



HN9200 Satellite Modem User Guide

1038623-0001
Revision B
March 2, 2011

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Contents

Understanding safety alert messages.....	xi
Messages concerning personal injury.....	xi
Messages concerning property damage.....	xi
Safety symbols.....	xi
Contact information.....	xiii
Chapter 1: Satellite modem overview.....	1
Scope of this user guide.....	2
The satellite modem's role.....	2
Satellite modem specifications.....	3
Modem operating position.....	3
Computer and networking requirements.....	4
Computer requirements.....	4
Networking and Internet browser requirements.....	4
Care of your satellite modem.....	5
Chapter 2: System Control Center.....	7
Accessing the System Control Center.....	8
Creating a shortcut to the System Control Center.....	8
System Control Center home page.....	8
Text links.....	9
Common features on System Control Center screens.....	10
Button links.....	11
System Status button.....	12
IPSec icon.....	13
Links in the left panel.....	13
Small icon on System Control Center screens	14
Status and information screens.....	14
Red flag indicator.....	15
Features you may not see.....	16
System Status page.....	16
Reception Information page.....	18
Examining receive status.....	19
Transmission Information page.....	20
Examining transmit status.....	20
System Information page.....	21
Port Forwarding Configuration page.....	23
Defining port forwarding rules.....	24
Checking download allowance status.....	24
Help page.....	25

System Control Center tools for troubleshooting.....	26
Chapter 3: LEDs.....	27
Front panel LEDs.....	28
LAN port LEDs.....	29
Using LEDs for troubleshooting.....	29
Chapter 4: Troubleshooting.....	31
Important troubleshooting information.....	32
Troubleshooting reference diagram.....	32
Troubleshooting common problems.....	33
Cannot access the Internet.....	34
Confirming that the satellite modem is commissioned.....	35
Confirming the receive signal.....	36
Confirming the transmit signal.....	36
Confirming that TCP Acceleration is operational.....	37
Confirming that Web Acceleration is operational.....	38
Confirming NOC connectivity.....	39
Confirming NOC connectivity (Static IP Address).....	40
Confirming Internet connectivity.....	41
Checking the DNS setting.....	41
Checking for viruses and firewall issues.....	42
Cannot access the System Control Center.....	42
Satellite modem connected directly to a computer.....	42
Satellite modem connected to an Ethernet device.....	42
Using the front panel LEDs for troubleshooting.....	43
Power LED off and one or more LEDs flashing.....	44
All LEDs flashing.....	44
All LEDs off.....	44
Checking the Power LED.....	45
Checking the LAN LED.....	45
Problem with a connected device.....	46
Transmit LED is off.....	46
Receive LED is off.....	47
System LED is off.....	47
Using the LAN port LEDs for troubleshooting	48
Orange LED and the front panel LAN LED are both off.....	48
Orange LED is on but the front panel LAN LED is not.....	48
Troubleshooting other problems.....	48
Hot cable connector.....	49
Slow speed or intermittent operation.....	49
Viewing problem-related statistics.....	49
Weather and signal strength.....	51
Checking the power supply.....	52

Appendix A: Computer settings.....	53
Understanding the modem address and computer address	53
Configuring a computer to use DHCP.....	53
How do I know if DHCP should be enabled?.....	54
Configuring Windows 7 to use DHCP.....	54
Configuring Windows Vista to use DHCP.....	56
Configuring Windows XP to use DHCP.....	58
Configuring a Mac computer to use DHCP.....	60
Configuring a computer to use a static IP address.....	60
Configuring Windows 7 to use a static IP address.....	61
Configuring Windows Vista to use a static IP address.....	63
Configuring Windows XP to use a static IP address.....	64
Configuring a Mac computer to use a static IP address.....	66
Configuring proxy settings.....	67
 Appendix B: Home networking.....	 69
Wireless network basics.....	69
Ethernet (wired) network basics	70
 Appendix C: Standards compliance.....	 73
Safety – Operating conditions for Canada.....	73
Repairs in Canada.....	73
Electromagnetic interference (EMI).....	74
FCC Part 15.....	74
Canada Class B warning.....	74
R&TTE (EU).....	74
Electromagnetic compatibility (EMC).....	75
R&TTE (EU).....	75
IPoS.....	75
 Appendix D: Acronyms used in this guide.....	 77

Table of Figures

Figure 1: HN9200 satellite modem.....	1
Figure 2: Role of the HN9200 in a satellite network.....	2
Figure 3: HN9200 in vertical position.....	4
Figure 4: Icon used to create shortcut.....	8
Figure 5: System Control Center home page.....	9
Figure 6: Common features on System Control Center screens.....	11
Figure 7: System Control Center button links.....	11
Figure 8: IPSec icon.....	13
Figure 9: Small icon on System Control Center screens (arrow).....	14
Figure 10: Format of status and information screens.....	15
Figure 11: Red flag problem indicator.....	16
Figure 12: System Status page.....	17
Figure 13: Reception Information page.....	18
Figure 14: Finding additional Receive Status information.....	19
Figure 15: List of all RxCodes.....	19
Figure 16: Transmission Information page.....	20
Figure 17: Finding additional Transmit Status information.....	21
Figure 18: List of TxCodes (not all codes are shown).....	21
Figure 19: System Information page.....	22
Figure 20: Port Forwarding Configuration page.....	23
Figure 21: Entering port forwarding rules.....	24
Figure 22: Download Allowance Status screen.....	25
Figure 23: Help page.....	26
Figure 24: Front panel LEDs on the HN9200 modem.....	28
Figure 25: LAN port LEDs.....	29
Figure 26: Troubleshooting reference diagram.....	33
Figure 27: Problem Troubleshooting page.....	34
Figure 28: System Info page.....	35
Figure 29: Reception Info page.....	36
Figure 30: Transmission Info page.....	37
Figure 31: Confirming that TCP Acceleration is operational.....	37
Figure 32: Connectivity Test – initial page.....	39
Figure 33: Connectivity Test – results page.....	40
Figure 34: Detailed Problem Statistics.....	50
Figure 35: Selecting a category of statistics.....	51
Figure 36: Network and Sharing Center – Windows 7.....	55
Figure 37: Local Area Connection Properties – Windows 7.....	55
Figure 38: Internet Protocol Properties – Windows 7.....	56
Figure 39: Network connections – Windows Vista.....	56
Figure 40: Local Area Connection Properties – Windows Vista.....	57
Figure 41: Internet Protocol Properties – Windows Vista.....	57

Table of Figures

Figure 42: Network connections – Windows XP.....	58
Figure 43: Local Area Connection Properties – Windows XP.....	59
Figure 44: Internet Protocol Properties – Windows XP.....	59
Figure 45: Mac Network screen.....	60
Figure 46: Select Using DHCP from the configure drop-down list.....	60
Figure 47: Network and Sharing Center – Windows 7.....	61
Figure 48: Local Area Connection Properties – Windows 7.....	62
Figure 49: Internet Protocol Properties – Windows 7.....	62
Figure 50: Network connections – Windows Vista.....	63
Figure 51: Local Area Connection Properties – Windows Vista.....	63
Figure 52: Internet Protocol Properties – Windows Vista.....	64
Figure 53: Accessing Local Area Connection Properties – Windows XP.....	65
Figure 54: Local Area Connection Properties Dialog – Windows XP.....	65
Figure 55: Internet Protocol Properties – Windows XP.....	66
Figure 56: Mac Network screen.....	67
Figure 57: Select Manually from the configure drop-down list.....	67
Figure 58: LAN settings – Internet Explorer.....	68
Figure 59: Satellite modem in a wireless home network.....	70
Figure 60: Satellite modem in a wired Ethernet home network	70
Figure 61: IPoS symbol.....	75

Table of Tables

Table 1: Specifications for the HN9200 satellite modem.....	3
Table 2: Button links on System Control Center screens.....	12
Table 3: System Status button colors.....	12
Table 4: System Status page parameters.....	17
Table 5: Reception Information page parameters.....	18
Table 6: Transmission Information page parameters.....	20
Table 7: System Information page parameters – HN9200 Info section.....	22
Table 8: Front panel LED indications.....	28
Table 9: HN9200 standards compliance.....	73

Understanding safety alert messages

Safety alert messages call attention to potential safety hazards and tell you how to avoid them. These messages are identified by the signal words DANGER, WARNING, CAUTION, or NOTICE, as illustrated below. To avoid possible property damage, personal injury, or in some cases possible death, read and comply with all safety alert messages.

Messages concerning personal injury

The signal words DANGER, WARNING, and CAUTION indicate hazards that could result in personal injury or in some cases death, as explained below. Each of these signal words indicates the severity of the potential hazard.



DANGER indicates a potentially 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.



CAUTION indicates a potentially hazardous situation which, if not avoided, could result in *minor or moderate* injury.

Messages concerning property damage



NOTICE is used for messages concerning possible property damage, product damage or malfunction, data loss, or other unwanted results—but *not* personal injury.

Safety symbols



The generic safety alert symbol calls attention to a potential personal injury hazard. It appears next to the DANGER, WARNING, and CAUTION signal words as part of the signal

word label. Other symbols may appear next to DANGER, WARNING, or CAUTION to indicate a specific type of hazard (for example, fire or electric shock). If other hazard symbols are used in this document they are identified in this section.

Additional symbols

This document also uses these symbols:



Indicates a safety alert message that concerns a potential electric shock hazard.



Indicates a safety alert message that concerns a potentially hazardous situation in which you could be exposed to radio frequency (RF) energy.

Contact information

If you experience a problem with your HN9200 satellite modem, first try the solutions offered in [Troubleshooting](#) on page 31. If you need assistance, use the contact information listed here.

If you need operational, warranty, or repair support, who you should contact depends on where you purchased your satellite modem. You may be supported by Hughes Customer Care or another service provider. Please contact your customer service representative in accordance with your service agreement.

For satellite modems purchased from a retail channel or Hughes sales agent in the United States or Canada

If you purchased this product through a retail channel or Hughes sales agent, you have several support options. Please try these options *in the order listed* until you find the help you need.

Begin at the HughesNet Customer Care page:

1. Open a web browser on a computer connected to the satellite modem.
2. Enter the web address www.myhughesnet.com.
3. Click the **HughesNet Customer Care** link.

The HughesNet Customer Care page opens. Options 1, 2, and 3 below are available on this page:

1. Search our Knowledge Base.
 - a. In the Self help section, click **Knowledge Base Search**.
 - b. Follow the on-screen instructions to find the information you need.
2. Email a Customer Care representative.
 - a. In the Contact Hughes section, click **Email**.
 - b. Complete the email form.
 - c. Click **Email Us!**
3. Chat with a Customer Care representative.
 - a. In the Contact Hughes section, click **Chat**.
 - b. Complete the chat form.
 - c. Click **Chat with Us!**
4. Call a Customer Care representative.

If none of these options helps you, call Hughes Customer Care at 1 (866) 347-3292.

For satellite modems purchased from a value-added reseller (VAR) in the United States or Canada

If you purchased this product from one of our VARs, do not contact Hughes. Contact your VAR for technical support according to the procedure supplied by them. They are trained to help you with any technical problem.

Chapter 1

Satellite modem overview

Topics:

- [Scope of this user guide](#)
- [The satellite modem's role](#)
- [Satellite modem specifications](#)
- [Modem operating position](#)
- [Computer and networking requirements](#)
- [Care of your satellite modem](#)

The HN9200 satellite modem connects to a satellite network to provide Internet or intranet service or both to a host—typically a computer—or to multiple hosts on a wired (Ethernet) or wireless local area network (LAN). The modem has an Ethernet port so it can be connected to a computer or LAN.



Figure 1: HN9200 satellite modem

After your HN9200 satellite modem has been installed, you can use a web browser on your computer to access the Internet or an intranet. You can use a LAN to extend Internet or intranet connectivity to multiple computers.

The satellite modem has a System Control Center that provides access to system information such as the modem's operating status and troubleshooting information. The System Control Center is described in [System Control Center](#) on page 7.

Terminology

In this user guide:

- *Satellite modem* and *modem* both refer to the HN9200 satellite modem.
- Acronyms are identified in [Acronyms used in this guide](#) on page 77.

Scope of this user guide

This user guide describes the features and operation of the HN9200 satellite modem, which provides you Internet access by satellite. This guide also provides certain reference information, such as the meaning of the modem's front panel LEDs.

Audience

This guide is intended for users of the HN9200 satellite modem.

The satellite modem's role

Figure 2: Role of the HN9200 in a satellite network on page 2, illustrates how the HN9200 satellite modem provides connectivity and functionality that allow a computer, Ethernet device, or LAN to connect to the Internet by satellite.

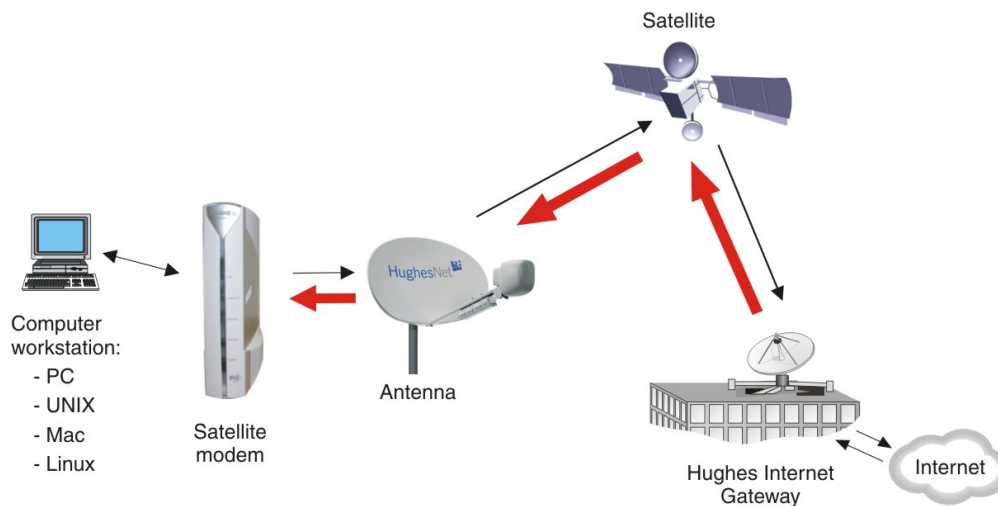


Figure 2: Role of the HN9200 in a satellite network

This illustration shows the HN9200 with a single computer host. However, the satellite modem may also be used in a multiple-host configuration, in which hosts on a LAN share satellite Internet or intranet connectivity through an Ethernet hub, router, or wireless base station. A host may be a computer using Windows, Mac OS, or another supported operating system.



Note: You must provide and configure hub, router, or wireless base station equipment if any of these are used.

Even though the HN9200 satellite modem is typically connected to a host, it is *self-hosted*, meaning it can operate without a host. It does not depend on a computer to establish and maintain the Internet or intranet connection. However, the modem must be connected to a satellite antenna.

The Hughes Internet Gateway is a Hughes-operated satellite station that provides a connection between the Internet and the satellite. The gateway routes data to and from the Internet and to and from the satellite. The satellite transmits a signal to the antenna, which is passed to the satellite modem to provide Internet connectivity.



This message applies if you use the HN9200 satellite modem in the United States: If servicing of the satellite modem's outdoor antenna assembly is necessary, the FCC requires that the work must be done by a trained professional because the antenna assembly transmits RF energy.

Satellite modem specifications

Table 1: Specifications for the HN9200 satellite modem

Weight	1.6 lb (0.73 kg)
Height	8.0 inches (20.3 cm)
Width	1.6 inches (4.1 cm); 2.4 inches (6.1 cm) at base
Depth	9.0 inches (22.9 cm)
Operating temperature range	41 °F to 104 °F (5 °C to 40 °C) Above 5,000 ft (1,524 m) altitude, the maximum temperature is reduced by 1 °C per 1,000 ft (305 m).
Operating humidity range	5% to 90% non-condensing
Altitude	Up to 15,000 ft (4,572 m)
Cooling method	Convection
Protocol support	TCP/IP (Transmission Control Protocol / Internet Protocol) protocol suite
Supported frequency ranges	Ka-band or Ku-band
Network interface ports	RJ-45 Ethernet LAN port supporting 10BaseT or 100BaseT operation
Power supplies and power requirements	See Checking the power supply on page 52.

Modem operating position

NOTICE

Operate the HN9200 modem only in the upright vertical position as shown in [Figure 3: HN9200 in vertical position](#) on page 4. Any other position could result in insufficient ventilation, overheating, and malfunction.



Figure 3: HN9200 in vertical position

Computer and networking requirements

This section lists the requirements for the computer or other device, network, and browser to be used with the satellite modem.

Computer requirements

The HN9200 satellite modem can be used with any device that supports IP and has a 10/100 BaseT Ethernet LAN port. Typically, the modem is connected to a customer's computer. However, the HN9200 is self-hosted; it does not require a computer for any of its functions.

The computer that connects to the satellite modem should meet the minimum requirements specified by the computer operating system manufacturer and the following networking and browser requirements.

Networking and Internet browser requirements

- Ethernet port
- Ethernet network interface card (NIC) installed on at least one computer, 10/100 BaseT (10/100 Mbps)
- Ethernet cable (provided)
- A web browser such as Internet Explorer with proxy settings disabled

Connecting a network – If you want to connect a network to the satellite modem, this requires an Ethernet hub or other such device. You must supply and configure the hub and cables.

Static IP address – The computer can be configured to use a static IP address if the HughesNet service plan provides for one or more static IP addresses. If the computer is configured to use a *specific* static IP address, disable DHCP. For additional information see [Configuring a computer to use DHCP](#).

Care of your satellite modem

- Leave the HN9200 modem powered on at all times. This allows automatic updates of the modem's software whenever necessary.
- Leave 6 inches of space around the top and sides of the modem to ensure adequate ventilation.
- If you dust the modem, use a soft cloth.
- If you clean the modem, do not use solvent or abrasive powder.

Chapter

2

System Control Center

Topics:

- [*Accessing the System Control Center*](#)
- [*System Control Center home page*](#)
- [*Common features on System Control Center screens*](#)
- [*Features you may not see*](#)
- [*System Status page*](#)
- [*Reception Information page*](#)
- [*Transmission Information page*](#)
- [*System Information page*](#)
- [*Port Forwarding Configuration page*](#)
- [*Checking download allowance status*](#)
- [*Help page*](#)
- [*System Control Center tools for troubleshooting*](#)

The System Control Center is a set of screens and links you can use to monitor your broadband service and troubleshoot the satellite modem in the event of a problem. The System Control Center provides access to system status, configuration information, and online documentation through a web browser on a computer connected to the satellite modem. Use the System Control Center to find system information for configuring networks or to check system performance if the satellite modem does not seem to be functioning properly.

Accessing the System Control Center

Prerequisites: To access the System Control Center, a computer with a web browser installed must be connected to the satellite modem's LAN port. (Because the System Control Center web site is hosted on the modem, the computer does not have to be connected to the Internet.)

To open the System Control Center, double-click the System Control Center shortcut on your computer desktop, or follow these steps:

1. Open a web browser such as Internet Explorer.
2. In the browser address bar, type `www.systemcontrolcenter.com` or `192.168.0.1` and press **Enter**.



Note: To use `192.168.0.1`, DHCP must be enabled on the computer.

The System Control Center home page appears as shown in *Figure 5: System Control Center home page* on page 9.

If you are unable to access the System Control Center, refer to *Cannot access the System Control Center* on page 42.

Creating a shortcut to the System Control Center

You can create a Windows shortcut on your computer desktop for easy access to the System Control Center home page.



Note: You may already have a shortcut to the System Control Center on your desktop if your satellite modem installer created one.

1. Open the System Control Center home page in a web browser.



Note: The method described here works for Internet Explorer. For other browsers see the browser's instructions for creating a shortcut to a URL.

2. Drag the icon that appears in front of the address displayed in the browser to the computer desktop.

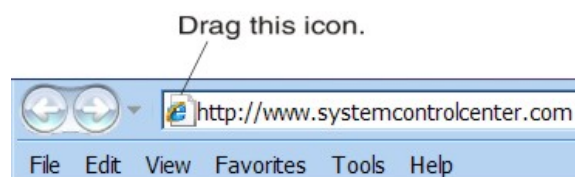


Figure 4: Icon used to create shortcut

System Control Center home page

The System Control Center home page contains numerous links to satellite modem features and important information regarding operation of the satellite modem.

The button links at the top of the page appear on all System Control Center screens and are explained in [Button links](#) on page 11.

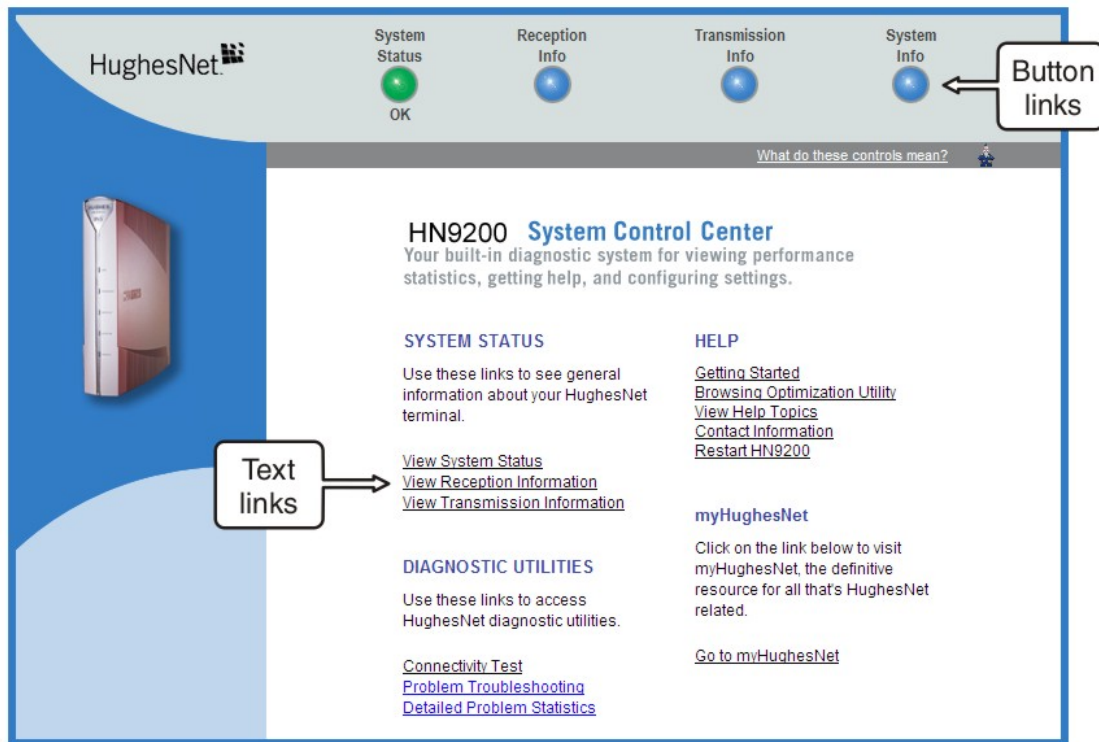


Figure 5: System Control Center home page



Note: The following apply to the screen illustrations in this user guide:

- Most screen illustrations show only the relevant part of the screen and do not include features such as browser menus, toolbars, and window borders.
- The screen illustrations are *examples*. You may see screens with different information. Do not apply information such as configuration values shown in the illustrations unless the instructions say to do so.
- On some screens and in some messages you may see the word *terminal* or the abbreviation *VSAT*. Both refer to the HN9200 satellite modem.
- *Screen* and *page* are both used to refer to a set of information from your computer or satellite modem that is displayed on your computer monitor.

Text links

The System Control Center home page includes the following text links:

System Status links

- **View System Status** – Opens the System Status page, which displays general system status information such as signal strength and administrative status.
- **View Reception Information** – Opens the Reception Information page, which displays information on data received by the satellite modem.
- **View Transmission Information** – Opens the Transmission Information page, which displays information on data transmitted by the satellite modem.



Note: These links take you to the same destinations as the button links at the top of each System Control Center page.

Diagnostic utilities links

Connectivity Test – Opens the Connectivity Test page, which you can use to test the connection between the satellite modem and the NOC. See [Confirming NOC connectivity](#) on page 39.

Problem Troubleshooting – See [Troubleshooting common problems](#) on page 33.

Detailed Problem Statistics – Opens a screen you can use to view statistics concerning modem operation. See [Viewing problem-related statistics](#) on page 49.

Help links

Getting Started – Through this link you can find general operating instructions for the HN9200 modem, recommended settings for your browser and TCP/IP, answers to frequently asked questions, and troubleshooting information.

Browsing Optimization Utility – The Browser Optimization Utility is a software utility you can download that configures certain settings on your Windows computer to improve your Internet browsing performance. (This link is only present if it has been enabled by the NOC.)

View Help Topics – Opens the Help page, which includes a variety of topics such as recommended browser and TCP/IP settings.

Contact information – Opens to a page that provides contact information for assistance and additional information.

Restart HN9200 – Restarts the satellite modem.

myHughesNet



Note: **myHughesNet** links may or may not be present on your satellite modem depending on the country where the modem is used and your service plan.

Go to myHughesNet provides access to the HughesNet Web Portal, which contains a variety of useful tools, resources, and information. Access to the HughesNet portal is determined by your specific service plan or your organization's service plan.

From the HughesNet portal you can click the **HughesNet Customer Care** link to access a wide variety of support resources. For example, you can check online usage, test satellite speed, find troubleshooting scripts, manage passwords, access email, check your account and service plan information, and more. The specific portal information and available features are determined by your specific service plan or your organization's service plan.

Common features on System Control Center screens

Certain features are common to some or all of the System Control Center screens, as shown in [Figure 6: Common features on System Control Center screens](#) on page 11. These features are explained in the following sections.

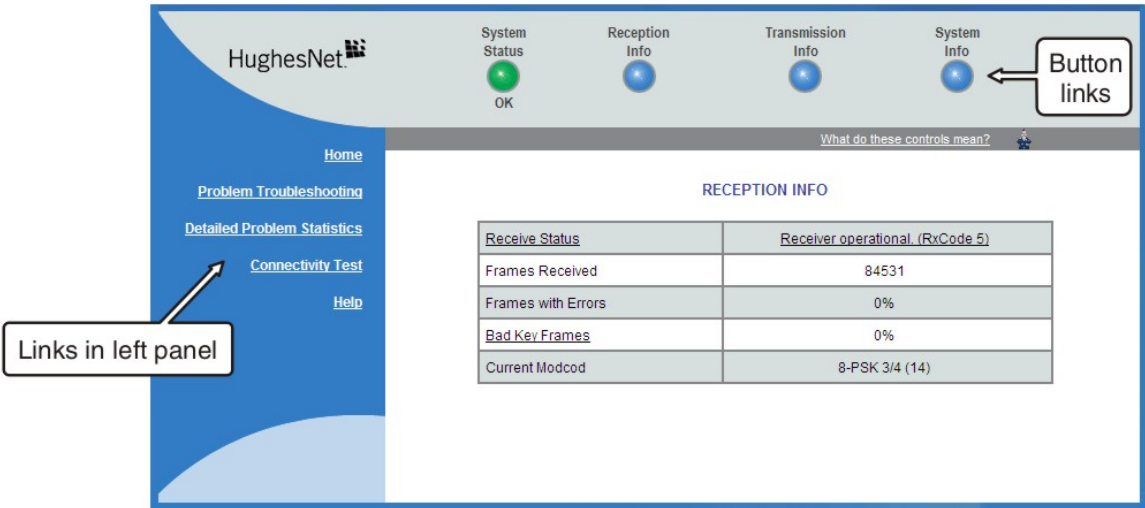


Figure 6: Common features on System Control Center screens

Button links

At the top of each System Control Center page are four round buttons with labels above them as shown in *Figure 7: System Control Center button links* on page 11. Each button is a link to the System Control Center page identified by the label—for example, the **System Status** button is a link to the System Status page. Click the button to go to the page identified by the label. The System Status button link is also a status indicator, as explained in *Table 3: System Status button colors* on page 12. The other three button links are links only; they are not indicators.

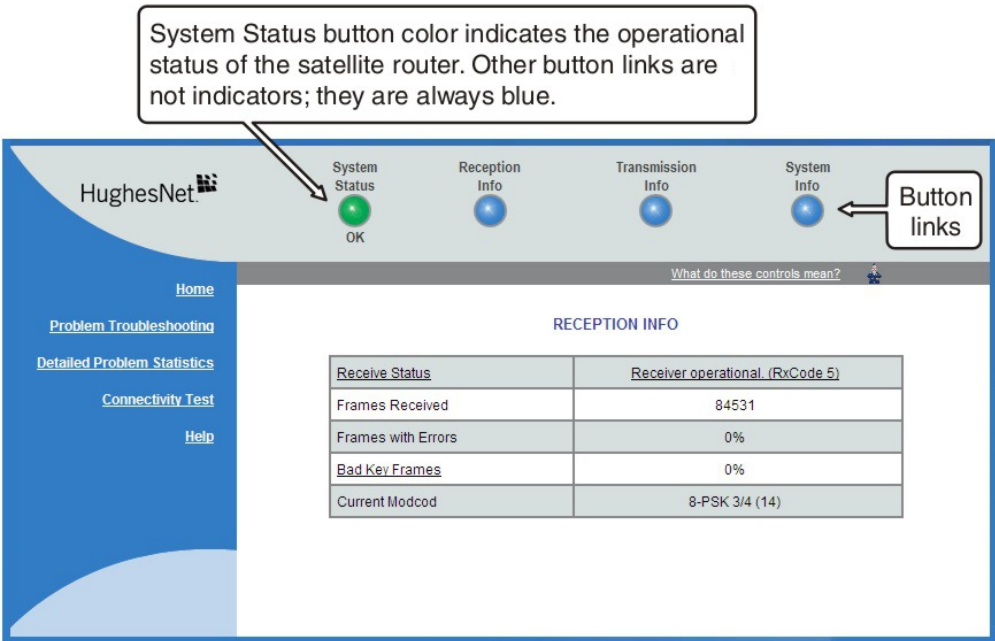


Figure 7: System Control Center button links

The destination page for each button link is identified below:





Table 2: Button links on System Control Center screens



Button	Destination	Description of destination page
System Status	System Status page	Displays general status information such as signal strength and commissioning status. For more information see System Status page on page 16.
Reception Info	Reception Information page	Displays statistics about received data. For more information see Reception Information page on page 18.
Transmission Info	Transmission Information page	Displays statistics about transmitted data. For more information see Transmission Information page on page 20.
System Info	System Information page	Displays system information such as the satellite modem's serial number and software version. For more information see System Information page on page 21.

System Status button

The System Status button (only) is a status indicator as well as a link. It changes color to indicate the satellite modem's current status, as explained in [Table 3: System Status button colors](#) on page 12. To see more detailed status information, click the System Status button to open the System Status page.

Table 3: System Status button colors

Button color	Meaning
 Green	The satellite modem is operating normally. (OK appears beneath the System Status button.)
 Red	A problem has been detected.
 Yellow	Performance is temporarily impaired because: <ul style="list-style-type: none"> • There may be a problem with Web Acceleration. • The modem may be temporarily using a backup configuration. • There may be virus activity.
 Orange	Degraded – The modem is fully operational, but performance is temporarily impaired because the daily download allowance has been exceeded. For more information see Checking download allowance status on page 24.

If the System Status button is red  or yellow , look for a red flag next to any value or values on the System Control Center information pages (those with tables listing parameters and values). The red flag indicates a problem related to the parameter listed next to the flagged value. If the parameter name is underlined, click the parameter name to see a message that may include helpful information, depending on what the problem is.

IPSec icon

An icon that looks like a small lock next to the System Status button means IPSec is enabled. This icon is shown in [Figure 8: IPSec icon](#) on page 13.

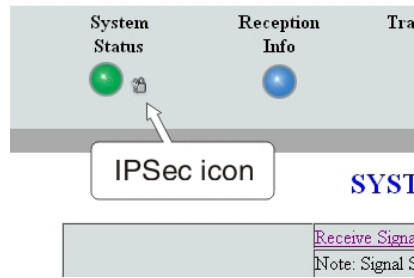


Figure 8: IPSec icon

IPSec (Internet Protocol Security) is a set of network protocols and services that provide security to IP networks by authenticating and encrypting each IP packet of a data stream. IPSec-protected packets travel through a virtual tunnel or path between two points. An IPSec tunnel is *up* when it has been established between two peers and is capable of carrying traffic. If it cannot carry traffic it is *down*.

When IPSec is enabled (IPSec icon present), the modem attempts to establish all configured tunnels. The status of all configured tunnels at any given time (if IPSec is enabled) is one of the following:

- All tunnels are established (green System Status button).
- Some tunnels are established (orange System Status button).
- No tunnels are established (red System Status button).

Links in the left panel

The following links appear in the left panel of each System Control Center page (except the home page):



Note: Some of these links may not appear because they are not enabled by the NOC.

- **Home** – Opens the System Control Center home page.
- **Problem Troubleshooting** – Opens the Problem Troubleshooting page, a tool that can help you solve common problems you could encounter while using the satellite modem. For details see [Troubleshooting common problems](#) on page 33.
- **Detailed Problem Statistics** – Opens a screen you can use to view statistics concerning modem operation. See [Viewing problem-related statistics](#) on page 49.
- **Connectivity Test** – Opens the Connectivity Test page, which allows you to test the connection between the modem and the satellite. See [Confirming NOC connectivity](#) on page 39.
- **Download Allowance Status** – Opens the Download Allowance Status screen, which shows how much remains of the daily download allowance. For details see [Checking download allowance status](#) on page 24.
- **Help** – Opens the Help page. Refer to the Help page, which includes a variety of topics such as getting started and recommended browser settings.

Small icon on System Control Center screens

NOTICE

The System Control Center screens include a small icon as indicated by the arrow in *Figure 9: Small icon on System Control Center screens (arrow)* on page 14.

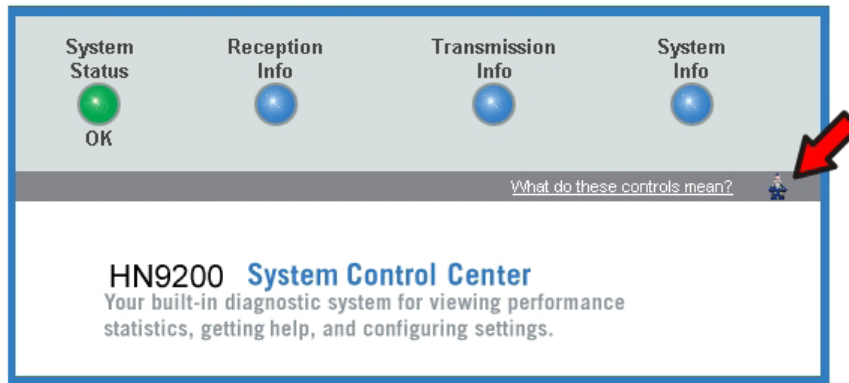


Figure 9: Small icon on System Control Center screens (arrow)

Do not click this icon unless you are a qualified technician or unless a service provider representative instructs you to. You could cause the modem to become inoperable.

Status and information screens

Several of the System Control Center screens list status and operational parameters and their current values in a tabular format. For example, the following illustration shows the Reception Information page. The left column list the parameters, and the right column shows the current value of the parameter listed in the left column. Parameters are listed in this format on these screens:

- System Status page
- Reception Information page
- Transmission Information page

On any of these screens, if a parameter name or the current value of a parameter is underlined, you can click the name or value to see an explanation of it.

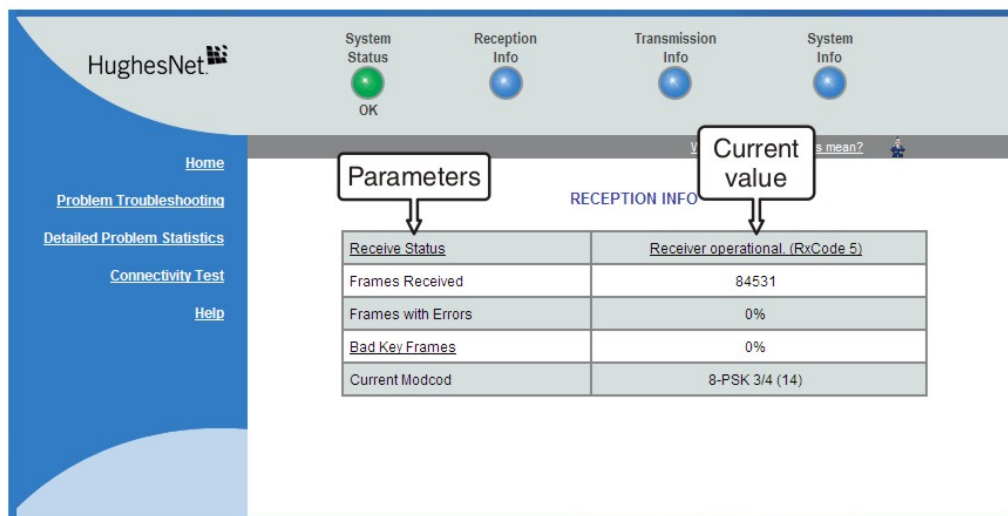


Figure 10: Format of status and information screens




The parameters listed on each screen are explained in this guide in the section for each screen:

- *System Status page* on page 16
- *Reception Information page* on page 18
- *Transmission Information page* on page 20
- *System Information page* on page 21

Red flag indicator

On the status and information screens, a red flag next to a value indicates a problem related to the parameter listed in the same row where the flagged value appears. The flagged value appears in the right column; the parameter appears in the left column. The value indicates the current state of the parameter.

SYSTEM STATUS

Signal Strength	21 
Note: Signal Strength is not an indicator of browsing speed. Precipitation can affect Signal Strength. If you do not see a red flag next to any of the status messages on this page, you should be able to browse the Internet successfully.	
<u>Receive Status</u>	<u>Receiver not locked to a signal. Receive cable fault suspected. (RxCode 6)</u> 
<u>Transmit Status</u>	<u>Transmitter unavailable due to receive signal problems. (TxCode 6)</u> 
<u>Software Download Status</u>	Waiting for first h
<u>Service Status</u>	Commissioned [Keys updated]
<u>TCP Acceleration Status</u>	Disabled
<u>Web Acceleration Status</u>	Inactive

Click the flagged parameter value to see more information.

Figure 11: Red flag problem indicator

If you see a red flag, you can click the underlined parameter value in the right column to see additional information about the problem.

Features you may not see

You may see descriptions of certain features in the user guide that you do not see on your System Control Center screens. This is because some features may be enabled or disabled by the NOC depending on your service plan or your organization's requirements. If a feature is not enabled you will not see the screen or screens for that feature or links to it. Features that may be enabled or disabled by the NOC are:

- Web Acceleration
- Problem Troubleshooting
- Detailed Problem Statistics
- Port Forwarding
- Download Allowance Status
- Browsing Optimization Utility

System Status page

The System Status page displays important information about the satellite modem's operational status.

Available system status values may vary, depending on how the satellite modem is configured. Therefore, some options shown in [Figure 12: System Status page](#) on page 17 may not appear on your System Status screen.

The System Status page and other System Control Center pages show information that may be particularly useful for advanced users and for troubleshooting.

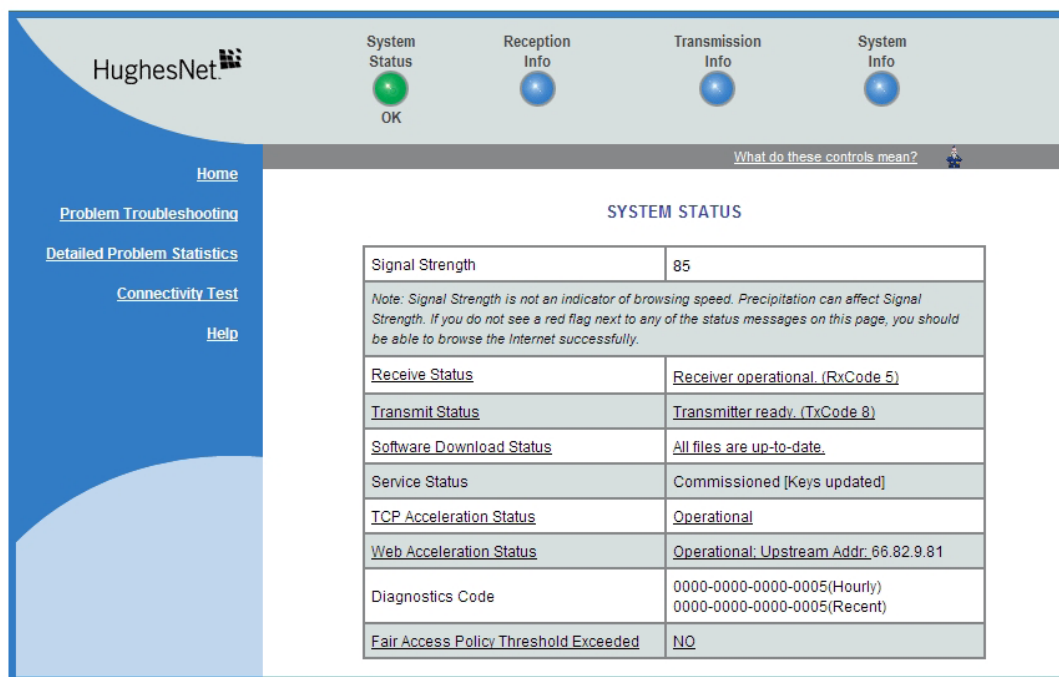


Figure 12: System Status page

The parameters listed on the System Status page are explained in the following table.

Table 4: System Status page parameters

Parameter	Explanation
Signal Strength	Receive signal strength. A value of 30 or less indicates a weak signal.
Receive Status	Indicates if the receive data path is operational or other status. Click the displayed RxCode for explanation of the displayed code.
Transmit Status	Indicates if the transmit data path is operational or other status. Click the displayed TxCode for corresponding Help information.
Software Download Status	Indicates if the satellite modem's software and configuration are up to date.
Service Status	Indicates if the modem has been commissioned (registered with the system). Click the Service History link if you want to see a history of your customer account.
TCP Acceleration Status	Indicates if TCP Acceleration is operational or other status. TCP acceleration improves the modem's performance.
Web Acceleration Status	Indicates if Web Acceleration is operational or other status. Web acceleration improves web browsing performance. This field is present only if the NOC operator has enabled Web Acceleration on the satellite modem.

Parameter	Explanation
Diagnostics Code	This code may be useful if you need technical assistance.
Fair Access Policy Threshold Exceeded	Indicates if you have exceeded the limit for downloads established by your service plan. Subscribers who exceed the download limit temporarily experience reduced download speeds.

Reception Information page

The Reception Information page shown in *Figure 13: Reception Information page* on page 18 displays information about data received by the satellite modem.

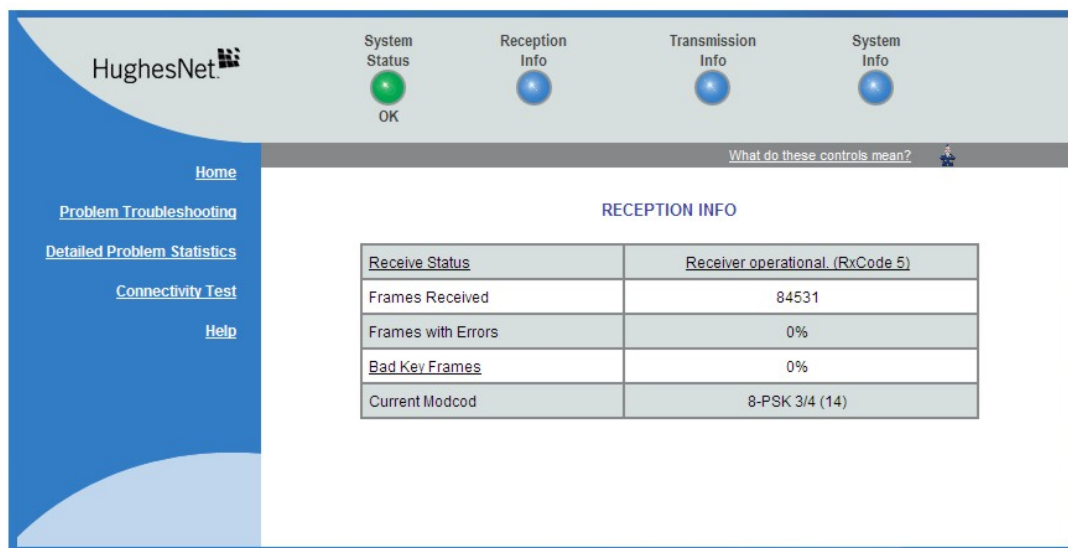


Figure 13: Reception Information page

The parameters listed on the Reception Information page are explained in the following table.

Table 5: Reception Information page parameters

Parameter	Explanation
Receive Status	Indicates if the receive data path is operational or other status. Click the displayed RxCode for explanation of the displayed code.
Frames Received	Number of data messages received by the satellite modem.
Frames with Errors	Percentage of received frames determined to be corrupted. Any number greater than zero indicates a problem except when adverse weather conditions are present. Frames may be corrupted in adverse weather conditions or if there is a problem with the receive cable or antenna assembly.
Bad Key Frames	Percentage of received frames that could not be decrypted successfully. All data received over the satellite is encrypted. Any number greater than zero indicates a problem except when adverse weather conditions are present. Bad key frames may indicate that the modem is not commissioned.

Parameter	Explanation
Current Modcod	Level of encoding the modem can accept based on the current signal quality. Lower Modcod numbers are used if signal impairments such as rain are present. Adaptive coding and modulation (Modcod) is a Hughes-developed technique that maximizes over-the-air bandwidth utilization.

Examining receive status

You can check the Receive Status parameter to find out if the receive data path is operational or if there is a problem. Normal receive status is indicated by the message Receiver operational. (RxCode 5).

The following two illustrations show how you can view a list of all RxCodes or see an explanation of the currently displayed RxCode. Each RxCode—except RxCode 5—indicates a specific problem in the receive path.

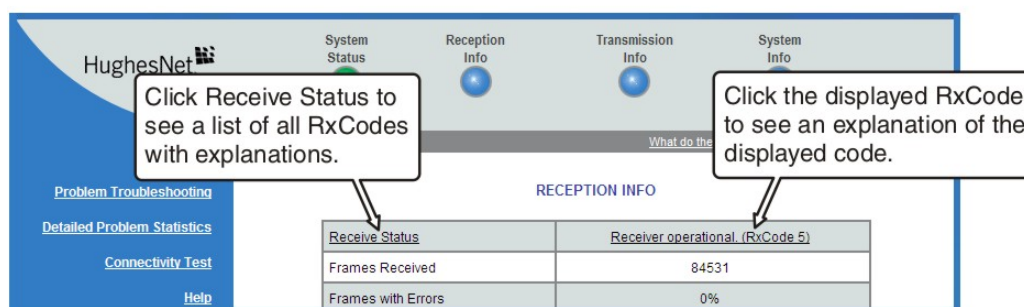


Figure 14: Finding additional Receive Status information

The next illustration shows the list of all RxCodes. Click the explanation (link) next to the RxCode to see more information.

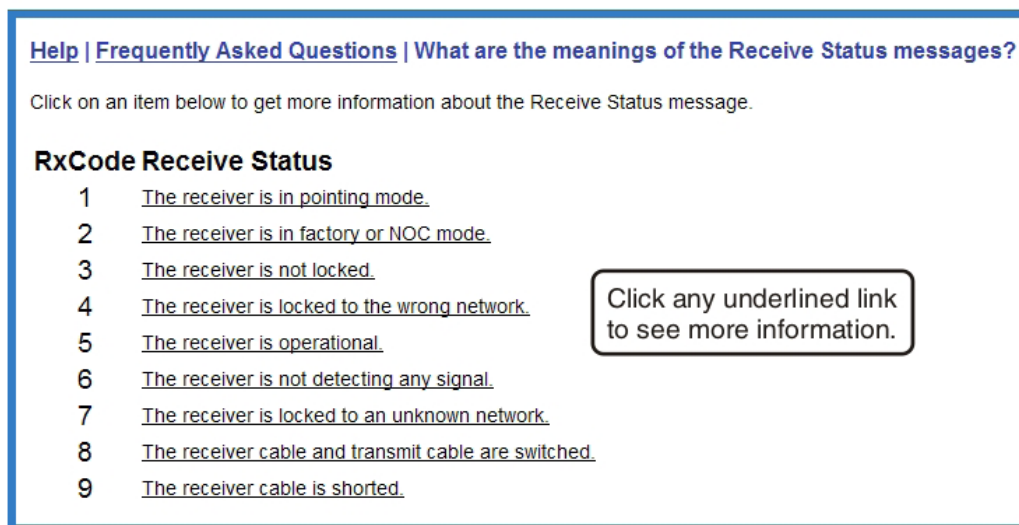


Figure 15: List of all RxCodes

Transmission Information page

The Transmission Information page shown in *Figure 16: Transmission Information page* on page 20 displays information about data transmissions from the satellite modem. The information on this screen may be useful to a service provider representative if you need help in resolving a problem.

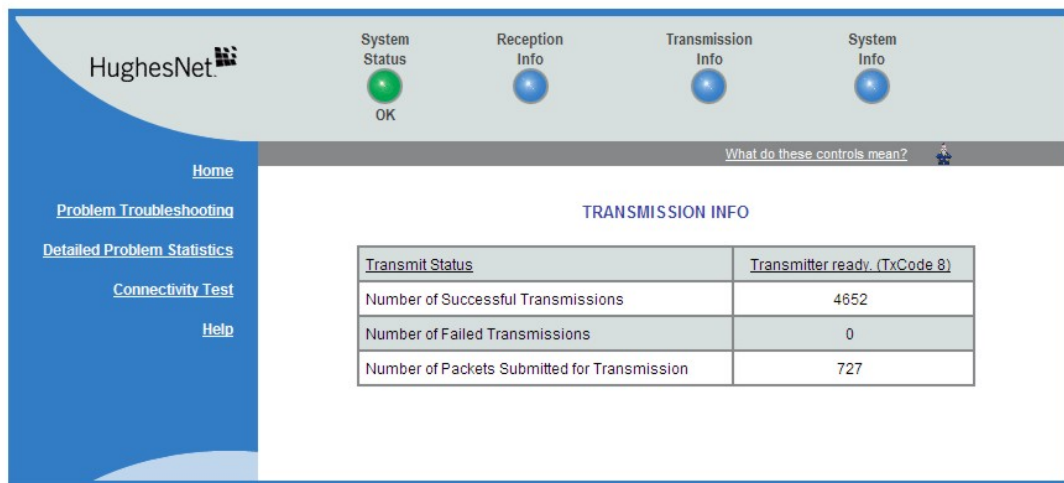


Figure 16: Transmission Information page

The parameters listed on the Transmission Information page are explained in the following table.

Table 6: Transmission Information page parameters

Parameter	Explanation
Transmit Status	Indicates if the transmit data path is operational. Click the displayed TxCode for explanation of the displayed code.
Number of Successful Transmissions	Number of frames transmitted to the satellite.
Number of Failed Transmissions	Number of frames that could not be sent. A continuously increasing value indicates a transmission problem. If a low value is displayed and does not increase, and the system is functioning, there is no reason for concern.
Number of Packets Submitted for Transmission	Total number of data packets queued for transmission to the satellite since the modem was last restarted.

Examining transmit status

You can check the Transmit Status parameter to find out if the transmission data path is operational or if there is a problem. Normal transmit status is indicated by the message Transmitter ready. (TxCode 8).

The following two illustrations show how you can view a list of all TxCodes or see an explanation of the currently displayed TxCode. Each TxCode—except TxCode 8—indicates a specific problem in the transmission path.

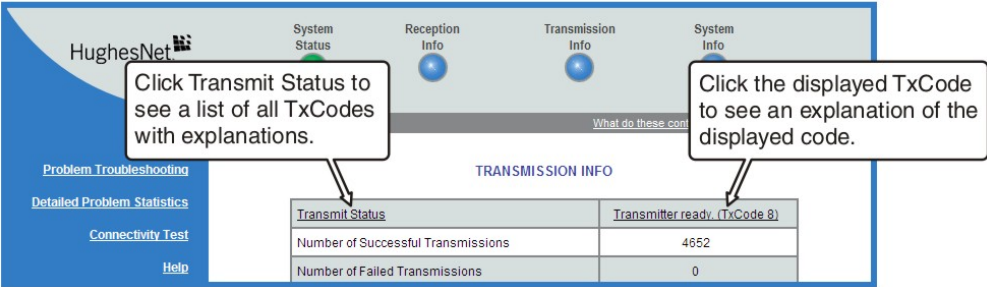


Figure 17: Finding additional Transmit Status information

The next illustration shows the list of all TxCodes. Click the explanation (link) next to the TxCode to see more information.

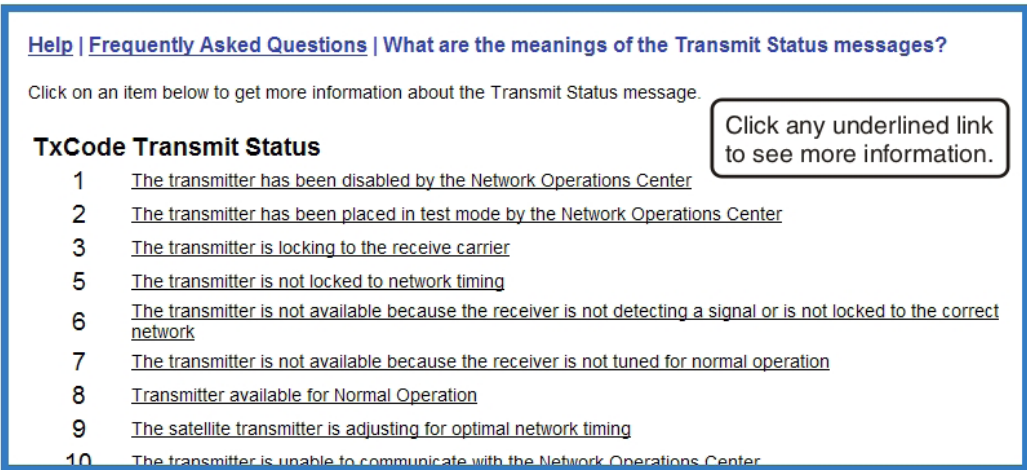


Figure 18: List of TxCodes (not all codes are shown)

System Information page

The System Information page shown in *Figure 19: System Information page* on page 22 provides system information for the satellite modem such as Site ID and the release number of the modem's operational software.

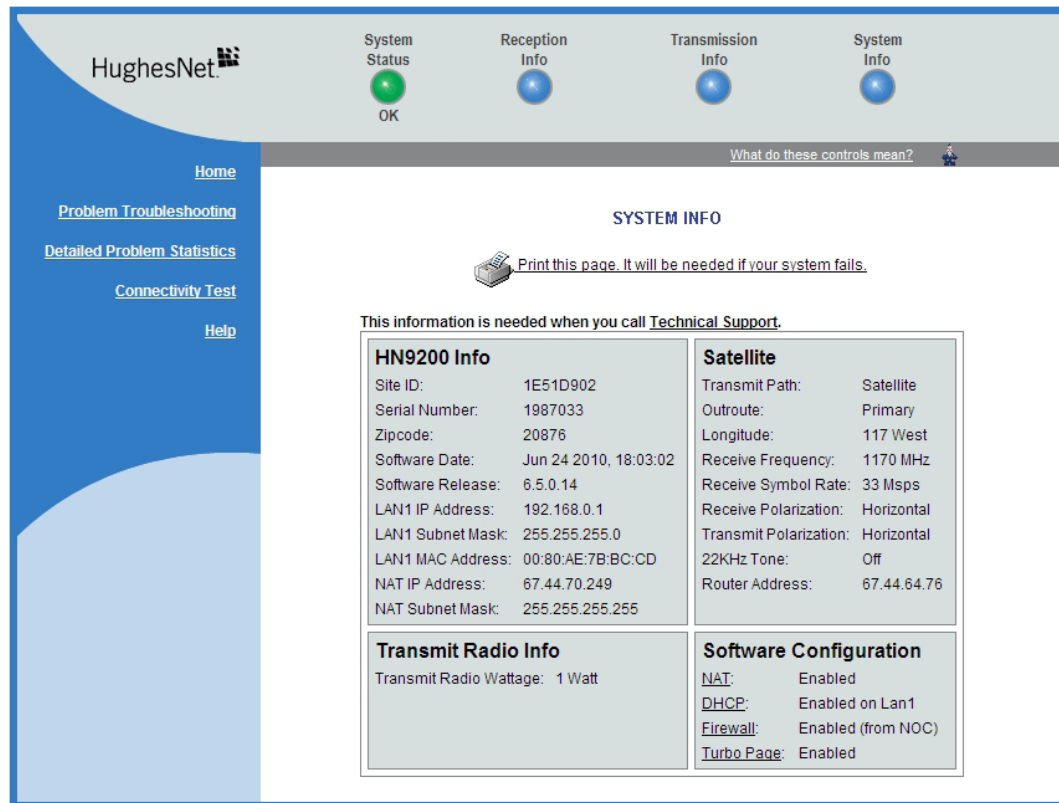



Figure 19: System Information page

 **Note:** Home and small office users: Print the System Information page and save it. Click **Print this page** next to the printer icon. If you experience a problem with your satellite modem this page may not be accessible. Information on this screen may be useful to a service provider representative in helping you to resolve the problem. (If a printer is not available, use **Alt-PrintScreen** to capture the screen image, then paste the image into a word processor or graphics file, and save the file.)

The parameters listed in the **HN9200 Info** section of the System Information page are explained in the following table. Other sections of the screen (**Transmit Radio Info** and **Satellite**) provide additional information about the modem installation and the modem software (**Software Configuration**).

Table 7: System Information page parameters – HN9200 Info section

Parameter	Explanation
Site ID	Identifies the site where the modem is installed.
Serial number	The modem's serial number. The serial number may be required for troubleshooting.
Zipcode	ZIP code of the modem site.
Software Date	Software build date.
Software Release	Version of the modem's software. This is typically the factory-installed software version. However, if the NOC downloads

Parameter	Explanation
	a newer version of Gateway software to the modem, the newer version number is displayed.
LAN1 IP Address	The satellite modem address. The default modem address is 192.168.0.1. A different modem address can be configured.
LAN1 Subnet Mask	Range of addresses available to the satellite modem.
LAN1 MAC Address	MAC address for the satellite modem.
LAN2 IP Address	Address available for a second LAN connection.
LAN2 Subnet Mask	Subnet mask (range of available addresses) available for a second LAN connection.
LAN2 MAC Address	MAC address a second LAN connection.
NAT IP Address	The Internet routable public IP address assigned to the modem. NAT translates this address to local private addresses in the range 192.168.0.x that can be used by the devices on your local network (where x = 0–9).
NAT Subnet mask	The NAT subnet mask (range of available addresses) assigned to the modem is always 255.255.255.255.

Port Forwarding Configuration page



Note: The Port Forwarding Configuration page and link are present on your HN9200 only if they have been enabled by the NOC.

The Port Forwarding Configuration page and the link to it are present only if port forwarding has been enabled and made visible on the modem by the NOC.

On this page you can define rules for allowing TCP and UDP traffic on the Internet to access servers on your network.

HUGHES

System Status: OK, Reception Info, Transmission Info, System Info

What do these controls mean?


Broadband Satellite Port Forwarding Configuration

The Broadband Satellite Port Forwarding provides a mechanism to allow servers on your local network to be accessed from the Internet. You can create rules to forward either TCP or UDP ports to a server on your local network.

Submit Add Rule

User Action	Rule ID	Server IP Address	Server Port Number	Global Port Number	Protocol Type
Modify/Delete	1	10.10.10.1	80	80	TCP
Modify/Delete	2	10.10.10.5	21	21	UDP
Modify/Delete	3	10.10.10.10	80	0	TCP


Figure 20: Port Forwarding Configuration page

 **Note:** This figure is an example. Do not copy these values to your satellite modem.

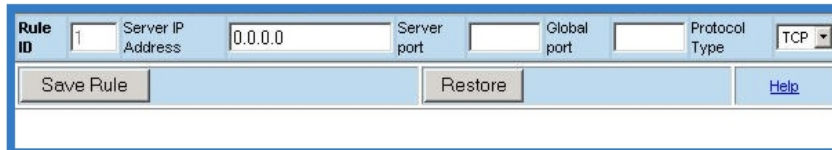
Defining port forwarding rules

Follow these steps to define a port forwarding rule:

1. Click **Port Forwarding Configuration** on the System Control Center home page—or in the left panel of other System Control Center pages.

 **Note:** The **Port Forwarding Configuration** link is only present if Port Forwarding has been enabled and made visible on your modem by the NOC.

2. Click **Add Rule** on the Port Forwarding Configuration page.
3. In the dialog box that appears (*Figure 21: Entering port forwarding rules* on page 24), enter the appropriate values in the following fields: Rule ID, Server IP Address, Server port, and Global port.




Rule ID	1	Server IP Address	0.0.0.0	Server port		Global port		Protocol Type	TCP
Save Rule			Restore			Help			

Figure 21: Entering port forwarding rules

4. Select the appropriate protocol from the Protocol Type drop-down list.
5. Click **Save Rule**.
To define additional rules, repeat these steps.

Checking download allowance status

 **Note:** The *Download Allowance Status* link and screen are present on your HN9200 only if they have been enabled by the NOC. Whether they are enabled or not depends on your service plan.

To ensure fair Internet access for all HughesNet subscribers, some HughesNet subscriber service plans include a limit on how much information can be downloaded daily. If a subscriber exceeds the download limit, the modem's browsing and download speed is temporarily reduced.

To view your download allowance status:

Click the **Download Allowance Status** link on the System Control Center home page or in the left panel of other System Control Center pages.

The modem displays a screen that shows your daily download allowance and the amount of allowance remaining in bar graph form. The example screen shown in *Figure 22: Download Allowance Status screen* on page 25 indicates that the subscriber has 100% of the daily allowance left to use. As the download allowance is used, the green area grows smaller.

If you exceed your daily allowance, the Download Allowance Status screen shows a **download speed limited** message, and your download speed is reduced until the download allowance is replenished.

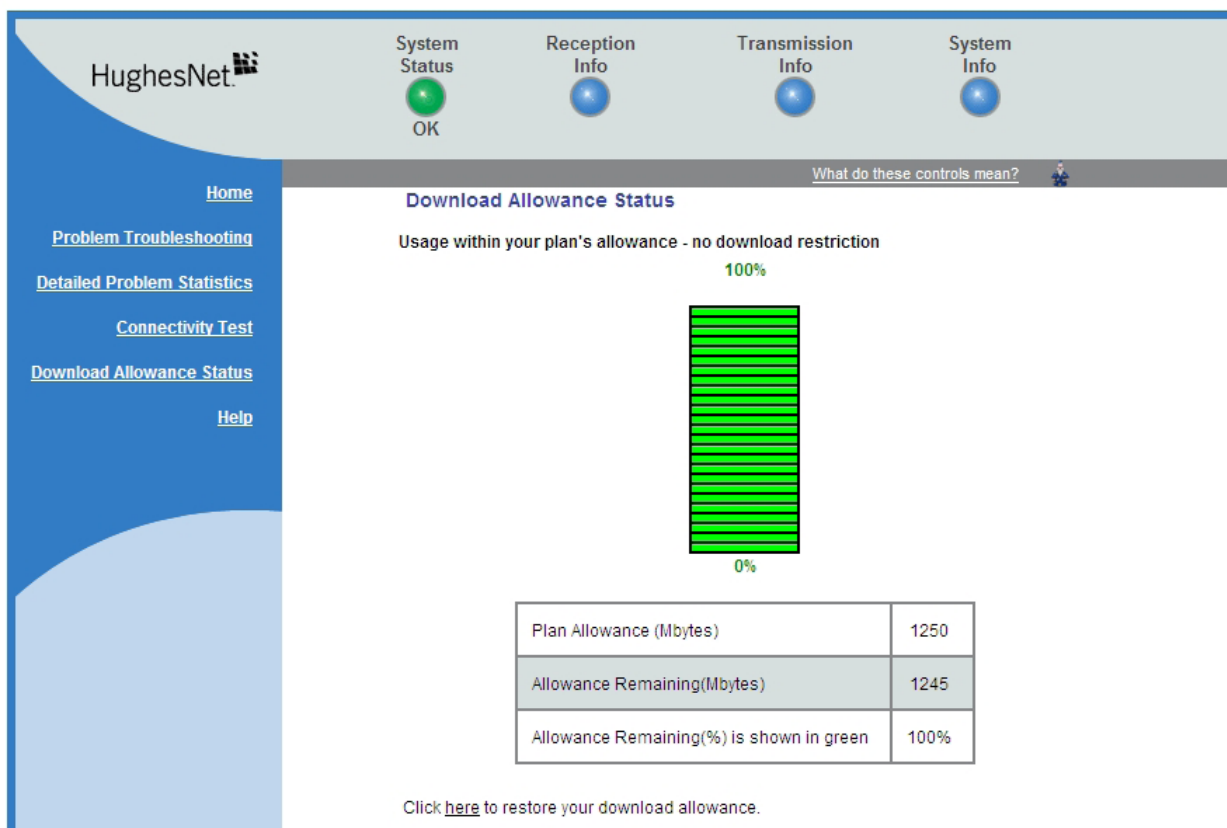


Figure 22: Download Allowance Status screen

The Download Allowance Status screen shows the following:

- Plan Allowance (MB) – How much data you can download daily, in megabytes, based on your service plan.
- Allowance Remaining (MB) – Amount remaining of your daily download allowance, in megabytes.
- Allowance Remaining (%) – Amount remaining of your daily download allowance, as a percentage of your daily plan allowance.

For additional information about download allowance, go to this Web site:
<http://legal.hughesnet.com>.

Help page

The System Control Center Help page (*Figure 23: Help page* on page 26) contains information to help you get started in using the satellite modem, find contact information for assistance, and other helpful information. Review the Help page information to become familiar with the modem.

To display the Help page:

- Click **View Help Topics** on the System Control Center home page.
- or
- Click **Help** in the left panel of any System Control Center page.

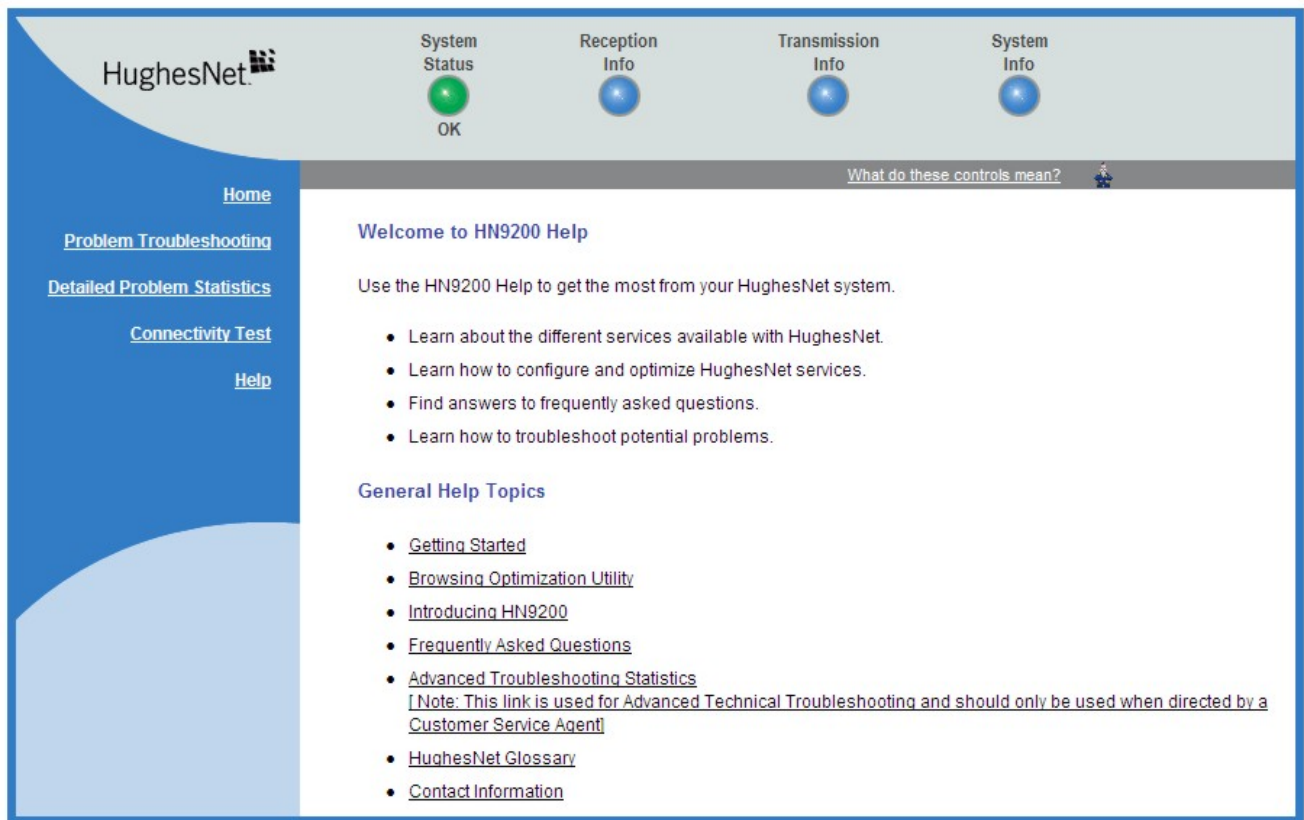


Figure 23: Help page

For additional product support information, go the online HughesNet Knowledge Base at <http://kb.hughesnet.com>.

System Control Center tools for troubleshooting

The System Control Center includes screens that are useful for troubleshooting. For details see:

- *Troubleshooting common problems* on page 33
- *Confirming NOC connectivity* on page 39
- *Viewing problem-related statistics* on page 49

Chapter

3

LEDs

Topics:

- [*Front panel LEDs*](#)
- [*LAN port LEDs*](#)
- [*Using LEDs for troubleshooting*](#)

The satellite modem has five LEDs on the front panel and small LEDs on the LAN port on the back of the modem. The LEDs provide information about the satellite modem's operating status.

Front panel LEDs

The satellite modem has five LEDs on the front panel, as shown in *Figure 24: Front panel LEDs on the HN9200 modem* on page 28. By their appearance—on, off, blinking, or flashing—the LEDs indicate the modem’s operating status. All are blue when lit. The front panel LEDs are all blue when lit.

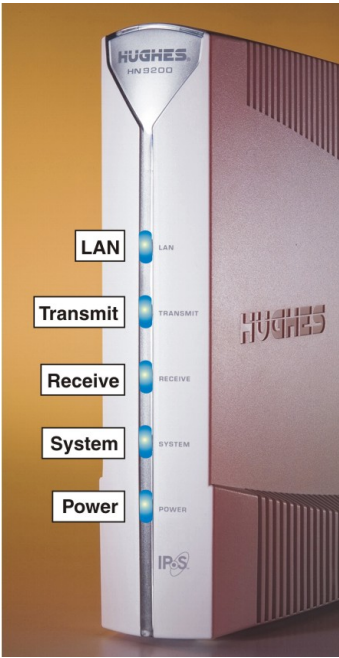


Figure 24: Front panel LEDs on the HN9200 modem

Table 8: Front panel LED indications on page 28 explains what the modem status is when the LEDs are on, off, or blinking. *On* means the LED is continuously lit. *Blinking* means the LED is usually on, but intermittently turns off briefly. *Flashing* means the LED alternates between on and off for periods of ½ sec to 1 sec.

Table 8: Front panel LED indications

LED	Appearance	Satellite modem status
LAN	On	Satellite modem is connected to a computer network card or Ethernet device
	Blinking	Transmitting and/or receiving data
	Off	No device is connected to the LAN port or the device connected to the LAN port is not working properly
Transmit	On	OK – Transmit path is operational
	Blinking, mostly on	Transmitting data
	Blinking, mostly off	Ranging (The modem is measuring the distance to the satellite to calibrate transmit timing and transmit power.)
	Off *	Condition preventing transmission
Receive	On	OK – Receive path is operational

LED	Appearance	Satellite modem status
System	Blinking	Receiving data
	Off *	Condition preventing receipt of data
	On	Ready to handle user traffic
	Blinking *	Virus protection blocking data
	Off *	Condition preventing full operation
Power	On	Power is on and the modem is functioning normally
	Flashing	Operating with fallback.bin (backup) version of software
	Blinking	Modem is not commissioned or has lost its configuration data
	Off *	No power

Bold type indicates LED appearance during normal operation when the satellite modem is transmitting or receiving data.

*Indicates an operational problem.

If it appears the LEDs are not functioning properly, make sure you have the correct power supply. Refer to [Checking the power supply](#) on page 52 for detailed power supply information.

LAN port LEDs

Green and orange LEDs on the LAN (Ethernet) port on the modem's rear panel indicate link status and speed, as explained in [Figure 25: LAN port LEDs](#) on page 29.

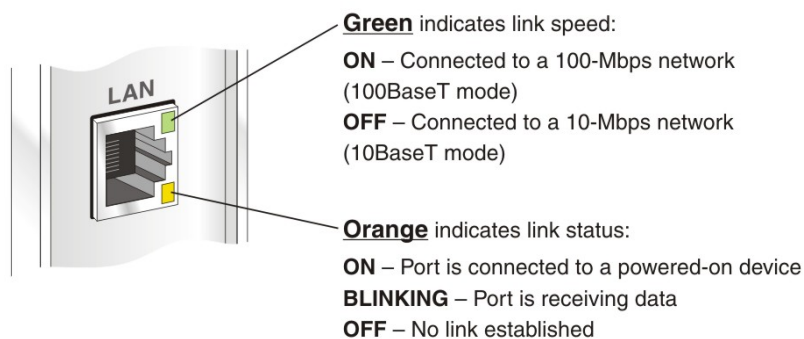


Figure 25: LAN port LEDs

Using LEDs for troubleshooting

For information on using the satellite modem's LEDs for troubleshooting, see:

- [Using the front panel LEDs for troubleshooting](#) on page 43
- [Using the LAN port LEDs for troubleshooting](#) on page 48

Chapter

4

Troubleshooting

Topics:

- [Important troubleshooting information](#)
- [Troubleshooting reference diagram](#)
- [Troubleshooting common problems](#)
- [Cannot access the Internet](#)
- [Cannot access the System Control Center](#)
- [Using the front panel LEDs for troubleshooting](#)
- [Problem with a connected device](#)
- [Using the LAN port LEDs for troubleshooting](#)
- [Troubleshooting other problems](#)
- [Viewing problem-related statistics](#)
- [Weather and signal strength](#)
- [Checking the power supply](#)

This chapter provides troubleshooting procedures. Most section headings describe a problem you could encounter (such as **System LED is off**) or they describe troubleshooting procedures for correcting a problem (such as **Confirming Internet connectivity**). To correct a problem, find the description that matches your problem, then find the troubleshooting procedure or procedures for your problem.

If you cannot correct the problem, contact your service provider.

For support options and contact information, see [Contact information](#) on page xiii.

Other sections in this guide that contain troubleshooting information are listed below:

- For explanation of **red flags** on System Control Center screens, see [Red flag indicator](#) on page 15.
- Improper **settings on the computer** connected to the satellite modem can cause problems. For instructions on configuring a computer to work properly with the modem see [Computer settings](#) on page 53.

In addition, the HN9200 satellite modem provides its own online Help, which includes substantial troubleshooting information. Access this information through the System Control Center **Help** link (**Help** → **Frequently Asked Questions**).

Another valuable source of troubleshooting information is the HughesNet Knowledge Base, available online at <http://kb.hughesnet.com>.

Important troubleshooting information

NOTICE

Do not use the recessed rescue switch on the modem's rear panel unless you are a qualified technician. Pressing this switch could cause the modem to become inoperable.

NOTICE

This user guide contains some procedures that instruct you to restart the modem using the Restart function in the System Control Center. When so instructed, do not power cycle the modem. Doing so will destroy data that may be useful for troubleshooting.

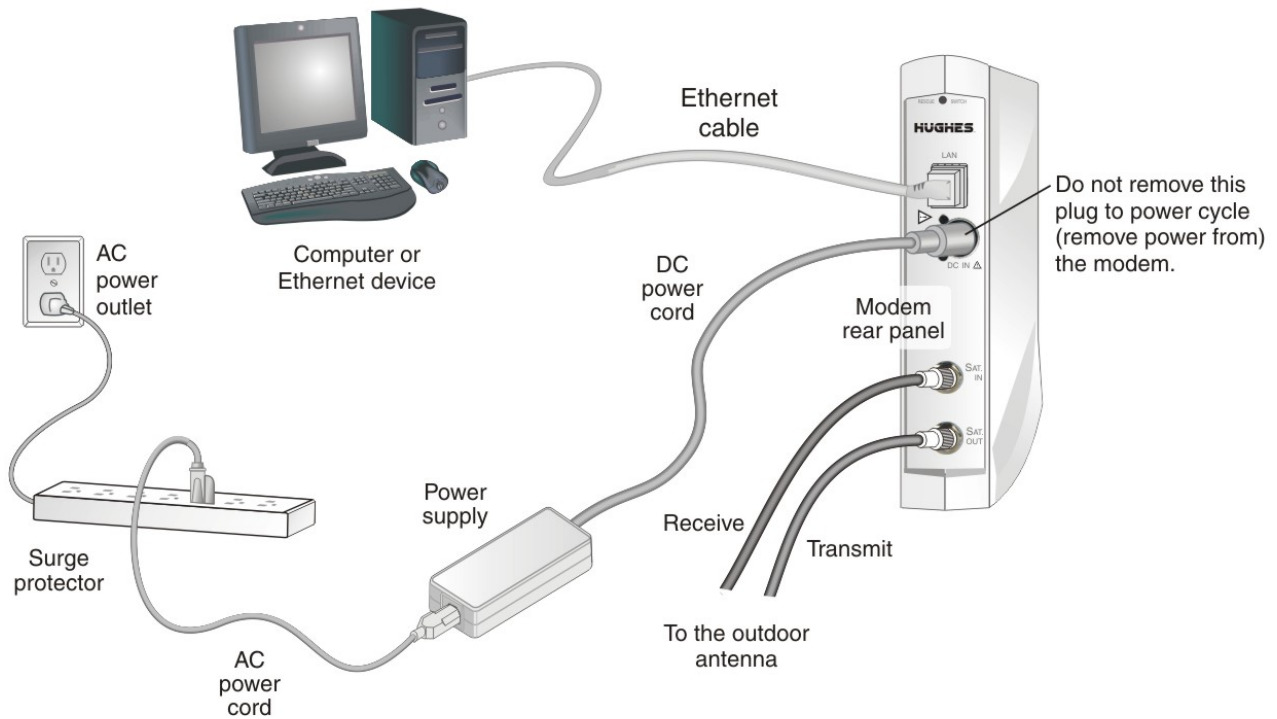
CAUTION



When this user guide instructs you to power cycle the modem, you should remove and then re-apply power. If the satellite modem uses an AC/DC power supply, disconnect the AC power cord from the power source (power strip, wall outlet, or surge protector). If the satellite modem uses a DC/DC power supply, disconnect the DC input cable connector from the modem's power supply. In either case (AC/DC or DC/DC), *do not unplug the power cord from the satellite modem's rear panel*. Doing so could result in static electricity discharge that could shock you and/or damage the modem.

Troubleshooting reference diagram


If you need to use any of the troubleshooting procedures provided in this chapter, you may find it useful to refer to [Figure 26: Troubleshooting reference diagram](#) on page 33. This diagram shows all power and cable connections for a properly installed HN9200 satellite modem.



This diagram shows an AC/DC power supply. If a DC/DC power supply is used, the configuration is similar but does not include a surge protector.

Figure 26: Troubleshooting reference diagram

Troubleshooting common problems

 **Note:** The Problem Troubleshooting page and link are present on your HN9200 only if they have been enabled by the NOC.

The Problem Troubleshooting page helps you correct problems you could encounter while using the satellite modem. Follow these steps to use the Problem Troubleshooting page to diagnose and correct a problem:

1. Click the **Problem Troubleshooting** link in the left panel of any System Control Center page—except, on the System Control Center home page, the **Problem Troubleshooting** link is located below the DIAGNOSTIC UTILITIES heading. The Problem Troubleshooting page opens (*Figure 27: Problem Troubleshooting page on page 34*).

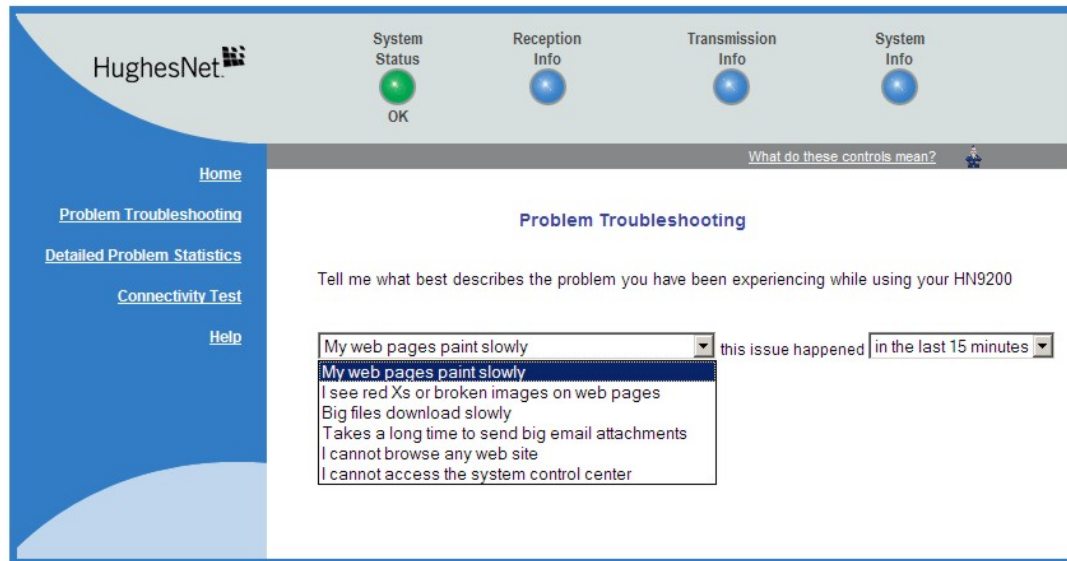


Figure 27: Problem Troubleshooting page

2. From the drop-down list to the left, select the symptom that best describes the problem you are experiencing.
3. From the drop-down list to the right, select how long ago you experienced the problem.
4. Click **Diagnose**.
5. A screen appears, identifying the problem.
For example, one problem you could see is Uplink Queuing. The problem is underlined, indicating that this is a link. If an asterisk appears next to the problem link, this means the problem occurred in previous hours as well.
6. Click the problem link.
A screen explains the problem and possible remedial actions.
7. Follow the troubleshooting instructions on the screen.
8. If these steps do not correct the problem, contact your service provider.

Cannot access the Internet

If you can access the System Control Center but you cannot access the Internet, you may be able to resolve the problem by performing some or all of the following troubleshooting procedures:

- *Confirming that the satellite modem is commissioned* on page 35
- *Confirming the receive signal* on page 36
- *Confirming the transmit signal* on page 36
- *Confirming that TCP Acceleration is operational* on page 37
- *Confirming that Web Acceleration is operational* on page 38
- *Confirming NOC connectivity* on page 39
- *Confirming Internet connectivity* on page 41
- *Checking for viruses and firewall issues* on page 42

Try each procedure in the order they are presented. After each procedure, try to access the Internet. If you cannot access the Internet, continue to the next procedure.

If you have tried all of these procedures and cannot access the Internet, try them all again. If you still cannot access the Internet, contact your service provider.

For most of these troubleshooting procedures you use the modem's System Control Center. To access the System Control Center on a computer connected to the modem:

1. Open a web browser such as Internet Explorer.
2. In the browser's address bar, type www.systemcontrolcenter.com or 192.168.0.1.
3. Press **Enter**.
The System Control Center home page opens.

Confirming that the satellite modem is commissioned

To confirm that the modem is commissioned:

1. At the System Control Center, click the **System Info** link.
The System Information page appears.

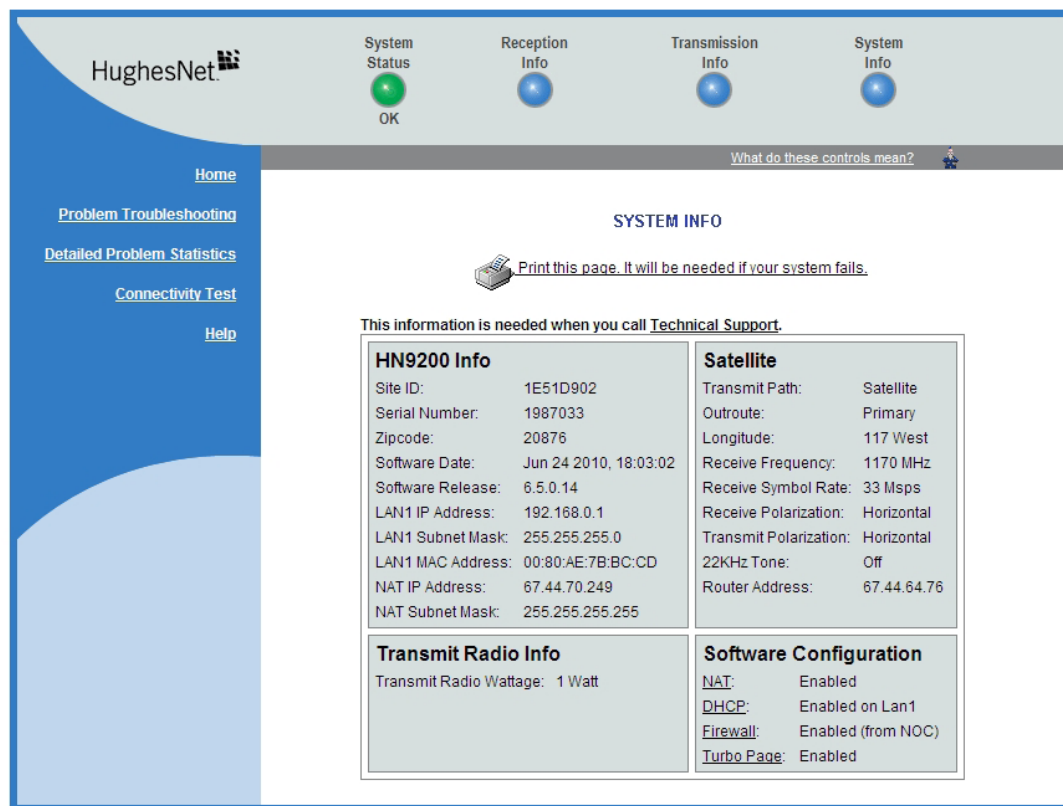


Figure 28: System Info page

 **Note:** The System Info page for your installation may show different fields and values.

2. In the **HN9200** section, check the **Site ID** line.

If the numeric site ID appears, the satellite modem is commissioned. Proceed to [Confirming the receive signal](#) on page 36.

If **Not Commissioned** appears, the modem is not commissioned. Contact your service provider.

Confirming the receive signal

To confirm that the modem is properly receiving satellite signals:

1. At the System Control Center, click the **Reception Info** link.
The Reception Information page appears.
2. In the **Receive Status** field, check the RxCode.

If the RxCode is **Receiver operational (RxCode 5)** the modem is receiving signals properly; proceed to [Confirming the transmit signal](#) on page 36.

If any other RxCode appears, the modem is not receiving signals properly. Click the RxCode, and follow the troubleshooting procedure that appears. Click the RxCode for explanation of the problem and/or troubleshooting information.

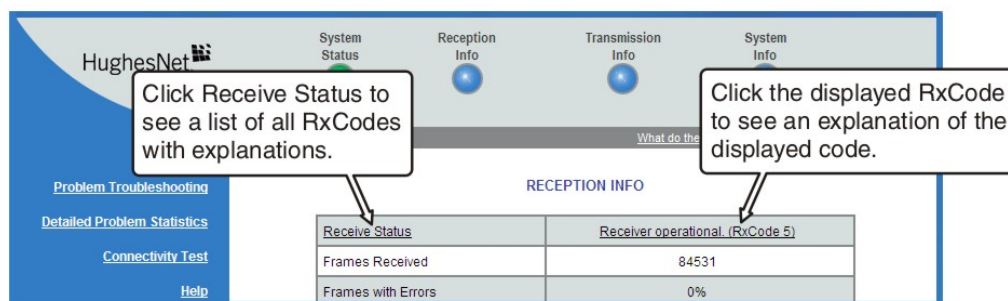


Figure 29: Reception Info page



Note: The RxCode shown is an example.

Confirming the transmit signal

To confirm that the modem is properly transmitting signals to the satellite:

1. At the System Control Center, click the **Transmission Info** link.
The Transmission Information page appears.
2. In the **Transmit Status** field, check the TxCode.

If the TxCode is **Transmitter Ready (RxCode 8)** the modem is transmitting signals properly; proceed to [Confirming that TCP Acceleration is operational](#) on page 37.

If any other TxCode appears, the modem is not transmitting signals properly. Click the TxCode for explanation of the problem and/or troubleshooting information.

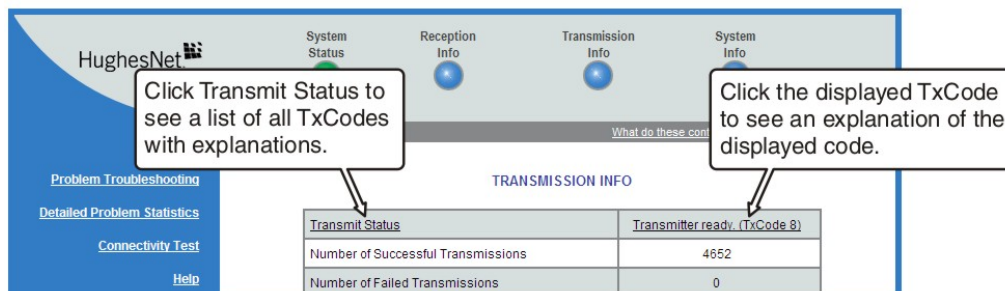


Figure 30: Transmission Info page



Note: The TxCode shown is an example.

Confirming that TCP Acceleration is operational

TCP Acceleration is a proprietary Hughes protocol that optimizes performance for TCP/IP-based applications, including faster downloads over satellite.

To determine if TCP acceleration is operational:

1. At the System Control Center, click the **System Status** link.
The System Status page appears.

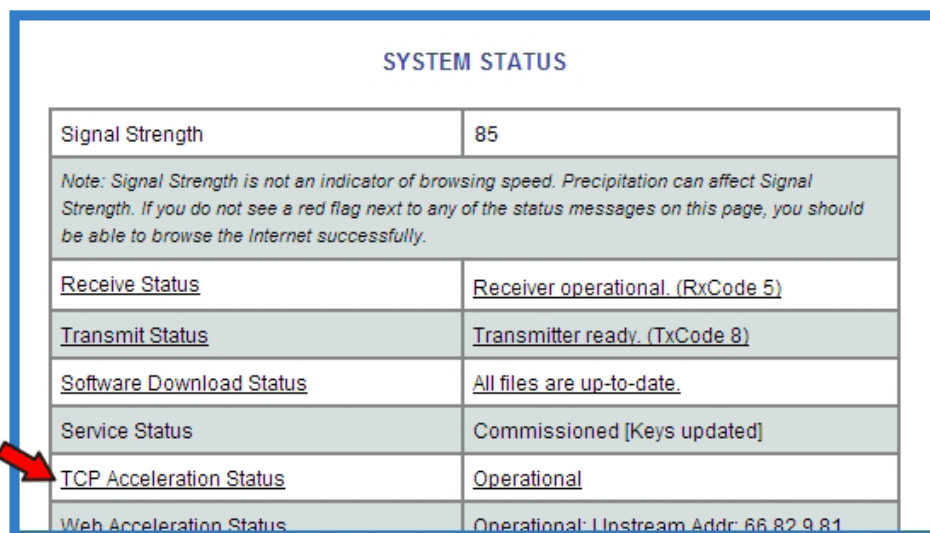


Figure 31: Confirming that TCP Acceleration is operational

2. Check the TCP Acceleration Status field.

If the TCP Acceleration Status is **Operational**, TCP Acceleration is enabled and working properly. Proceed to [Confirming that Web Acceleration is operational](#) on page 38.

3. If the TCP Acceleration Status is **Disabled**, restart the modem:
 - a) Go to the System Control Center home page.
 - b) In the Help section, click **Restart HN9200**.
4. If TCP Acceleration is still disabled, power cycle the modem:

- a) Unplug the power cord from the power source.
- b) *If the modem is connected to a DC power source*, unplug the DC input cable from the satellite modem's power supply.
- c) Wait 10 sec.
- d) Plug the power cord back into the power source.
- e) *If the power source is DC*, plug the input cable back into the power supply.



Do not power cycle the satellite modem by unplugging the power cord from the modem's rear panel. Doing so could result in static electricity discharge that could shock you and/or damage the modem.

5. If TCP Acceleration is still disabled, power cycle the Ethernet device according to the device documentation.
6. If TCP Acceleration is still disabled, restart the computer.
7. Check the TCP Acceleration Status field again.

If TCP Acceleration is **enabled** but you still cannot access the Internet, go to [Confirming that Web Acceleration is operational](#) on page 38.

If TCP Acceleration is still **disabled**, contact your service provider for assistance.



Note: TCP Acceleration Status may also be **Not Operational** (problem with the receive or transmit link) or **Impaired**. Impaired status may result from a number of factors; in many cases it clears within a minute or two.

Confirming that Web Acceleration is operational



Note: This section applies only if the NOC operator has enabled Web Acceleration on the satellite modem.

Web Acceleration is a Hughes feature that enhances browsing performance on non-secure web sites. Follow these steps to confirm that Web Acceleration is operating properly:

1. From any System Control Center page, observe the System Status button indicator.
 - If the indicator button is green, Web Acceleration is functioning normally.
 - If the indicator button is yellow, Web Acceleration may not be operational. Continue to the next step.
2. Click the **System Status** link to access the System Status page.
3. Observe the message in the Web Acceleration Status field.

If the Web Acceleration Status is **Operational**, Web Acceleration is enabled. Proceed to [Confirming NOC connectivity](#) on page 39.



Note: Web Acceleration Status may be **Operational** or **Inactive** during normal operation. **Connecting** does not indicate a problem unless it persists for more than a few seconds.

4. If the Web Acceleration Status is **Not operational**, Web Acceleration Status is disabled. Follow these steps:
 - a) Make sure the modem is transmitting and receiving. See [Confirming the receive signal](#) on page 36 and [Confirming the transmit signal](#) on page 36. If necessary, troubleshoot as stated in these sections.

- b) Wait 2 hr.
5. If Web acceleration is still disabled, restart the modem:
 - a) Go to the System Control Center home page.
 - b) In the Help section, click **Restart HN9200**.
6. If Web acceleration is still disabled, power cycle the modem:
 - a) Unplug the power cord from the power source.
 - b) *If the modem is connected to a DC power source*, unplug the DC input cable from the satellite modem's power supply.
 - c) Wait 10 sec.
 - d) Plug the power cord back into the power source.
 - e) *If the power source is DC*, plug the input cable back into the power supply.



Do not power cycle the satellite modem by unplugging the power cord from the modem's rear panel. Doing so could result in static electricity discharge that could shock you and/or damage the modem.

7. Check the Web Acceleration Status field again.

If Web Acceleration is still not operational, contact your service provider for assistance.

Confirming NOC connectivity

Use the Connectivity Test page to check connectivity to the Hughes Network Operations Center (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 System Control Center page to access the Connectivity Test page.

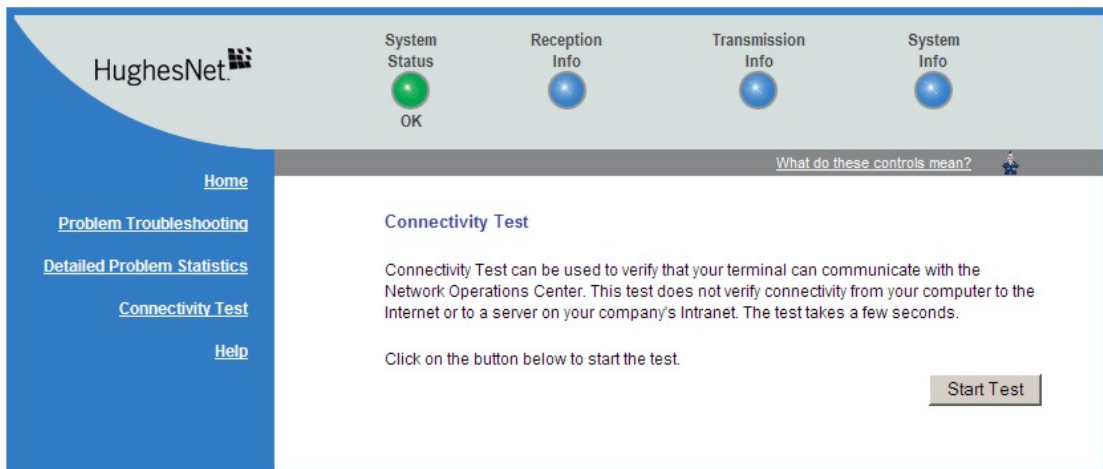


Figure 32: Connectivity Test – initial page

2. Click **Start Test**. The Connectivity Test results page appears.

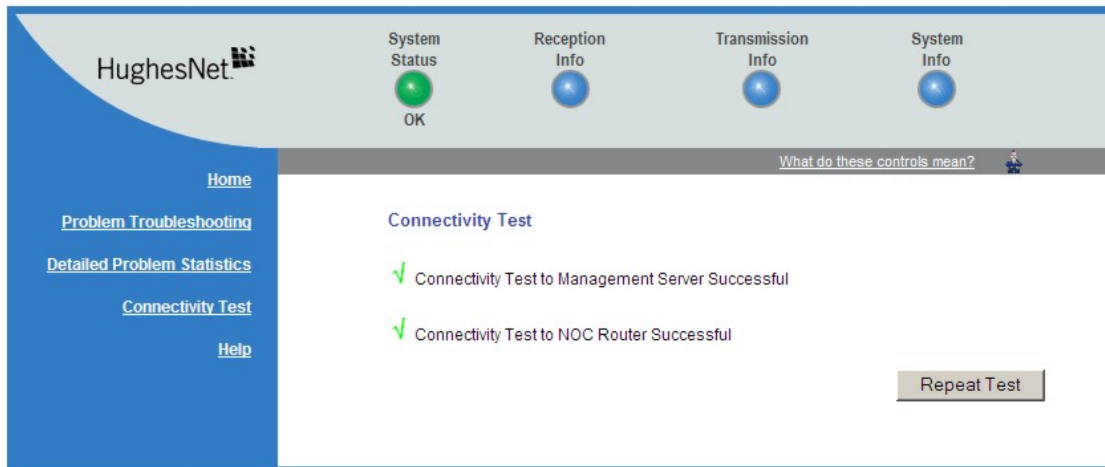


Figure 33: Connectivity Test – results page

3. If the connectivity test succeeds but you still cannot access the Internet, follow these steps to ping the modem address from your computer.
 - a) At the System Control Center, click the **System Info** link.
The System Information page appears.
 - b) Record the modem address listed in the **HN9200 Info** section.
 - c) On the Windows desktop, go to **Start → Run**.
The **Run** box appears.
 - d) In the Open field, type command.
 - e) Click **OK**.
The Command window appears.
 - f) At the prompt, type **ping** followed by a space and the modem address.
For example, if the modem address is 172.19.19.1, type **ping 172.19.19.1**.
 - g) Press **Enter**.

If pinging the modem address succeeds but you still cannot access the Internet, skip to [Confirming Internet connectivity](#) on page 41.

Confirming NOC connectivity (Static IP Address)

This section applies only if the modem is using a static IP address.

If pinging the modem address fails, and DHCP is disabled on the modem, the default gateway address is probably not set correctly in the computer's operating system settings. The default gateway address should be the modem IP address as displayed on the System Information page **HN9200 Info** section, in the LAN1 IP Address field.

1. Check the default gateway address in the computer operating system's network properties settings; make sure it is the same as the satellite modem's IP address (LAN1 IP Address).
2. Ping the modem address from your computer.
For information on the ping test, see [Confirming NOC connectivity](#) on page 39.
3. If the ping test fails, restart the satellite modem:
 - a) Go to the System Control Center home page.
 - b) In the Help section, click **Restart HN9200**.
4. If restart does not correct the problem, power cycle the satellite modem:

- a) Unplug the power cord from the power source.
- b) *If the modem is connected to a DC power source*, unplug the DC input cable from the modem's power supply.
- c) Wait 10 sec.
- d) Plug the power cord back into the power source.
- e) *If the power source is DC*, plug the input cable back into the power supply.



Do not power cycle the satellite modem by unplugging the power cord from the modem's rear panel. Doing so could result in static electricity discharge that could shock you and/or damage the modem.

5. If you still cannot access the Internet, contact your service provider.

Confirming Internet connectivity

If you lose access to the Internet, this could be a result of a temporary Internet problem or a problem with the site you are trying to access. If you lose Internet connectivity, try these troubleshooting steps:

1. Open a command prompt on a computer connected to the modem.
2. Ping the HughesNet web server:
 - a) Type ping www.hughesnet.com (or other server address provided by the customer).
 - b) Press **Enter**.

If the ping test succeeds, there may be a temporary problem with the web site you originally tried to access. Wait a while and then try to access the web site again. If the ping test fails, continue with these steps.

3. Ping the test server:
 - a) Type ping 198.77.116.39.
 - b) Press **Enter**.

If the ping test is successful but you still cannot browse the Internet, complete the procedures in [Checking the DNS setting](#) on page 41.

If the ping test fails, contact your service provider for assistance.

Checking the DNS setting

If you can ping the test server but cannot browse the Internet, follow these steps to check the DNS settings on your computer. The steps may vary slightly based on your computer's operating system.

1. On the Windows task bar, click **Start** → **Run**.
2. In the Run window, type **command**.
3. Click **OK**.
4. Type `ipconfig /all` and press **Enter**.
5. Locate the DNS addresses in the **DNS Servers** field.
6. For customers who have their own NOC, verify that the customer-specific DNS address appears in the **DNS Servers** field.
7. Close the Command window.

If the DNS address is correct, wait a while and try to access a web site again. There may be a temporary Internet connection outage. If you are still cannot access a web site after waiting, complete the procedures in *Checking for viruses and firewall issues* on page 42. If the DNS address is not correct, contact your service provider for assistance.

Checking for viruses and firewall issues

If you have confirmed all connections but still cannot access the Internet, check the computer (and all other computers on the same network) for viruses. If you find a virus, delete or disable it, then try to browse the Internet again.

If you are using a firewall, refer to the firewall documentation and make sure none of its settings are blocking access to either the Internet or the Hughes servers. Make sure you are using the latest version of any anti-virus and/or firewall software.

Cannot access the System Control Center

If you cannot access the System Control Center, follow the troubleshooting procedure that corresponds to your hardware configuration:

- Satellite modem connected directly to a computer
- Satellite modem connected to an Ethernet device

Satellite modem connected directly to a computer

Follow the steps below if the modem is connected directly to a computer.

1. On the computer desktop, double-click the System Control Center shortcut icon.
2. If the System Control Center does not appear, open a web browser.
3. Type www.systemcontrolcenter.com in the browser's address bar.
4. Press **Enter**.
5. If the System Control Center does not appear, type **192.168.0.1** in the browser's address bar.
6. Press **Enter**.
7. If the System Control Center does not appear, check the LAN cable connections at the satellite modem and at the computer. Check the physical connections and look for LED activity on both LAN ports.

If there is no LED activity, there could be a problem with the connection or NIC.

If the System Control Center does not appear, repeat these steps. If it still does not appear, contact your service provider.

Satellite modem connected to an Ethernet device

If the satellite modem is connected to an Ethernet device such as a router or a wireless base station, follow these steps:

1. Disconnect the Ethernet cable from the device.
2. Using an Ethernet cable you know is good, connect the satellite modem LAN port directly to the Ethernet port on the computer.

This temporarily bypasses the Ethernet device as a way to help determine where and what the problem is.

3. Power cycle the satellite modem:
 - a) Unplug the power cord from the power source.
 - b) *If the modem is connected to a DC power source*, unplug the DC input cable from the satellite modem's power supply.
 - c) Wait 10 sec.
 - d) Plug the power cord back into the power source.
 - e) *If the power source is DC*, plug the input cable back into the power supply.



Do not power cycle the satellite modem by unplugging the power cord from the modem's rear panel. Doing so could result in static electricity discharge that could shock you and/or damage the modem.

4. Attempt to access the System Control Center by completing the steps in [Satellite modem connected directly to a computer](#) on page 42.
5. If you cannot access the System Control Center, restart your computer.
6. Try again to access the System Control Center.

If you still **cannot** access the System Control Center, contact your service provider.

If you **can** now access the System Control Center, your Ethernet device may not be properly configured. Refer to the documentation for your Ethernet device to configure it properly. Be sure to re-connect the satellite modem to the Ethernet device before attempting to access the System Control Center.

Using the front panel LEDs for troubleshooting

This section explains how to use the satellite modem's front panel LEDs to recognize and troubleshoot problems.

Before proceeding, make sure the transmit and receive cables are securely tightened.

NOTICE

- Make sure each connector is properly aligned (not cross-threaded).
- Finger tight with no connector play is adequate.



Note: The modem may operate correctly when first installed even if the transmit and receive cable connectors are not adequately tightened. However, problems could develop later. Therefore, correct operation of the satellite modem's is not an indication that the cables are adequately tightened.

Power LED off and one or more LEDs flashing

If after power-up or a reset the Power LED is off and one or more of the other LEDs is flashing, the modem could have a fatal error and may have to be replaced. If *all* LEDs are flashing, go to [All LEDs flashing](#) on page 44.



Note: If the Power LED is flashing but no other LED is flashing, this does not indicate a problem.

1. If the Power LED is off and one or more of the other LEDs is flashing, try power cycling the modem:
 - a) Unplug the power cord from the power source.
 - b) *If the modem is connected to a DC power source*, unplug the DC input cable from the satellite modem's power supply.
 - c) Wait 10 sec.
 - d) Plug the power cord back into the power source.
 - e) *If the power source is DC*, plug the input cable back into the power supply.



To remove power from the satellite modem, always unplug the AC power cord from the power source (power outlet, power strip, or surge protector). Do *not* remove the DC power cord from the modem's rear panel. Doing so could result in an electrical shock or damage to the modem.

The modem may recover.

2. If the fatal error indication continues, the modem must be replaced. Contact your service provider.

All LEDs flashing

If all LEDs are flashing simultaneously, this indicates that the satellite modem's firmware is corrupted. A modem in this state cannot be recovered. Contact your service provider for assistance.

All LEDs off

If all LEDs on the front panel are off:

1. Make sure all power connections are secure.
2. If the AC power cord is connected to a power strip or surge protector, make sure the power strip or surge protector is turned on.
3. If the power connections are secure, power cycle the satellite modem:
 - a) Unplug the power cord from the power source.
 - b) *If the modem is connected to a DC power source*, unplug the DC input cable from the satellite modem's power supply.
 - c) Wait 10 sec.
 - d) Plug the power cord back into the power source.
 - e) *If the power source is DC*, plug the input cable back into the power supply.



Do not power cycle the satellite modem by unplugging the power cord from the modem's rear panel. Doing so could result in static electricity discharge that could shock you and/or damage the modem.

4. Test the power outlet (with a lamp, for example) to make sure there is not a problem with the power source.
5. If the LEDs do not turn on, contact your service provider.

Checking the Power LED

If the Power LED is off, check the power supply connections. (The modem does not have an off/on switch.) If the Power LED is on, proceed to [Checking the LAN LED](#) on page 45.

Checking the LAN LED

If the front panel LAN LED is off:

1. Disconnect and reconnect the Ethernet cable from the modem and from the computer. Make sure the cable is securely connected to the modem LAN port and to the computer's LAN port.
2. If the LAN LED is still off, power cycle the satellite modem:
 - a) Unplug the power cord from the power source.
 - b) *If the modem is connected to a DC power source*, unplug the DC input cable from the satellite modem's power supply.
 - c) Wait 10 sec.
 - d) Plug the power cord back into the power source.
 - e) *If the power source is DC*, plug the input cable back into the power supply.



Do not power cycle the satellite modem by unplugging the power cord from the modem's rear panel. Doing so could result in static electricity discharge that could shock you and/or damage the modem.

3. If the LAN LED is still off, check the LAN port LEDs on the back panel.
 - If the Orange LED is on and the front panel LAN LED is not, contact your service provider for assistance.
 - If both the Orange LED and the front panel LAN LED are off, check all network equipment that connects the computer with the modem, including the computer's Ethernet card, Ethernet cable(s) and any switch or hub. Replace one or more of the items to try to isolate the problem.
4. If the front panel LAN LED is still off, check the Windows Device Manager to see if the computer's NIC or *network adapter* is installed correctly.
 - a) In Windows XP, for example, click **Start** → **Settings** → **Control Panel** → **System** → **Hardware** → **Device Manager**.
A screen appears listing all the devices installed on the computer.
 - b) Look for Network adapters.
If the NIC is not properly installed, a red X appears next to its listing.

- c) If a red X is present, troubleshoot the NIC installation using the manufacturer's instructions and Windows documentation.
- 5. If the LAN LED is still off, follow this step *only if the satellite modem is connected to a hub, router, or other network device (that is, not connected directly to the computer)*. Connect the computer directly to the satellite modem (to bypass the network device) as follows:
 - a) Disconnect the Ethernet cable from the device.
 - b) Using an Ethernet cable you know is good, connect the satellite modem LAN port directly to the Ethernet port on the computer.
This temporarily bypasses the Ethernet device as a way to help determine where and what the problem is.
 - c) Check the modem's LAN LED.

If the LAN LED is on, but was off before you made this direct connection, there is probably a problem with your network device or the connections to it. Check those connections. If the LAN LED is still off after checking the connections, contact the manufacturer of the network device for assistance.

- 6. If you have not found any problem so far, but the LAN LED is still off, power cycle the modem again.
- 7. If the LAN LED is still off, power cycle the Ethernet device according to the device documentation.
- 8. If the LAN LED is still off, restart the computer.
- 9. If the LAN LED is still off, try connecting the satellite modem to another computer.

If the front panel LAN LED is now **on**, there may be a problem with the computer that was connected to the satellite modem.

If the LAN LED is still **off**, contact your service provider.


Problem with a connected device

If a device *other than a computer* is connected to the satellite modem, the System Control Center is probably never accessible. However, you can troubleshoot based on the following LED conditions. For details, go to the listed page.

- *Transmit LED is off* on page 46
- *Receive LED is off* on page 47
- *System LED is off* on page 47

Transmit LED is off


If the satellite modem is not operating normally and the Transmit LED is off, follow these steps:

- 1. Check the modem's cable connections.
Make sure the cable connections are secure (properly aligned—not cross threaded; finger tight with no play).
 **Note:** The modem may operate correctly when first installed even if the transmit and receive cable connectors are not adequately tightened. However, problems could develop later. Therefore, correct operation of the satellite modem is not an indication that the cables are adequately tightened.
- 2. If the LED is still off, check the cable for breaks.

3. If the problem persists, contact your service provider.

Receive LED is off

If the satellite modem is not operating normally and the Receive LED is off, follow these steps:

1. Check the modem's cable connections.
Make sure the cable connections are secure (properly aligned—not cross threaded; finger tight with no play).
 **Note:** The modem may operate correctly when first installed even if the transmit and receive cable connectors are not adequately tightened. However, problems could develop later. Therefore, correct operation of the satellite modem is not an indication that the cables are adequately tightened.
2. If the LED is still off, restart the modem:
 - a) Go to the System Control Center home page.
 - b) In the Help section, click **Restart HN9200**.
3. If the LED is still off, power cycle the satellite modem:
 - a) Unplug the power cord from the power source.
 - b) *If the modem is connected to a DC power source*, unplug the DC input cable from the modem's power supply.
 - c) Wait 10 sec.
 - d) Plug the power cord back into the power source.
 - e) *If the power source is DC*, plug the input cable back into the power supply.



Do not power cycle the satellite modem by unplugging the power cord from the modem's rear panel. Doing so could result in static electricity discharge that could shock you and/or damage the modem.

4. If the problem persists, contact your service provider.

System LED is off

If the System LED is off, but the Transmit and Receive LEDs are on, there may be a problem at the NOC. Take the following steps.

1. 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.
2. If the LED does not turn on after 15 minutes, power cycle the satellite modem:
 - a) Unplug the power cord from the power source.
 - b) *If the modem is connected to a DC power source*, unplug the DC input cable from the modem's power supply.
 - c) Wait 10 sec.
 - d) Plug the power cord back into the power source.
 - e) *If the power source is DC*, plug the input cable back into the power supply.



Do not power cycle the satellite modem by unplugging the power cord from the modem's rear panel. Doing so could result in static electricity discharge that could shock you and/or damage the modem.

3. If the problem persists, contact your service provider.

Using the LAN port LEDs for troubleshooting

The LAN port on the modem's rear panel has two small LEDs (green and orange) as illustrated in [Figure 25: LAN port LEDs](#) on page 29. This section explains how to use the LAN port LEDs to troubleshoot a LAN port problem.

Orange LED and the front panel LAN LED are both off

If both the orange LED and the front panel LAN LED are off:

1. Check all network equipment that connects the satellite modem with the computer, including the computer's network card, network cable(s), and switch or hub if used.
2. If possible, replace any of these items one at a time to try to isolate the problem.
3. If the equipment seems to be OK, power cycle the satellite modem:
 - a) Unplug the power cord from the power source.
 - b) *If the modem is connected to a DC power source*, unplug the DC input cable from the satellite modem's power supply.
 - c) Wait 10 sec.
 - d) Plug the power cord back into the power source.
 - e) *If the power source is DC*, plug the input cable back into the power supply.



To remove power from the satellite modem, always unplug the AC power cord from the power source (power outlet, power strip, or surge protector). Do *not* remove the DC power cord from the modem's rear panel. Doing so could result in an electrical shock or damage to the modem.

Orange LED is on but the front panel LAN LED is not

If the orange LAN port LED is on but the front panel LAN LED is not, contact your service provider for assistance.

Troubleshooting other problems

This section provides troubleshooting help for possible problems that are not included in the preceding troubleshooting sections.

Hot cable connector

If the connector on either the transmit or receive cable feels hot, the connector may be loose or defective. Troubleshoot this problem as follows:

1. Remove power from the satellite modem by unplugging the power supply AC power cord from the surge protector or AC outlet.



To remove power from the satellite modem, always unplug the AC power cord from the power source (power outlet, power strip, or surge protector). Do *not* remove the DC power cord from the modem's rear panel. Doing so could result in an electrical shock or damage to the modem.

2. Allow the cable connector to cool for at least 5 min.
3. Make sure the cable connector feels cool.
4. Make sure the connector is securely attached to the cable and properly aligned. If it is cross-threaded, remove it and reattach it. The connector should be finger tight with no play.



Note: The satellite modem may operate correctly when first installed, even if the transmit and receive cable connectors are not adequately tightened. However, problems could develop later. Therefore, correct operation of the modem is not an indication that the cables are adequately tightened.

5. Reapply power to the modem by plugging the power supply back into the surge protector or AC outlet.

NOTICE

A suitable surge protector is recommended to protect the satellite modem from possible damage due to power surges.

6. Wait 5 min.
7. Check the connector to see if it is hot.
If the connector is still hot, it may be defective and should be replaced.

Slow speed or intermittent operation

If you notice that the modem's transmission speed is slow or that operation is intermittent, make sure the transmit and receive cable connectors are finger tight. (Make sure connectors are properly aligned—not cross threaded, and finger tight with no play.)

Viewing problem-related statistics



Note: The Detailed Problem Statistics page and link are present on your HN9200 only if they have been enabled by the NOC.

You can use the Detailed Problem Statistics page to view selected operational statistics recorded over a recent specific hourly time frame. Very likely you will not understand all of the statistics

presented. The statistics displayed are primarily intended for use by a service provider representative who may be assisting you in troubleshooting a specific problem.

To view statistics:

1. Click **Detailed Problem Statistics** on the System Control Center home page—or in the left panel of other System Control Center pages.
The Detailed Problem Statistics page appears.

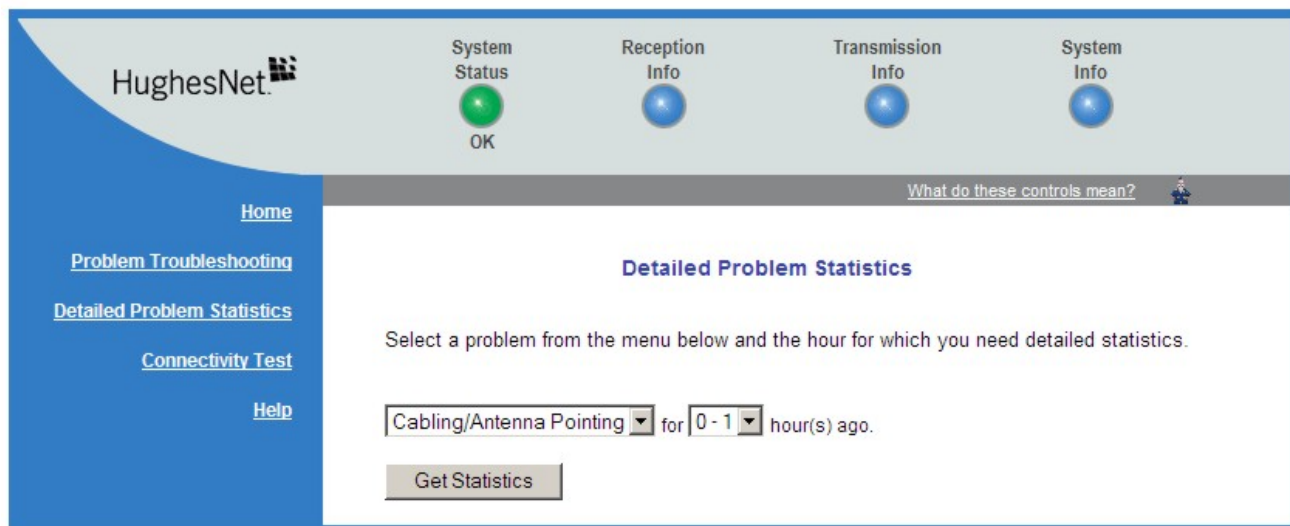


Figure 34: Detailed Problem Statistics

2. From the drop-down list above the **Get Statistics** button, select a category of statistics (for example, TCP Acceleration).
If a service provider representative is assisting you, the representative will tell you which statistics to select.

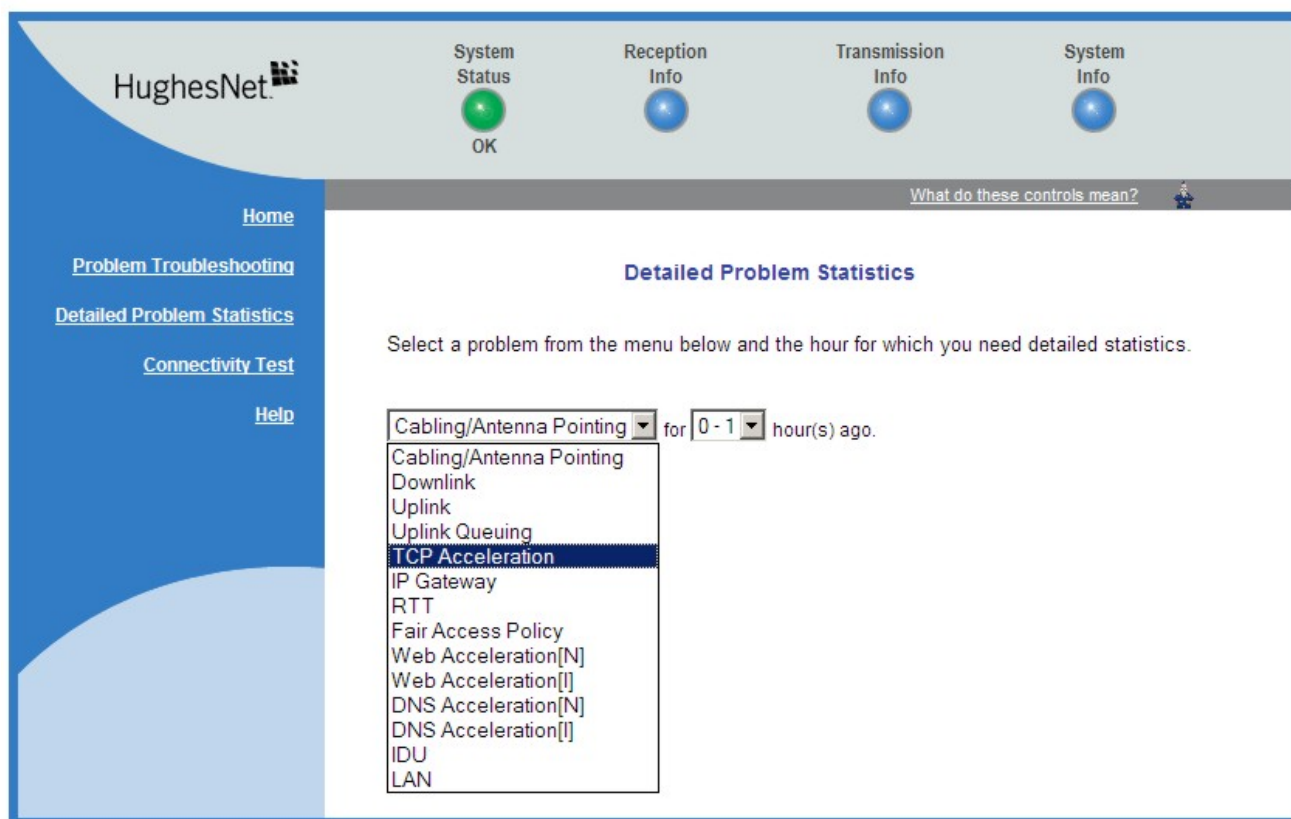


Figure 35: Selecting a category of statistics

3. Select a time period (for example, 0 - 1 hour ago).
 4. Click **Get Statistics**.
- The System Control Center displays the statistics you requested.



Note: Most of the displayed statistical information is very technical and requires interpretation by a trained technician.

Weather and signal strength

Rain or snow can interfere with signal strength. If the interference is strong enough, the modem may stop receiving signals from the satellite and stop transmitting. If this happens, the Transmit and Receive LEDs both turn off.

Antenna reception may be degraded by heavy rain or snow or by a buildup of moisture, snow, or ice on the antenna. Similar conditions at the NOC can interfere with signals for brief periods of time. Signal strength is restored when rain or snow subsides.

In weather conditions such as these, wait to see if normal operation resumes when the weather returns to normal.

Checking the power supply

Use only the power supply that was enclosed with the satellite modem when it was shipped from the factory.

NOTICE

- Always use the power supply provided with the satellite modem. The modem's performance may suffer if the wrong power supply is used.
- Connect the AC/DC power supply to a three-wire, grounded outlet with an input of 110/240 VAC. A suitable surge protector is recommended to protect the satellite modem from possible damage due to power surges.
- Observe the power standards and requirements of the country where it is installed.

If the LEDs do not function properly as described in this chapter, check the label on the power supply and verify that you have the correct power supply.

For an AC/DC power supply, the Hughes part number on the power supply should be one of the following:

- 1500089-0001
- 1500185-0001

If the power supply is DC/DC, the Hughes part number should be:

- 1033554-0001

If your power supply has any other part number, contact your service provider.

Appendix

A

Computer settings

For proper operation of the satellite modem, you may have to change certain settings on the computer that is connected to the modem.

Instructions are provided for:

- Configuring a computer to support DHCP
- Configuring a computer to use a static IP address
- Disabling a web browser's proxy connection

These procedures are explained in the sections that follow.

Understanding the modem address and computer address

The satellite modem and any computer or computers that connect to it must each have their own identifying network address. This network address is known as an *IP address*. An IP address may be *dynamic*, meaning that it can change, or *static*, meaning that it is fixed—it does not change. An IP address may also be public (or *routable*), meaning that it can be used on the Internet. A *private* IP address works on an internal network but not over the Internet. However, to gain access to the Internet, private addresses may be converted by a network address translation (NAT) service to a public IP address that can be used on the Internet. Both private and public addresses can be dynamic or static.

Both the modem and a connected computer can have either type of address—dynamic or static. The type used depends on requirements a customer might have and their service plan. A static IP address or addresses are available only if they are specified in the service plan. Typically home users use a private IP address, but some home users use a static IP address.

To find specific address information for the satellite modem, go to the System Control Center System Information page, which is shown in [Figure 19: System Information page](#) on page 22.

For instructions on setting IP addresses, see:

- The HN9200 satellite modem's online Help. Click **Help** → **Frequently Asked Questions** → **How do I configure IP Addresses on my computer?** and **What IP Address(es) can I configure on the computers connected to my HN9200 terminal?**
- [Configuring a computer to use a static IP address](#) on page 60

Configuring a computer to use DHCP

DHCP is a protocol that allows a computer to obtain its IP address from a DHCP server on a network when the computer connects to the network. This type of IP address is called a

dynamically assigned IP address because it can change when the computer disconnects from the network and later re-connects.

The satellite modem incorporates a DHCP server to assign IP addresses to computers that connect to it. The modem can assign *dynamic* IP addresses or *static IP addresses*, depending on the service plan purchased by the satellite modem customer.

How do I know if DHCP should be enabled?

The service plan you purchased with the HN9200 satellite modem determines what kind of network address a connected computer or computers should use and whether or not DHCP should be enabled on the computer.

To determine the correct DHCP and address configuration for a computer or computers to be connected to the satellite modem, determine if DHCP is enabled or disabled *on the satellite modem* by following the steps below.

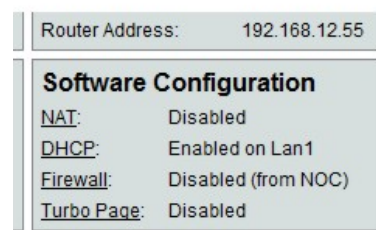
1. Connect a single computer to the satellite modem's LAN port (LAN1).
2. Open a web browser.
3. In the browser address bar, type www.systemcontrolcenter.com and press **Enter**.

The System Control Center home page appears.

4. Click the **System Info** button near the top of the page.

The System Information page appears.

5. In the **Software Configuration** section, observe the value in the DHCP field.



- If DHCP is *enabled* on the satellite modem, you must configure the computer to support DHCP. Then the computer uses a dynamic address that is automatically assigned by the satellite modem.
- If DHCP is *disabled* on the satellite modem, the computer must be configured for a static IP address. The process for configuring a static IP address also disables DHCP.



Note: If the satellite modem is connected to a LAN, you must configure each computer or device that accesses the Internet over the LAN as stated above.

Subsequent sections explain how to enable DHCP and how to configure a static IP address.

Configuring Windows 7 to use DHCP

1. From the Windows desktop, select **Start** → **Control Panel** → **Network and Sharing Center**.
2. Look for the Local Area Connection link indicated by the arrow in [Figure 36: Network and Sharing Center – Windows 7](#) on page 56.

If you do not see a Local Area Connection link or if a red X appears next to the link, the network is not installed correctly. Check your network configuration and connections. You cannot configure your system if the red X is present.

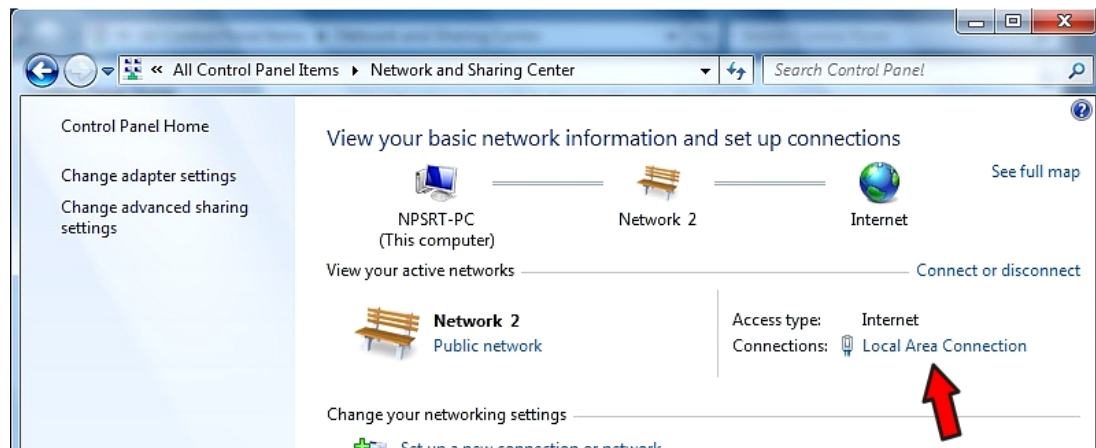



Figure 36: Network and Sharing Center – Windows 7

3. Click the Local Area Connection icon, which represents the satellite modem network connection.
The Local Area Connection Status window opens.

4. Click **Properties**.

The Local Area Connection Properties dialog appears, as shown in [Figure 37: Local Area Connection Properties – Windows 7](#) on page 55.

 **Note:** Depending on the computer's security settings, a message may appear, requesting that you confirm the action before proceeding. If you see this message, click **Continue** to proceed.

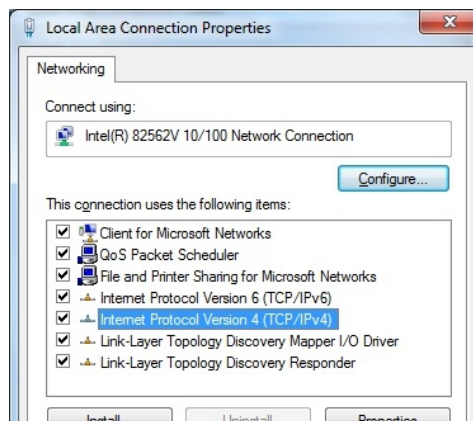


Figure 37: Local Area Connection Properties – Windows 7

5. Ensure that both Client for Microsoft Networks and Internet Protocol (TCP/IP) are installed and checked as shown.
6. If NetBEUI is installed and checked, uncheck it or uninstall it.
7. Highlight the appropriate TCP/IP connection (usually Internet Protocol Version 4). Be careful not to uncheck the checkbox.
8. Click **Properties**.

The Internet Protocol Properties dialog appears as shown in [Figure 38: Internet Protocol Properties – Windows 7](#) on page 56.

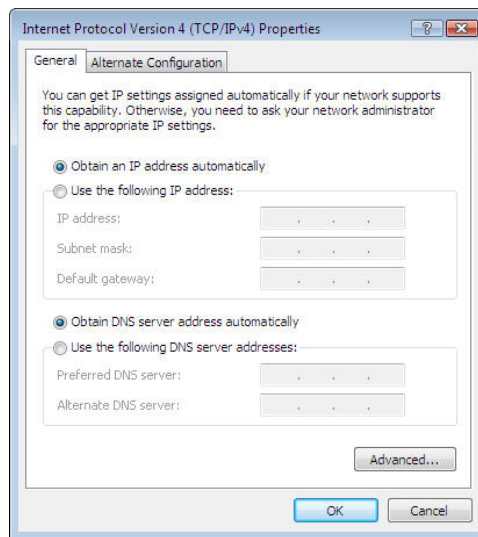


Figure 38: Internet Protocol Properties – Windows 7

9. Ensure that both the Obtain an IP address automatically and Obtain DNS server address automatically options are selected.
10. Click **OK**.
11. Click **Close** to close the Local Area Connection Properties dialog.
12. Click **Close** to close the Local Area Connection status dialog.
13. Confirm that you have an IP address:
 - a) Press **Win+R** (Windows key + R).
 - b) Type **cmd** and click **OK**.
 - c) In the command, type **ipconfig/renew** and press **Enter**.
 - d) Make sure an IP address is shown on the line that starts with IPv4 Address or IPv6 Address.

Configuring Windows Vista to use DHCP

1. From the Windows desktop, select **Start → Settings → Network Connections**.

A list of network adapters appears as shown in [Figure 36: Network and Sharing Center – Windows 7](#) on page 56. The Local Area Connection-NIC Card icon *must* appear under the LAN or High-Speed Internet heading. If it does not, the network is not installed correctly.

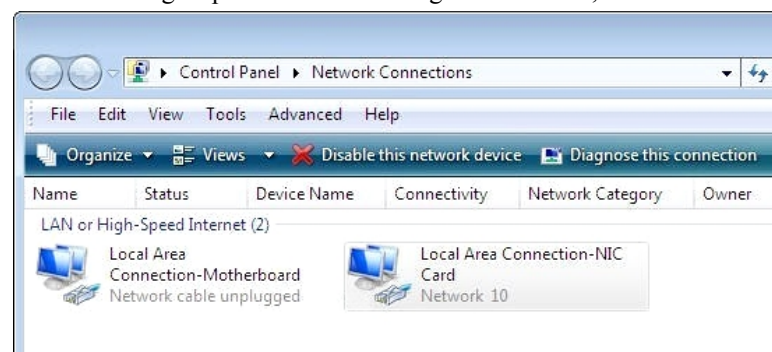



Figure 39: Network connections – Windows Vista



Note: If a red X appears next to the Local Area Connection icon, check your connections. You cannot successfully configure your system if the red X is present.

2. Right-click the Local Area Connection-NIC Card icon, which represents the satellite modem network connection, and select **Properties**.

The Local Area Connection-NIC Card Properties dialog appears as shown in *Figure 40: Local Area Connection Properties – Windows Vista* on page 57.

 **Note:** Depending on the computer's security settings, a User Account Control message may appear, requesting that you confirm the action before proceeding. If you see this message, click **Continue** to proceed.

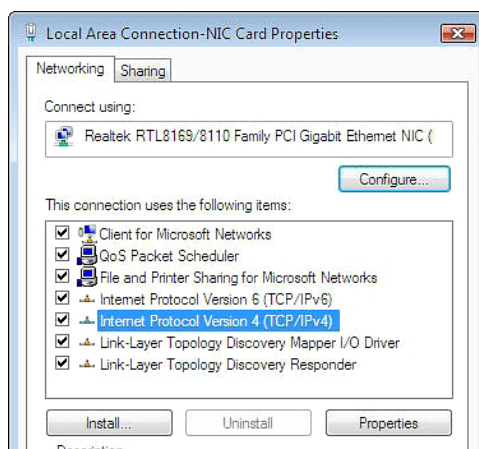


Figure 40: Local Area Connection Properties – Windows Vista

3. Ensure that both Client for Microsoft Networks and Internet Protocol (TCP/IP) are installed and checked as shown.
4. If NetBEUI is installed and checked, uncheck it or uninstall it.
5. Highlight the appropriate TCP/IP connection. Be careful not to uncheck the checkbox.
6. Click **Properties**.

The Internet Protocol Properties dialog appears as shown in *Figure 41: Internet Protocol Properties – Windows Vista* on page 57.

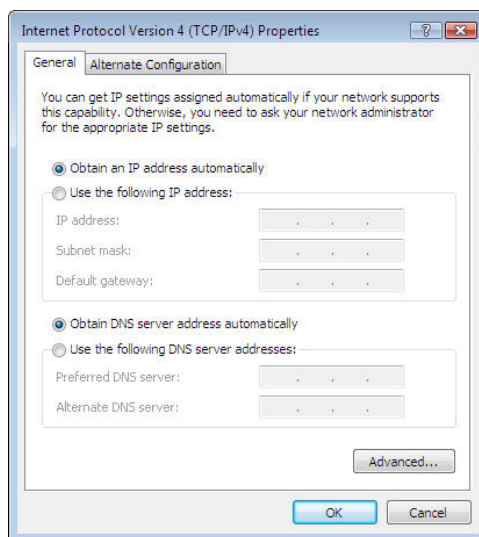


Figure 41: Internet Protocol Properties – Windows Vista

7. Ensure that both the Obtain an IP address automatically and Obtain DNS server address automatically options are selected.

8. Click **OK**.
9. Confirm that you have an IP address:
 - a) Click **Start** → **Run**.
 - b) Type `cmd` and click **OK**.
 - c) Type `ipconfig/renew` and press **Enter**.
 - d) Make sure an IP address is shown on the line that starts with IP Address.

Configuring Windows XP to use DHCP

1. From the Windows desktop, select **Start** → **Settings** → **Control Panel**.
2. Double-click the Network and Dialup Connections icon.



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

A list of network adapters appears as shown in *Figure 42: Network connections – Windows XP* on page 58. A Local Area Connection icon *must* appear under the LAN or High-Speed Internet heading. If it does not, the network is not installed correctly.

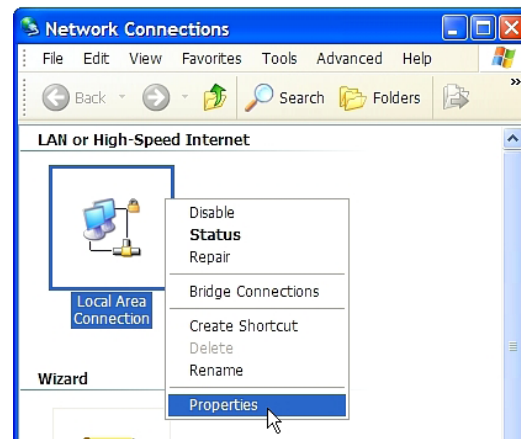


Figure 42: Network connections – Windows XP



Note: If a red X appears next to the Local Area Connection icon, check your connections. You cannot successfully configure your system if the red X is present.

3. Right-click the Local Area Connection icon that represents the network adapter connecting the computer to the Satellite Gateway, and select **Properties**.
The Local Area Connection Properties dialog appears as shown in *Figure 43: Local Area Connection Properties – Windows XP* on page 59.

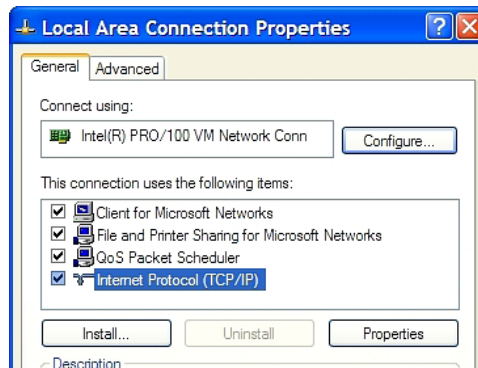


Figure 43: Local Area Connection Properties – Windows XP

4. Ensure that both Client for Microsoft Networks and Internet Protocol (TCP/IP) are installed and checked as shown.
5. If NetBEUI is installed and checked, uncheck it or uninstall it.
6. Highlight Internet Protocol (TCP/IP). Be careful not to uncheck the checkbox.
7. Click **Properties**.

The Internet Protocol Properties dialog appears as shown in [Figure 44: Internet Protocol Properties – Windows XP](#) on page 59.

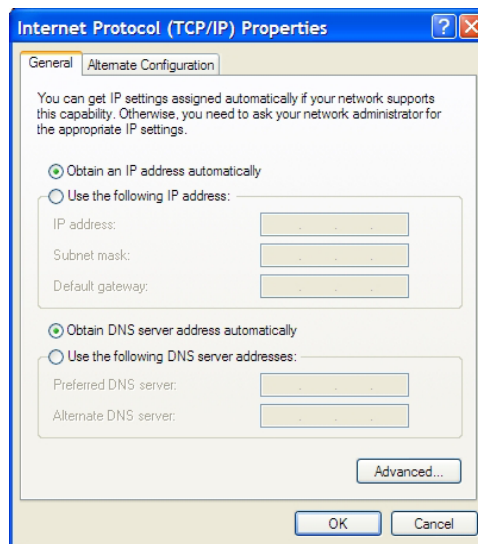


Figure 44: Internet Protocol Properties – Windows XP

8. On the General tab, ensure that both the Obtain an IP address automatically and Obtain DNS server address automatically options are selected. If not, select them.
9. Click **OK**.
10. Confirm that you have an IP address:
 - a) Click **Start** → **Run**.
 - b) Type cmd and click **OK**.
 - c) Type ipconfig/renew and press **Enter**.
 - d) Make sure an IP address is shown on the line that starts with IP Address.

Configuring a Mac computer to use DHCP

1. From the Mac interface, select **System Preferences**.
The System Preferences menu appears.
2. Under Internet & Network, click the Network icon.
The Network screen appears as shown in [Figure 45: Mac Network screen](#) on page 60.



Figure 45: Mac Network screen

3. Ensure that the TCP/IP tab is selected.
4. Select **Using DHCP** from the Configure drop-down list as shown in [Figure 46: Select Using DHCP from the configure drop-down list](#) on page 60.
The IP Address field becomes disabled.

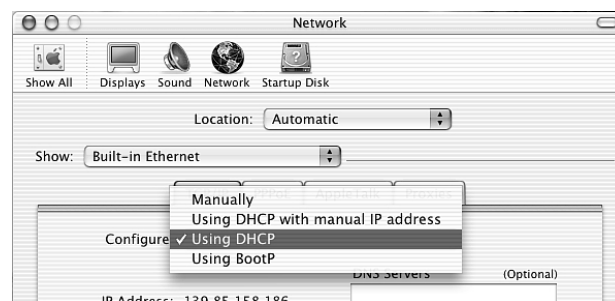


Figure 46: Select Using DHCP from the configure drop-down list

5. Click **Apply Now** to close the screen.

Configuring a computer to use a static IP address

If it is desired or necessary for a computer to have a fixed or permanent static IP address, the computer should be configured for a *static IP address*. For more information about IP addresses, see [Understanding the modem address and computer address](#) on page 53.

To configure the computer to use a static IP address, you manually enter the following information:

- IP address. You need a valid IP address for the computer. If the computer is part of a LAN, each computer on the LAN must have its own unique address.
- Subnet Mask. This is the subnet mask assigned to your satellite modem. You can obtain the subnet mask from the System Information page of the System Control Center.
- Default Gateway. This is the IP address of the satellite modem. You can obtain this address from the System Information page of the System Control Center.

Configuring Windows 7 to use a static IP address

1. From the Windows desktop, select **Start** → **Control Panel** → **Network and Sharing Center**.
2. Look for the Local Area Connection icon indicated by the arrow in *Figure 47: Network and Sharing Center – Windows 7* on page 61.

If you do not see a Local Area Connection link or if a red X appears next to the link, the network is not installed correctly. Check your network configuration and connections. You cannot configure your system if the red X is present.

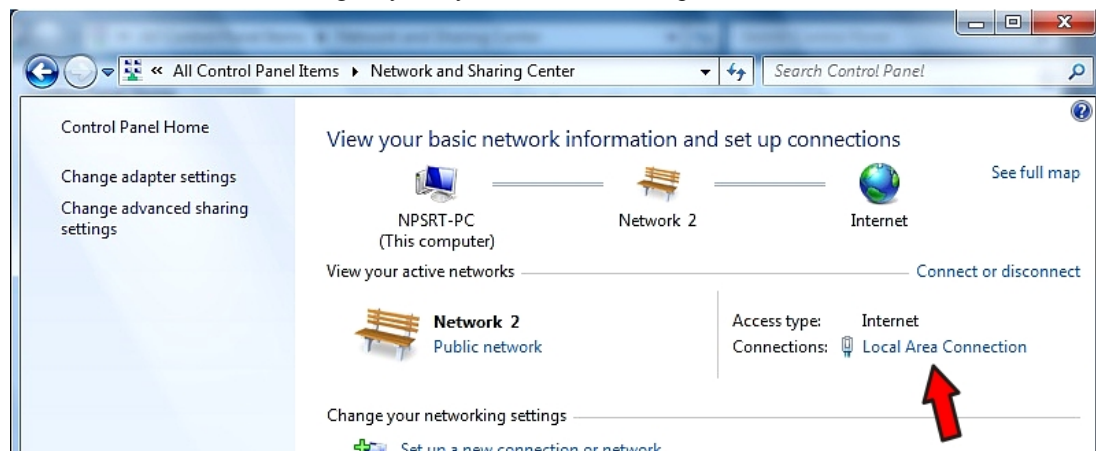


Figure 47: Network and Sharing Center – Windows 7

3. Click the Local Area Connection link, which represents the satellite modem network connection.
The Local Area Connection Status window opens.
4. Click **Properties**.
The Local Area Connection Properties dialog appears, as shown in *Figure 48: Local Area Connection Properties – Windows 7* on page 62.



Note: Depending on the computer's security settings, a message may appear, requesting that you confirm the action before proceeding. If you see this message, click **Continue** to proceed.

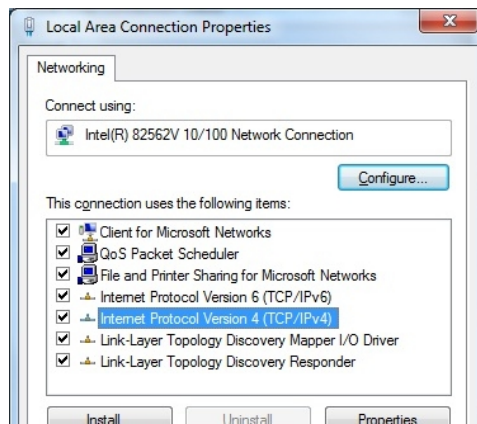


Figure 48: Local Area Connection Properties – Windows 7

5. Ensure that both Client for Microsoft Networks and Internet Protocol (TCP/IP) are installed and checked as shown.
6. If NetBEUI is installed and checked, uncheck it or uninstall it.
7. Highlight the appropriate TCP/IP connection. Be careful not to uncheck the checkbox.
8. Click **Properties**.

The Internet Protocol Properties dialog appears as shown in *Figure 49: Internet Protocol Properties – Windows 7* on page 62.

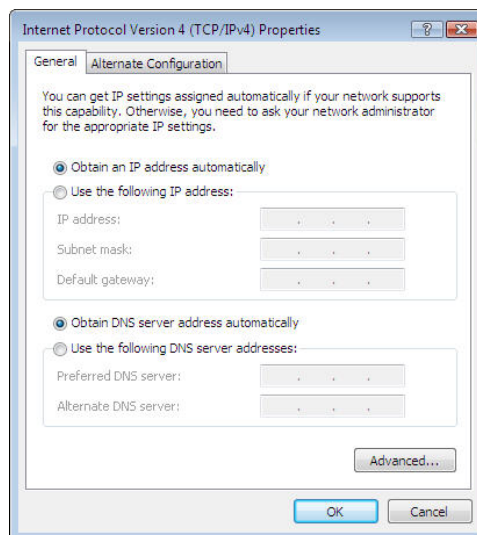


Figure 49: Internet Protocol Properties – Windows 7

9. On the General tab, select Use the following IP address.
10. Enter the IP address and subnet mask in the appropriate fields.
If you do not know what static IP address or range of addresses is available for use, see *Understanding the modem address and computer address* on page 53.
11. Select Use the following DNS server addresses.
12. Enter 66.82.4.8 in the Preferred DNS server field.
13. Click **OK**.
14. Restart the computer.

Configuring Windows Vista to use a static IP address

1. From the Windows desktop, select **Start** → **Settings** → **Network Connections**.

A list of network adapters appears as shown in *Figure 50: Network connections – Windows Vista* on page 63. A Local Area Connection-NIC Card icon *must* appear under the LAN or High-Speed Internet heading. If it does not, the network is not installed correctly.



Figure 50: Network connections – Windows Vista



Note: If a red X appears next to the Local Area Connection icon, check your connections. You cannot successfully configure your system if the red X is present.

2. Right-click the icon that represents the satellite modem network connection, and select **Properties**.

The Local Area Connection-NIC Card Properties dialog appears as shown in *Figure 51: Local Area Connection Properties – Windows Vista* on page 63.



Note: Depending on your security settings, a User Account Control message may appear, requesting that you confirm the action before proceeding. If you see this message, click **Continue** to proceed.

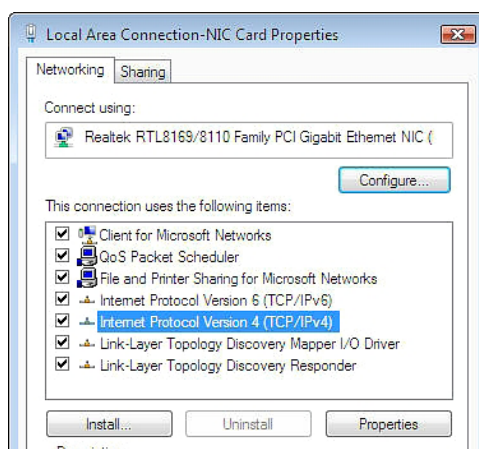
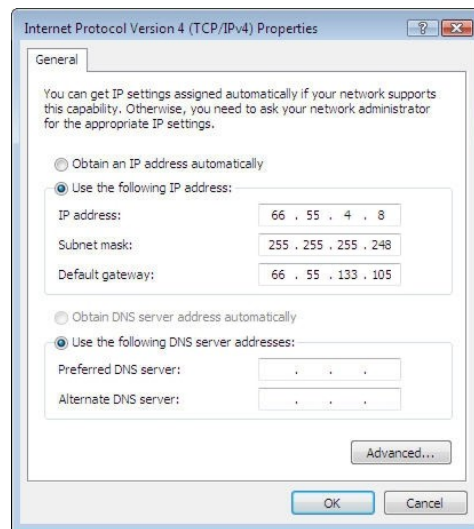


Figure 51: Local Area Connection Properties – Windows Vista

3. Ensure that both Client for Microsoft Networks and Internet Protocol (TCP/IP) are installed and checked as shown.
4. If NetBEUI is installed and checked, uncheck it or uninstall it.
5. Highlight the appropriate TCP/IP connection. Be careful not to uncheck the checkbox.
6. Click **Properties**.

The Internet Protocol Properties dialog appears as shown in [Figure 52: Internet Protocol Properties – Windows Vista](#) on page 64.



This is an *example* of the dialog with address information entered. Do not copy these numbers.

Figure 52: Internet Protocol Properties – Windows Vista

7. On the General tab, select Use the following IP address.
8. Enter the IP address and subnet mask in the appropriate fields.
If you do not know what static IP address or range of addresses is available for use, see [Understanding the modem address and computer address](#) on page 53.
9. Select Use the following DNS server addresses.
10. Enter 66.82.4.8 in the Preferred DNS server field.
11. Click **OK**.
12. Restart the computer.

Configuring Windows XP to use a static IP address

1. From the Windows desktop, select **Start** → **Settings** → **Control Panel**.
2. Double-click the Network Connections icon in the Control Panel window.
A list of network adapters appears. A Local Area Connection icon *must* appear under the LAN or High-Speed Internet heading. If it does not, the network is not installed correctly.
3. Right-click the Local Area Connection icon that represents the satellite modem network connection, and select **Properties** as shown in [Figure 53: Accessing Local Area Connection Properties – Windows XP](#) on page 65.

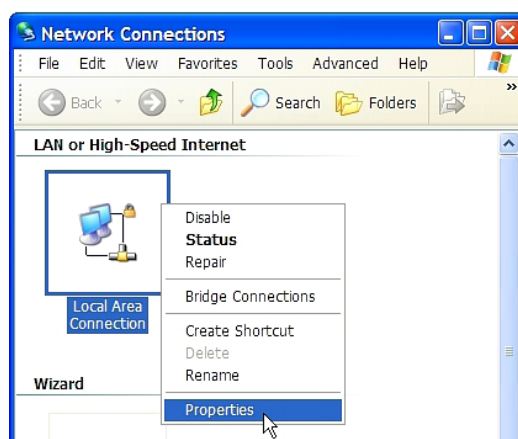


Figure 53: Accessing Local Area Connection Properties – Windows XP



Note: If a red X appears next to the Local Area Connection icon, check your connections. You cannot successfully configure your system if the red X is present.

4. Ensure that both Client for Microsoft Networks and Internet Protocol (TCP/IP) are installed and checked in the Local Area Connection properties dialog as shown in [Figure 54: Local Area Connection Properties Dialog – Windows XP](#) on page 65.

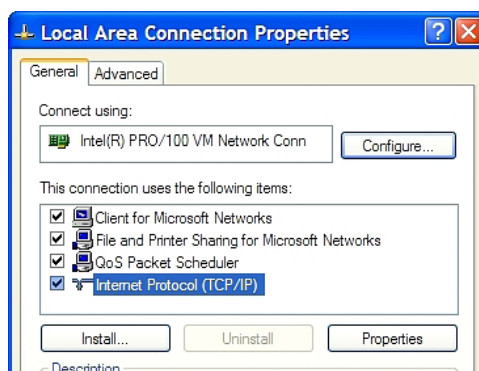
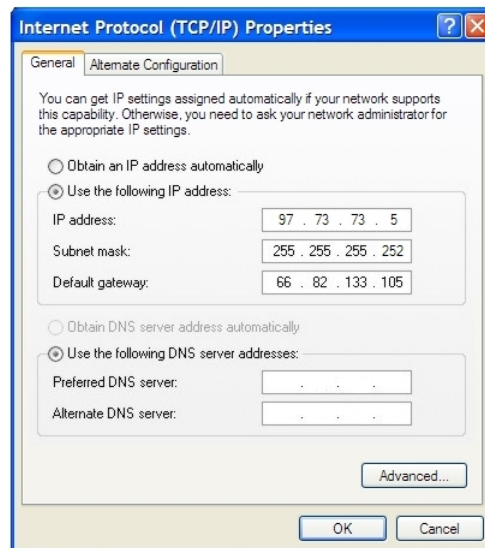


Figure 54: Local Area Connection Properties Dialog – Windows XP

5. If NetBEUI is installed and checked, uncheck it or uninstall it.
6. Highlight Internet Protocol (TCP/IP). Be careful not to uncheck the checkbox.
7. Click **Properties**.

The Internet Protocol Properties dialog appears as shown in [Figure 55: Internet Protocol Properties – Windows XP](#) on page 66.



This is an *example* of the dialog with address information entered. Do not copy these numbers.

Figure 55: Internet Protocol Properties – Windows XP

8. On the General tab, select Use the following IP address.
9. Enter the IP address, subnet mask, and default gateway in the appropriate fields.
If you do not know what static IP address or range of addresses is available for use, see [Understanding the modem address and computer address](#) on page 53.
10. Select Use the following DNS server addresses.
11. Enter 66.82.4.8 in the Preferred DNS server field.
12. Click **OK**.
13. Restart the computer.

Configuring a Mac computer to use a static IP address

1. From the Mac interface, select **System Preferences**.
The System Preferences menu appears.
2. Under Internet & Network, click the Network icon.
The Network screen appears as shown in [Figure 56: Mac Network screen](#) on page 67.



Figure 56: Mac Network screen

3. Ensure that the TCP/IP tab is selected.
4. Select **Manually** from the Configure drop-down list as shown in [Figure 57: Select Manually from the configure drop-down list](#) on page 67.

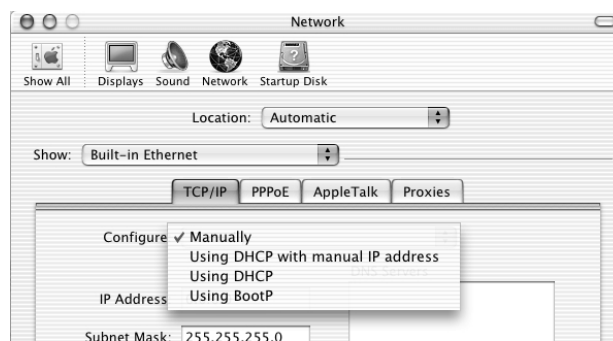


Figure 57: Select Manually from the configure drop-down list

5. Select the desired IP address. There may be only one address available or a range of available addresses, depending on your service plan.
For additional information, see [Understanding the modem address and computer address](#) on page 53.
6. Click **Apply Now** to close the screen and complete the configuration.

Configuring proxy settings

If your web browser cannot connect to the Internet, check the browser's proxy settings. If the browser is configured for the computer to use a proxy server to connect to the Internet, try changing the setting to *not* use a proxy server.

These steps explain how to configure Internet Explorer to not use a proxy server.

1. Turn the computer on and open Internet Explorer.
2. Select **Tools** → **Internet Options**.

3. Select the Connections tab and click LAN settings.
The LAN settings dialog appears.

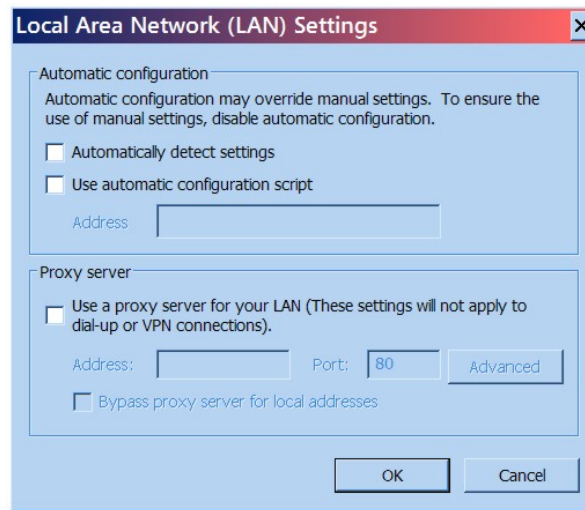


Figure 58: LAN settings – Internet Explorer

4. Uncheck the checkbox next to Use a proxy server for your LAN.
5. Click **OK**.
6. Close Internet Explorer and re-launch it to make sure the changes take effect.

Appendix

B

Home networking

This information about networking is provided for home users.

You can connect multiple home computers to a single Internet connection. When connected to a properly aligned antenna assembly, a satellite modem can provide satellite connectivity for multiple computers by using an Ethernet or wireless LAN. Once the satellite modem and network are installed, every computer on the LAN can access the Internet through the satellite signal.



Note: For home networking you need additional equipment that is not included with the satellite modem. For network setup, support and configuration, contact the network hardware manufacturer and/or operating system software developer. Hughes is not responsible for home network installation, management, or troubleshooting. Simultaneous use of high bandwidth applications by multiple users may result in speed degradation. Speed and uninterrupted use of service are not guaranteed. Actual speeds may vary.

If you connect your satellite modem to a LAN, you must:

- Install and configure an Ethernet hub, modem, or wireless network base station.
- Install and configure a NIC in each computer to be connected. The NICs must be set to auto-negotiate. Refer to the manufacturer's installation instructions.
- For wired networks, connect the computers to the Ethernet hub with Ethernet cable.



Note: You must complete these instructions for *each* computer or device that is to access the Internet over the LAN.

Wireless network basics

A home or small office wireless network is typically easy to install because it connects to a wireless base station through radio waves rather than cables. A wireless NIC must be installed in each computer. Wireless base stations and NICs are available at most computer supply stores. Many laptop computers have built-in wireless capability.

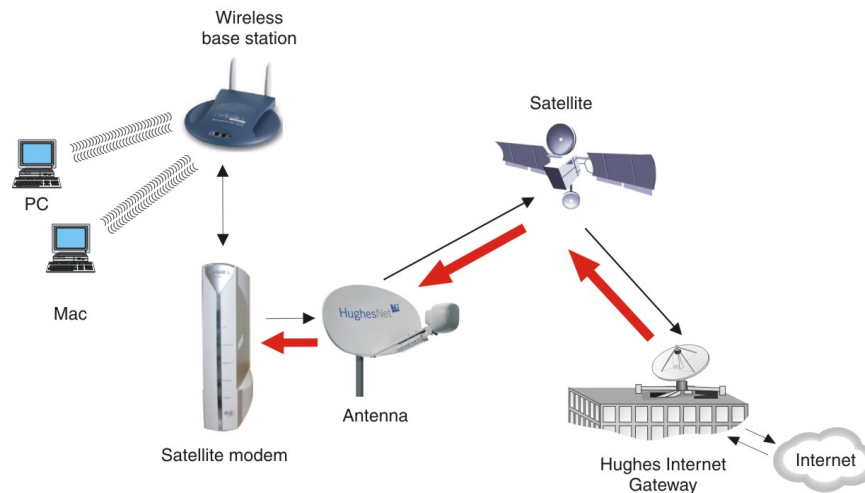


Figure 59: Satellite modem in a wireless home network

A wireless base station is particularly advantageous when using laptops because you can easily take the laptop from room to room without any need to disconnect and reconnect any cables.

Multiple computers on a LAN must be configured to communicate with the base station. Refer to the base station documentation for instructions.

Base station broadcasting ranges vary. When you purchase a base station, make sure its range suits your needs.

Ethernet (wired) network basics

You can purchase an Ethernet hub, cables, and NICs at most computer supply stores. This equipment is relatively inexpensive and easy to install. When selecting an Ethernet hub, consider the number of computers you intend to connect to the network and how fast you need or want the data connection to be. If the users on your network share large files, you may need a faster hub, or a switch, or a modem.

The Ethernet NIC must support the auto-negotiate feature, which enables compatibility and interoperability among Ethernet devices.

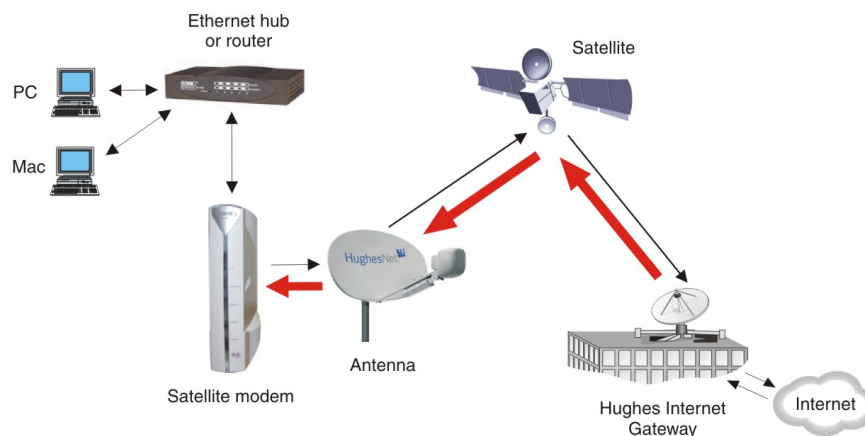


Figure 60: Satellite modem in a wired Ethernet home network

Use at least a Category 5 Ethernet cable. You may consider using Category 5e to accommodate future enhancements. Ethernet cable with RJ-45 connectors at each end is usually available in lengths up to 50 ft. If you need a longer cable, you must terminate the cable using a kit that can be purchased at an electronics, computer, or home supply store. If you feel unsure about installing Ethernet cable, contact a professional installer.

Run Ethernet cables behind walls whenever possible or secure them to floor baseboards and doorway frames. Do not use staples to secure Ethernet cable.

Leave enough slack in the cable to accommodate possible future repair splices or moving of equipment.

Appendix

C

Standards compliance

The HN9200 satellite modem has been certified to comply with the standards listed in [Table 9: HN9200 standards compliance](#) on page 73. Additional information follows the table.

Table 9: HN9200 standards compliance

Category	Standard
Safety	UL60950-1 for the USA
	CAN/CSA-C22.2 No. 60950-1 for Canada
	EN60950-1 for the EU
Electromagnetic Interference (EMI)	FCC Part 15 for the USA
	ICES-003 for Canada
Electromagnetic Compatibility (EMC)	EN 301 489-1 and EN 301 489-12 for the EU
Telecommunications	TIA IPoS

Safety – Operating conditions for Canada

In addition to the warnings and safety guidelines listed in this document, the following operating conditions apply to the HN9200 when used in Canada:

The Canadian Department of Communications label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective operational and safety requirements. The Department does not guarantee that the equipment will operate to the user's satisfaction.

Before installing the equipment, users should make sure they are permitted to connect to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs in Canada

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.



Users should not attempt to make electrical ground connections themselves, but should contact the appropriate electrical inspection authority, or electrician, as appropriate.

Electromagnetic interference (EMI)

This product conforms to EMI standards of the U.S. FCC, Canadian CSA, and European Union (EU), as detailed in the following sections. The installation and maintenance procedures in the installation guide must be followed to ensure compliance with these regulations.

NOTICE

This is a class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

FCC Part 15

This section applies to the HN9200 satellite modem.

Standards to which conformity is declared: FCC Part 15

The modem complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Responsible party's name: Hughes Network System, LLC

Address: 11717 Exploration Lane, Germantown, MD 20876

Telephone: 1 (866) 347-3292

Trade name: HUGHES

Type of equipment: Two-way Hughes system

Model number: HN9200 (1502573-xxxx)

Canada Class B warning

The two-way Hughes system (HN9200) complies with the Canadian ICES-003, Class B standard.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

R&TTE (EU)

This product is within the scope of the EU Radio Equipment and Telecommunications Terminal Equipment (R&TTE) Directive.

Electromagnetic compatibility (EMC)

This product conforms to the EMC standards of the European Union (EU). The installation and maintenance procedures in the installation guide must be followed to ensure compliance with these regulations.

NOTICE

This is a class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

R&TTE (EU)

This product is within the scope of the EU Radio Equipment and Telecommunications Terminal Equipment (R&TTE) Directive.

IPoS

The Hughes HN9200 system is compliant with IPoS, ratified by the Telecommunications Industry Association (TIA-1008), first published in October 2003 and issued as Revision A in May 2006.



Figure 61: IPoS symbol

Appendix

D

Acronyms used in this guide

AC	Alternating current
CAN	Canada
CD	Compact disc
CSA	Canadian Standards Association
DAPT	DiSeqC antenna pointing tool
DC	Direct current
DHCP	Dynamic Host Configuration Protocol
DNS	Domain Name System
EMC	Electromagnetic compatibility
EMI	Electromagnetic Interference
EU	European Union
FCC	Federal Communications Commission
HTTP	HyperText Transfer Protocol
ICES	Interference-Causing Equipment Standard
ID	Identifier
IDU	Indoor unit (satellite modem)
IP	Internet Protocol
IPSec	Internet Protocol security
ISP	Internet service provider
ISRP	A Hughes proprietary routing protocol
LAN	Local area network
LED	Light emitting diode
LLC	Limited Liability Company
NAT	Network address translation
NetBEUI	Extended User Interface (network transfer protocol)
NIC	Network interface card
NOC	(Hughes) Network Operations Center
PEP	Performance enhancing proxy
RF	Radio frequency

RTT	Round trip time
R&TTE	Radio Equipment and Telecommunications Terminal Equipment
SGWFC	Satellite gateway flow control
SQF	Signal quality factor
TCP	Transmission Control Protocol
UDP	User Datagram Protocol
UL	Underwriters Laboratory
URL	Uniform resource locator
VAC	Volts, alternating current
VAR	Value added reseller
VDC	Volts, alternating current
VSAT	Very small aperture terminal
ZIP	Zone improvement plan (U.S. Postal Service)

Index

A

Address, See IP address
Address for opening the System Control Center 8
Audience for this guide 2

B

Browser Optimization Utility 10
Browser requirements 4
Browsing speed 24
Button links on System Control Center pages 11

C

Canada Class B warning 74
Canadian safety standards 73
Care of the modem 5
Checking download allowance status 24
Class B warning (Canada) 74
Color of System Status button 12
Compliance with standards 73
Computer IP address 53
Computer requirements 4
Computer settings 53, 60, 67
 DHCP settings 53
 proxy settings 67
 static IP address 60
Confirming 35, 36, 37, 38, 39, 41
 Internet connectivity 41
 modem is commissioned 35
 NOC connectivity 39
 receive signal 36
 TCP Acceleration 37
 transmit signal 36
 Web Acceleration 38
Contact information xiii

D

Detailed Problem Statistics page 49
DHCP settings 53, 54
DNS setting 41
Download allowance status 13, 24
Download limit 18, 24
Download speed 24

E

EMC standards 75
EMI standards 74
Environment 3
Ethernet network, basic information 70

F

Fair Access Policy 18
 See also Download limit
FCC Part 15 74
Firewall 42
Front panel LEDs 28

H

Help page (System Control Center) 25
Home networking 69

I

IP address 23, 53, 60
 modem 53
 private IP address 53
 public IP address 53
 static IP address 60
IPoS 75
IPSec 13

L

LAN port 3, 29
 LEDs 29
LEDs 27, 28, 29, 43, 48
 front panel 28
 LAN port 29
 purpose 27
 using for troubleshooting 29, 43, 48
Links (System Control Center) 9, 11, 13

M

Modem IP address 53

N

Network address translation 53
Networking, home 69
Networking requirements 4, 69, 70
 Ethernet (wired) networks 70
 wireless networks 69
Network interface card 69

O

Opening System Control Center 8

P

Parameters on System Control Center screens 14

Index

Port forwarding 23
Position for operating modem 3
Power cycling 32
Power outlet 52
Power supply 52
Private IP address 53
Problem Troubleshooting page 33
Proxy settings 67

R

Receive status 19
Reception Information page 18
Red flag indicators 15
Repairs in Canada 73
Rescue switch 32
Restart modem 10
RxCodes 19

S

Safety standards, Canadian 73
Safety symbols xi
Satellite modem overview 1
Scope of this guide 2
Shortcut to the System Control Center 8
Signal strength 51
Slow speed 49
Specifications 3
Standards compliance 73
Static IP address 60
Statistics, viewing 49
Support xiii
System Control Center 7, 8, 12, 16, 18, 20, 21
 opening 8

System Control Center (*continued*)
 Reception Information page 18
 Shortcut for System Control Center 8
 System Information page 21
 System Status button colors 12
 System Status page 16
 Transmission Information page 20
System Information page 21
System Status button colors 12
System Status page 16

T

Tests and testing, See Troubleshooting
Transmission Information page 20
Transmit status 20
Troubleshooting 31, 32, 33, 34, 42, 43, 46, 48, 49
 cannot access System Control Center 42
 cannot access the Internet 34
 hot cable connector 49
 Problem Troubleshooting page 33
 problem with a connected device 46
 reference diagram 32
 using front panel LEDs 43
 using LAN port LEDs 48
TxCodes 20

V

Viruses 42

W

Weather and signal strength 51
Wireless network, basic information 69