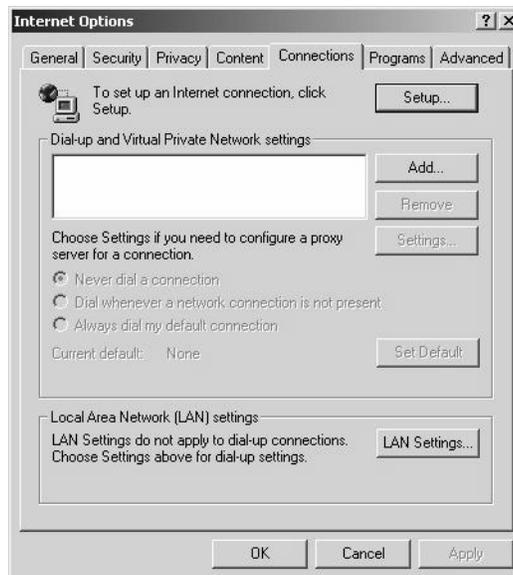


Figure 122: Selecting the Connections tab

5. Deselect the Use a proxy server for your LAN check box. See Figure 123.
6. Click **OK**.

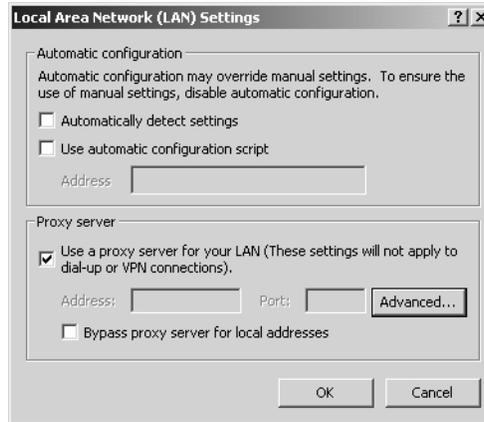


Figure 123: Accessing LAN settings

7. Close Internet Explorer.
8. Relaunch Internet Explorer to enable the changes.

## Netscape

1. Turn the computer on.
2. Open Netscape.
3. Select **Edit** → *Preferences* to access the Preferences window shown in Figure 124.

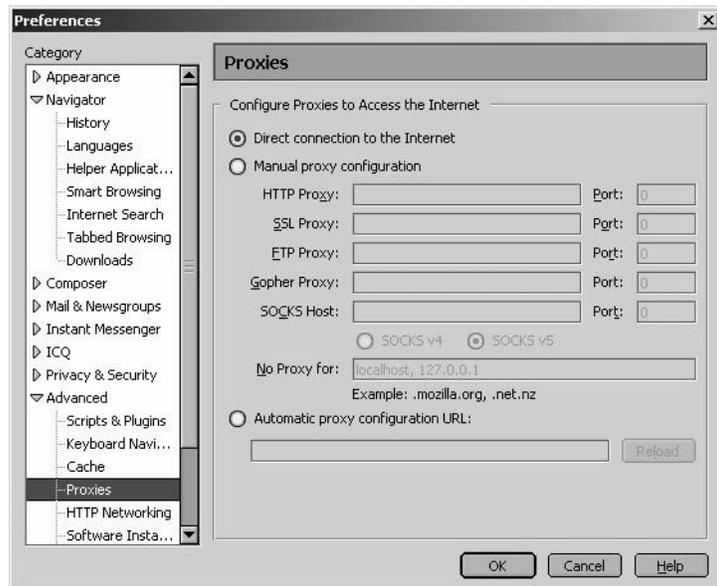


Figure 124: Accessing proxy settings: Netscape

4. In the Category window, select *Advanced*→*Proxies*.
5. Select the Direct connection to the Internet radio button.
6. Click **OK**.
7. Close Netscape.
8. Relaunch Netscape to enable the changes.



## Lat/Long Decimals to Minutes Table

---

Use the following procedure to determine your latitude and longitude decimal to minutes conversion when entering those items manually during commissioning.

1. Enter the whole number part of the site's longitude into the VSAT Longitude in degrees field in the **Configure Boot Parameters** screen.
2. Take the two digits immediately to the right of the longitude decimal point (without doing any rounding) and use the chart below to translate these two digits into the number of minutes.
3. Enter the minutes number into the VSAT Longitude in minutes field in the **Configure Boot Parameters** screen.
4. Repeat steps 1, 2, and 3 for the VSAT Latitude in degrees and VSAT Latitude in minutes fields.

For example, if the site's coordinates are:

Longitude: 77.2395 deg. West

Latitude: 38.8351 deg. North

You should enter:

VSAT Longitude in degrees: 77

VSAT Longitude in minutes: 14

VSAT Longitude Hemisphere (0 = East, 1 = West) <1>: 1

VSAT Latitude in degrees: 38

VSAT Latitude in minutes: 50

VSAT Latitude Hemisphere (2 = North, 3 = South) <2>: 2

<b>Right of Decimal</b>	<b>Minutes</b>	<b>Right of Decimal</b>	<b>Minutes</b>	<b>Right of Decimal</b>	<b>Minutes</b>
.01	1	.36	22	.71	43
.02	1	.37	22	.72	43
.03	2	.38	23	.73	44
.04	2	.39	23	.74	44
.05	3	.40	24	.75	45
.06	4	.41	25	.76	46
.07	4	.42	25	.77	46
.08	5	.43	26	.78	47
.09	5	.44	26	.79	47
.10	6	.45	27	.80	48
.11	7	.46	28	.81	49
.12	7	.47	28	.82	49
.13	8	.48	29	.83	50
.14	8	.49	29	.84	50
.15	9	.50	30	.85	51
.16	10	.51	31	.86	52
.17	10	.52	31	.87	52
.18	11	.53	32	.88	53
.19	11	.54	32	.89	53
.20	12	.55	33	.90	54
.21	13	.56	34	.91	55
.22	13	.57	34	.92	55
.23	14	.58	35	.93	56
.24	14	.59	35	.94	56
.25	15	.60	36	.95	57
.26	16	.61	37	.96	58
.27	16	.62	37	.97	58
.28	17	.63	38	.98	59
.29	17	.64	38	.99	59
.30	18	.65	39		
.31	19	.66	40		
.32	19	.67	40		
.33	20	.68	41		
.34	20	.69	41		
.35	21	.70	42		

# Acronyms and abbreviations

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Tx – transmit

## **A**

---

AC – alternating current

ACS – auto commissioning server

## **D**

---

DC – direct current

DHCP – Dynamic Host Control Protocol

DVADB – DIRECWAY Virtual Private Network  
Automatic Dial Backup

## **L**

---

LAN – local area network

## **N**

---

NIC – network interface card

## **O**

---

OPI – Outdoor Pointing Interface

## **P**

---

PC – personal computer

POS – point of sale

## **R**

---

Rx – receive

## **S**

---

SBC – satellite based commissioning

## **T**

---

TCP – Transmission Control Protocol



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