



QUALCOMM Globalstar Data User Guide



This guide is based on the production version of the QUALCOMM Globalstar GSP-1600 Tri-Mode Phone. Software changes may have occurred after this printing.

QUALCOMM reserves the right to make changes in technical and product specifications without prior notice.

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Cautions and Warnings



Caution

Avoid exposing QUALCOMM Globalstar Tri-Mode Phones and accessories to rain or other liquids. If the phone gets wet, turn the power off immediately and remove the battery pack.



Note

When using a QUALCOMM Globalstar Tri-Mode Phone for Globalstar data (packet or asynchronous), observe the same safety guidelines that apply when making voice calls. For complete details, see the “Cautions and Warnings” and “Safety Information” sections of the *QUALCOMM Globalstar GSP-1600 Tri-Mode Phone User Guide* (document number 80-98153-1).

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What Is QUALCOMM Globalstar Data Service?

QUALCOMM Globalstar data service allows your QUALCOMM Globalstar GSP-1600 Tri-Mode phone to serve as a wireless modem, sending data from or receiving data to a computer such as a laptop or Palm handheld. QUALCOMM Globalstar data service handles both *packet* and *asynchronous* data.

What Does Packet Data Let Me Do?

QUALCOMM Globalstar data service lets you access the Internet or other TCP/IP packet-switched networks.

Depending on your preferences and service availability, your packet data connection can use either the Globalstar Satellite Communications System, or a terrestrial digital cellular network.

Once you have connected, you can use familiar software applications such as Eudora, Netscape Navigator, or Microsoft Internet Explorer for anything you would normally do through your network provider or Internet Service Provider (ISP). For example, you could

- Browse the Internet
- Access e-mail
- Transmit information
- Use telnet (for example to connect with host applications at work)
- Transfer files using FTP (File Transfer Protocol)

And you can do all of these wherever Globalstar Data Service is available, at over-the-air data rates of up to 9600 bits per second (bps) for Globalstar service or up to 14400 bps for cellular service, with no additional modem or dedicated telephone circuits required.

What Does Asynchronous Data Let Me Do?

QUALCOMM Globalstar data service lets you connect asynchronously to another modem, using the Globalstar Satellite Communications System only, at over-the-air data rates of up to 9600 bits per second (bps). For example, you could dial into an electronic Bulletin Board System (BBS) using HyperTerminal. Or you could dial into a corporate intranet behind a firewall (in this case, you would be receiving packet data over your asynchronous connection).



Tip

QUALCOMM Globalstar packet data service data has a lower overhead and faster throughput than asynchronous data. If you do not specifically need asynchronous data (such as for a BBS connection), use packet data instead.

How Does It Work?

Here's a quick overview of how Globalstar data service works.

Cable

- Connect your QUALCOMM Globalstar Tri-Mode Phone to the computer or Palm handheld, using a QUALCOMM serial data cable and any optional accessories.

Configure

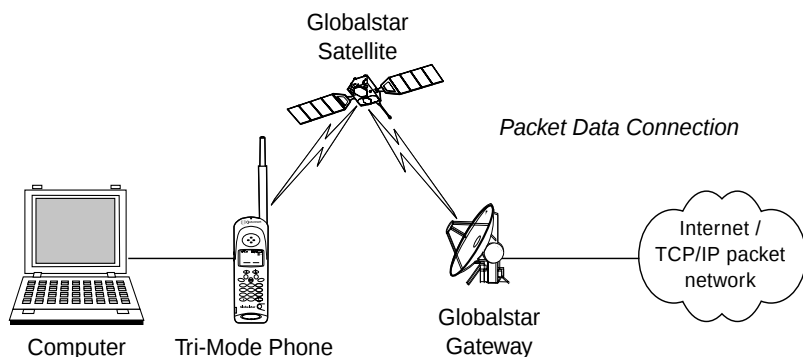
- Configure your computer or Palm handheld organizer to use Globalstar data service (you need to do this only once for packet data, and once for asynchronous data).

Connect

- Click a data connection icon or menu on your computer.
- The QUALCOMM Globalstar phone establishes a data connection to the Globalstar Satellite Communications System or, for packet data only, to a digital cellular network, using Point-to-Point Protocol (PPP).

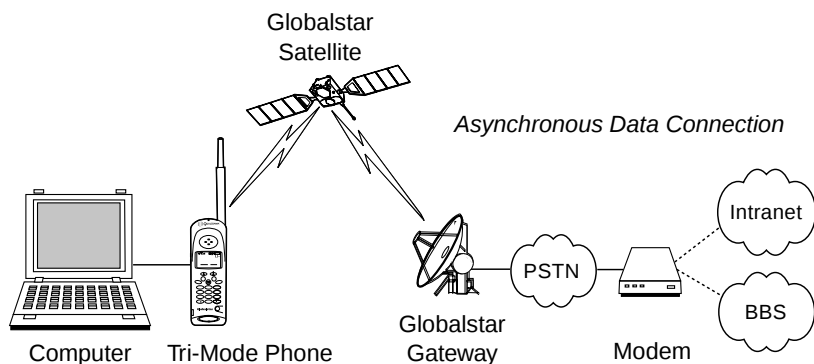
Cruise a packet-switched network (packet data)

- Open the application you want to use, for example an Internet browser where you type in a Web address.
- Your computer or Palm handheld sends data to the QUALCOMM Globalstar phone, which transmits them either to a satellite and Gateway in the Globalstar Satellite Communications System, or to a digital cellular network.
- For a Globalstar packet data call, packets are routed to and from your network service provider through the Globalstar Satellite System, and a router in the Globalstar Gateway connects to the Internet, as shown in the following illustration.



Or contact a modem (asynchronous data)

- Your computer or Palm handheld sends asynchronous data to the QUALCOMM Globalstar phone, which transmits them to a satellite and Gateway in the Globalstar Satellite Communications System.
- The Gateway routes your call through the Public Switched Telephone Network (PSTN) to the destination modem, as shown in the following illustration.



What Do I Need to Use Data Service?

To use data service, you need:

- A QUALCOMM Globalstar GSP-1600 Tri-Mode phone with mode preferences set for data (for information, see "Using Your Tri-Mode Phone for Data" on page 7)
- A computer or Palm handheld with installed communications software for PPP and/or asynchronous data
- QUALCOMM serial data cable (included, along with this manual, in the QUALCOMM Globalstar Packet Data Kit: For the Tri-Mode Portable Satellite Phone)
- Optional cables or accessories as needed, to connect the QUALCOMM data cable to your computer (using a TIA/EIA-574 DTE serial interface)

Compatible Computer Systems

You can use Globalstar data service with the following computers and operating systems (OS); for cabling details, see "Cables and Accessories for the Tri-Mode Phone" on page 4:

- **IBM-compatible PCs**
 - ❑ Microsoft Windows 95, 98, NT 4.0, 2000
 - ❑ One available serial port (for connecting the phone)
 - ❑ For setup instructions, see "Windows Computers" on page 11

- **Apple Macintosh computers**
 - MacOS 7.6 or higher
 - For setup instructions, see “Macintosh Computers” on page 57
- **Palm handheld organizers**
 - Palm OS
 - Palm handheld organizer with a serial port
 - For setup instructions, see “Palm Handhelds” on page 77
- **UNIX Computers**
 - Red Hat Linux
 - Solaris UNIX
 - For setup instructions, see “UNIX Computers” on page 89

Positioning Your Computer

You have several options for positioning a computer to use Globalstar data service:

- In a vehicle, use a QUALCOMM Globalstar Hands-Free Car Kit (and serial cable) to connect a computer to a Tri-Mode Phone.
- For Globalstar satellite connections, take a portable computer (laptop or Palm handheld) outdoors and connect it near the Tri-Mode Phone, for example on a picnic table.
- For Globalstar satellite connections, connect an optional extension cable (see “Commercially Available Accessories” on page 109) between a computer inside a building and the Tri-Mode Phone outdoors.
- For digital cellular packet data connections, you may be able to make calls from inside a building, if there is a strong cellular signal.

Cables and Accessories for the Tri-Mode Phone

Cables or accessories connect your QUALCOMM Globalstar Tri-Mode Phone to your computer. They vary depending on the computer type:

Computer	Cables and accessories needed for the Tri-Mode Phone
IBM-compatible PC (Windows)	■ QUALCOMM serial data cable (included in the QUALCOMM Globalstar Packet Data Kit) ■ optional USB-to-serial adapter, if your PC uses USB (Universal Serial Bus) connectors ■ optional extension cable, if desired

Computer	Cables and accessories needed for the Tri-Mode Phone
Apple Macintosh	■ QUALCOMM serial data cable (included in kit) ■ optional extension cable, if desired For systems with USB (Universal Serial Bus) ports: ■ USB adapter with software For non-USB systems with mini-DIN 8 ports: ■ Macintosh modem cable ■ adapter (female 25-pin to male 9-pin)
Palm handheld	■ QUALCOMM serial data cable (included in kit) ■ Palm HotSync cable (or appropriate Palm cable) ■ null modem adapter, male 9-pin on both ends ■ optional extension cable, if desired
Red Hat Linux, Solaris UNIX	■ QUALCOMM serial data cable (included in kit) ■ optional extension cable, if desired
QUALCOMM Globalstar Hands-Free Car Kit	■ serial cable with a male 9-pin connector on one end and a female 9-pin connector on the other ■ other cables or adapters as listed above for your specific computer (for setup instructions, see “QUALCOMM Globalstar Hands-Free Car Kit” on page 107)



Note

For more information about optional accessories, see “Commercially Available Accessories” on page 109.

Working with Your Service Provider

When you use Globalstar data service to access the Internet, your Internet service is supplied by one or both of the following:

- For Globalstar Satellite connections — a network provider or Internet Service Provider (ISP), through the Globalstar Gateway
- For cellular connections — your cellular phone service provider (SP)

Check with your service provider(s) for details about their service features.

Using Your Tri-Mode Phone for Data

For data connections (packet or asynchronous), your QUALCOMM Globalstar GSP-1600 Tri-Mode Phone works much as it would for a voice call.



Note

For complete details about how to use your QUALCOMM Globalstar Tri-Mode Phone, see the *QUALCOMM Globalstar GSP-1600 Tri-Mode Phone User Guide* (document number 80-98153-2).

General Tips

Here are some general tips for using your Tri-Mode Phone for data:

- Make sure the Tri-Mode Phone battery is charged and properly installed.
- Never hold the Tri-Mode Phone by the Globalstar Satellite Antenna.

Tips for Globalstar Satellite Service

Here are some tips for using your Tri-Mode Phone for Globalstar satellite service:

- Position the Tri-Mode Phone *outdoors* where its Globalstar Satellite Antenna has an unimpeded view of the sky (or mount it in a vehicle using a QUALCOMM Globalstar Hands-Free Car Kit).
- Make sure that tall obstacles, such as buildings and trees, do not block sky (satellite) access.
- Extend the Globalstar Satellite Antenna to point straight up to the sky.
- Lay the Tri-Mode Phone on its side on a convenient surface such as a table for hands-free operation.
- Remember, for Globalstar satellite service the Tri-Mode Phone will not work inside a building, nor will it work in a vehicle unless you are using a car kit.

Setting Mode Preferences for Data

Your Tri-Mode Phone can operate in three different modes:

- Globalstar satellite mode — supports packet and asynchronous data
- Digital cellular mode — supports packet data only
- Analog cellular mode — does not support data

To make a Globalstar satellite or digital cellular data connection, an appropriate mode preference must be set on your Tri-Mode Phone. The mode preference tells the phone what type of service it can look for (Globalstar satellite, digital, or analog), in order of priority.



Tip

The calling mode preference has probably been preset on your phone. You can change the Auto Mode preferences or manually override them for a particular call.

For example, your phone could be set to look for Globalstar satellite service only. In that case, if you try to make a digital cellular packet data connection, your computer will report “No dial tone,” and your Tri-Mode Phone screen will say “Check mode preferences” or “Mode mismatch.”

Auto Mode Selection

Auto Mode sets mode preferences (Globalstar satellite, digital, or analog) that the Tri-Mode Phone uses automatically to look for service, in order of priority.

For more information, see “Auto Mode” in your *QUALCOMM Globalstar GSP-1600 Tri-Mode Phone User Guide*.

To set your Auto Mode selection

1. Under **menu**, select **System**, then **AutoMode**.
2. Select **Data** to select modes for data connections.

or

Select **Voice** to select modes for voice calls.

Make sure “Analog only” is not selected under **menu > System > AutoMode > Voice > Cell Pref**. Data service is not available for analog cellular connections.

For asynchronous connections, make sure “Cell Only” is not selected under **menu > System > AutoMode > Data**. Asynchronous data service is not available for cellular connections.



Note

For data service, the phone mode set under Data must be compatible with the mode set under Voice. For example, if your Data preference is set to “GStar Only,” but your Voice preference is set to “Cell Only,” you will not be able to make a data connection.

Manual Mode Selection

Manual Mode manually selects the mode that the Tri-Mode Phone uses to look for service (Globalstar satellite, digital, analog, or Auto Mode). A manual mode selection remains in effect until you turn the phone off. When you turn on the phone again, it uses the Auto Mode setting.

For more information, see “Manual Mode” in your *QUALCOMM Globalstar GSP-1600 Tri-Mode Phone User Guide*.

To set a Manual Mode selection

1. Under **menu**, select **System**, then **Manual Mode**.
2. Select **AutoMode**, **Globalstar**, or **Digital**.

For data service, make sure that “Analog” is not selected. Data service is not available for analog cellular connections.

Viewing Data Call Information

Your Tri-Mode Phone can display information about your data connections, including the number of bytes received or transmitted and the duration of calls.

To display data call information

1. Under **menu**, select **Call Info**, then **Data Calls**.
2. Scroll to view the number of bytes received or transmitted and duration of the calls.

This chapter tells how to configure a computer running Windows 95, 98, NT, or 2000 to use Globalstar data service. To do this, you physically connect the computer to your QUALCOMM Globalstar Tri-Mode Phone, then, in most cases, configure a “modem” driver and a new Dial-Up Networking connection.

Your QUALCOMM Globalstar Packet Data Kit CD contains a modem installation wizard, which can help you quickly configure both the driver and Dial-Up Networking.



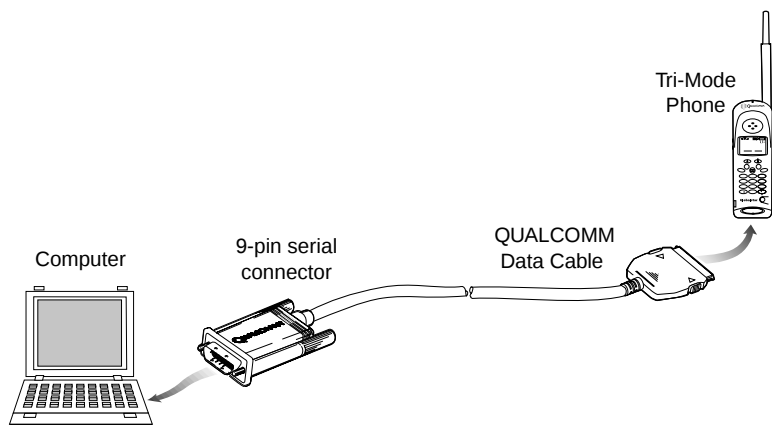
Note

Physically connecting hardware components is similar for all Windows versions. However, modem/networking configuration differs significantly for Windows 2000. The wizard on your CD handles all versions; see “Quick Start Installation” on page 14.

Connecting Windows Components

To use Globalstar data service with Windows, you connect the following hardware components:

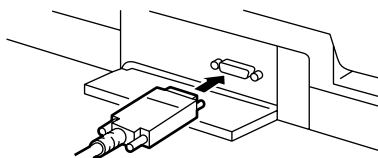
- A PC or laptop running Microsoft Windows
- QUALCOMM serial data cable (included in the QUALCOMM Globalstar Packet Data Kit)
- QUALCOMM Globalstar GSP-1600 Tri-Mode Phone



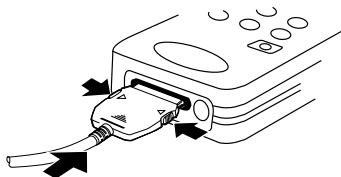
718AA_00

To connect a Windows PC to the Tri-Mode Phone

1. Turn off the power on your QUALCOMM Globalstar Tri-Mode Phone. You can leave your computer turned on.
2. Attach the QUALCOMM data cable's 9-pin serial connector to a serial COM port (RS-232) on your PC, then manually tighten the screws to hold it in place.

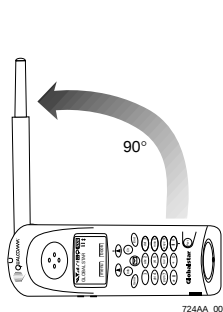


3. Holding the other end of the QUALCOMM data cable, press both buttons on the side of the connector, then insert it into your Tri-Mode Phone with the arrow facing up (toward the phone's keypad). The connector should snap into place for a secure fit.



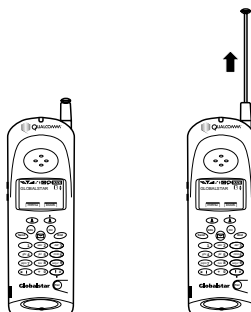
723AA_00

4. Turn on your Tri-Mode Phone.
5. Rotate or fully extend the appropriate antenna for the type of connection you wish to make (Globalstar satellite or cellular).



724AA_00

Globalstar Satellite Antenna



Cellular Antenna



Note

If you cannot obtain a signal with the Globalstar Satellite Antenna in a 90° position, try rotating it further until you feel it click into place.

Configuring Your Windows PC

Configuration differs depending on the type of Globalstar data service you want to use: packet data, asynchronous connection with PPP data, or asynchronous data only, as shown in the following table.

What you need to configure for Windows

Type of Globalstar data service:	Modem driver required?	Dial-Up Networking Connection required?
Packet data connections Example: browsing the Internet or sending email	Yes A modem driver lets your QUALCOMM Globalstar Tri-Mode Phone act as a wireless modem. <i>Go to: page 14</i>	Yes Dial-Up Networking lets you access the Internet using Point-to-Point Protocol (PPP). <i>Go to: page 14</i>
Asynchronous connections that access packet (PPP) data Example: dialing into a modem behind a firewall, then accessing a corporate intranet	Yes <i>Windows 95/98:</i> You can use the same modem driver you configure for packet data. <i>Go to: page 14</i> <i>Windows NT/2000:</i> You must set up a second modem driver with a different AT command. <i>Go to: page 14</i>	Yes You must configure a separate Dial-Up Networking connection for an asynchronous connection—if you will use it to access packet data. <i>Go to: page 14</i>
Asynchronous data connections only Example: dialing into a BBS	No — If you use HyperTerminal or a similar program and just connect using a serial port (e.g., COM1). <i>Go to: page 54</i> Yes — If you use HyperTerminal or a similar program and connect by selecting a modem driver. <i>See modem driver details above.</i>	No Connect using HyperTerminal or a similar program, without using Dial-Up Networking. <i>Go to: page 54</i>



Tip

The easiest way to configure a modem driver and Dial-Up Networking connection is to use the “Quick Start Installation” on page 14, where a wizard does most of it for you.



Note

To configure a Windows NT or 2000 PC to use Globalstar data service, you must have “Admin” rights for that computer.

Quick Start Installation

Your packet data kit CD contains a Quick Start Wizard, which can help you configure your computer to use a Tri-Mode Phone as a wireless modem. It can also set up a Dial-Up Networking connection for you.



Note

To manually configure your computer without using the wizard from the kit's CD, see “Manually Configuring Windows 95, 98, and NT” on page 14 or “Manually Configuring Windows 2000” on page 33.

Running the Quick Start Wizard

1. Before you begin, make sure the following are installed on your computer: TCP/IP protocol and Dial-Up Networking for 95/98 or Remote Access Service (RAS) for NT/2000. (For help, see your Windows documentation.)
2. Insert the kit's CD into your computer's CD-ROM drive.
3. From the Start menu, run **D:\lgstarmi.exe** (substitute another drive letter for D, if necessary).
4. Follow screen instructions and prompts in the modem installation wizard.
5. For Windows, the CD contains a **gstardata.inf** modem file to simplify setting up a QUALCOMM Globalstar Phone Modem. You will select a driver from this file during modem installation.

Manually Configuring Windows 95, 98, and NT



Tip

Your packet data kit CD contains a Quick Start Wizard, which can help you configure your computer to use a Tri-Mode Phone as a wireless modem. It can also set up a Dial-Up Networking connection for you. ***If you use the kit's wizard, you do not have to read this section.*** For details, see “Quick Start Installation” on page 14.

This section applies to Windows 95, 98, and NT. It shows how to manually configure a “modem” driver and a Dial-Up Networking connection. You need to do this if you want to make:

- Packet data connections (for example: browse the Internet)
- Asynchronous connections that access packet data (for example: dial into a modem behind a firewall, then access a corporate intranet)

The following table shows a quick overview of the process in each case.

Overview: Configuring Windows 95/98/NT

For:	Do this:
Packet data	1. Set up a new modem driver. <i>Go to: "Setting Up a New Modem Driver (95, 98, NT)" on page 15</i> 2. Configure a new Dial-Up Networking connection. <i>Go to: "Setting Up Dial-Up Networking (95, 98, NT)" on page 22</i>
Asynchronous connection for PPP data (if desired)	3. Use the same modem driver as for packet data. Windows NT requires a second modem driver. <i>Go to: "Setting Up a New Modem Driver (95, 98, NT)" on page 15</i> 4. Configure a second Dial-Up Networking connection. <i>Go to: "Making a New Connection" on page 23</i>



Note

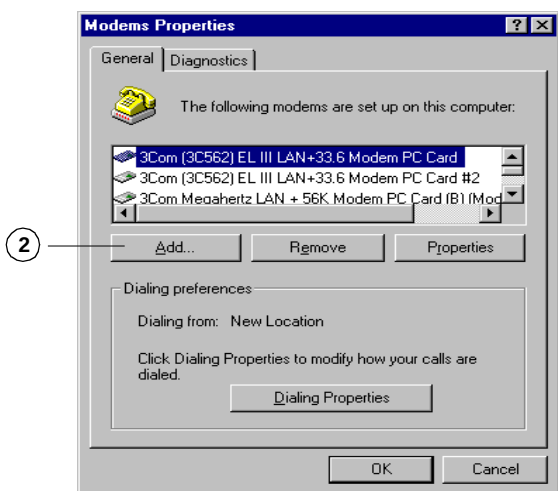
If you are using Windows 2000, go to "Manually Configuring Windows 2000" on page 33.

Sample screens in this section use Windows 98, but only minor differences exist between versions.

Setting Up a New Modem Driver (95, 98, NT)

The procedures in this section set up a modem driver so your QUALCOMM Globalstar Tri-Mode Phone can act as a wireless modem.

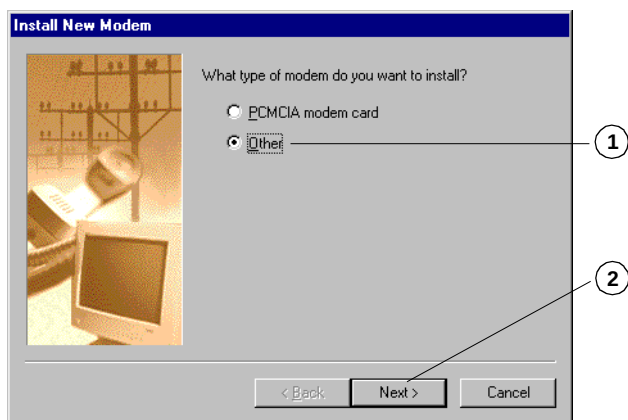
1. Go to the Windows Control Panel, then double-click **Modems**.
2. In the **Modem Properties** dialog, click **Add** to add your new "modem."



Windows' **Install New Modem** wizard appears. Follow the procedures below to enter appropriate information in the wizard dialogs.

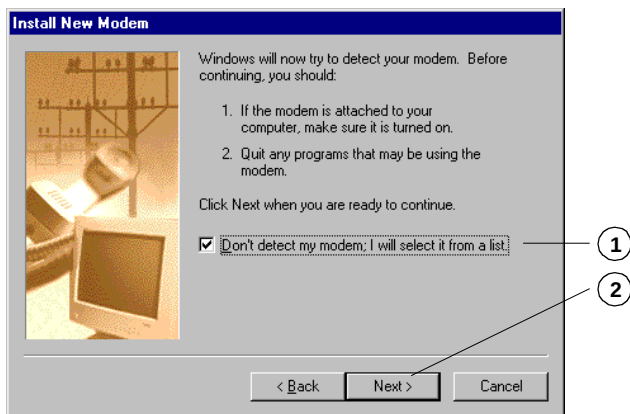
Selecting the Type of Modem

1. In the **Install new Modem** dialog, select "Other."
2. Click **Next**.



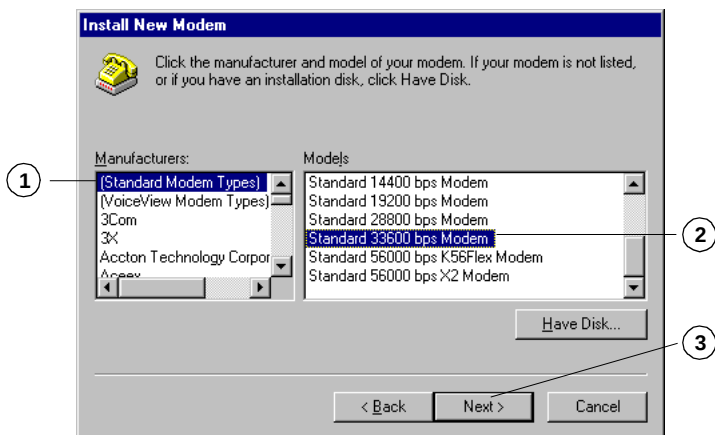
Telling Windows Not to Auto-Detect the Modem

1. Select "Don't detect my modem; I will select it from a list."
Since your QUALCOMM Globalstar Tri-Mode Phone acts as a wireless modem, there is no physical modem to detect.
2. Click **Next**.



Selecting a Standard Modem

1. From the “Manufacturers:” list, select “(Standard Modem Types).”
2. From the “Models” list, select “Standard 33600 bps Modem.”
or
If you are using Windows NT, select “Standard 19200 bps Modem.”
(Windows NT does not include modem drivers for speeds above 28800.)
3. Click **Next**.



Selecting the COM Port

1. Select the Communications (COM) Port to which you have connected the QUALCOMM data cable. This must be an RS-232-capable serial COM port (COM1 is the standard).

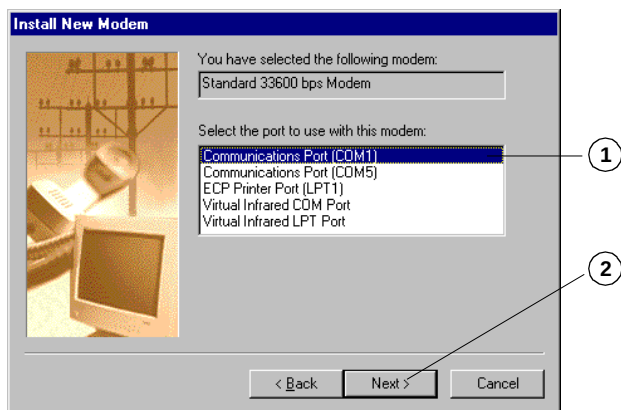


Caution

Windows NT allows only one modem to be assigned to a given COM port. If you connect your Globalstar phone on a port where a modem has already been installed, Windows NT deletes the setting for the previous modem.

If you need to install two modems under Windows NT, you can either install them on two different COM ports or uninstall the first modem and install the second on the same port.

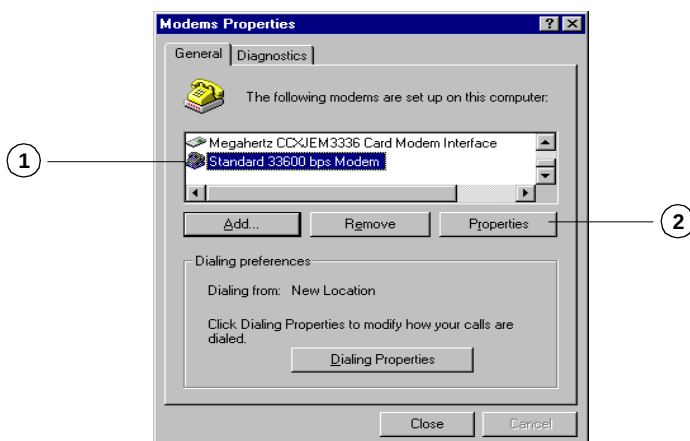
2. Click **Next**.



3. When the wizard says, “Your modem has been set up successfully,” click **Finish** to complete the modem installation.

Setting Modem Properties

1. In the **Modems Properties** dialog, on the **General** tab, select the modem you previously selected (“Standard 33600 bps Modem” or “Standard 19200 bps Modem”).
2. Click **Properties**.



Setting the Maximum Speed

1. In the **Standard [33600 or 19200 bps] Modem Properties** dialog, make sure the COM port is correct for your QUALCOMM data cable connection.
2. Set “Maximum Speed” to 38400 bps.

The maximum speed for the modem must match the baud rate on your Tri-Mode Phone (38400 bps is the phone’s default). If the speeds are not the same, the computer cannot communicate with the Tri-Mode Phone.



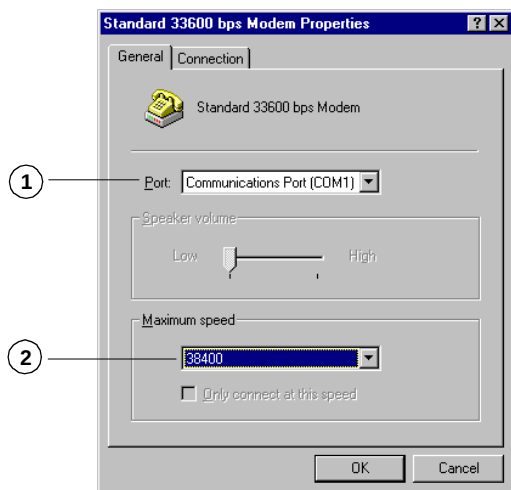
Tip

You can check or change the baud rate on your Tri-Mode Phone by selecting **menu**, then selecting **Features > Data > Baud Rate**. If the baud rate on your Tri-Mode Phone is not set to 38400 bps, be sure to change the modem’s maximum speed so that the two speeds match.



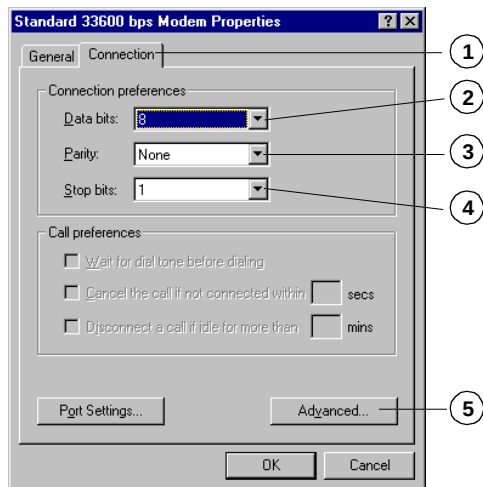
Note

38400 bps is the speed at which the Tri-Mode Phone communicates with your computer, not the speed at which it communicates with the Gateway.



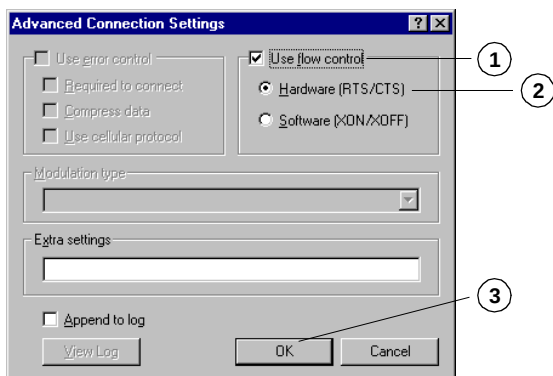
Configuring the Connection

1. In the **Standard [33600 or 19200 bps] Modem Properties** dialog, click the **Connection** tab.
2. Set “Data bits” to “8.”
3. Set “Parity” to “None.”
4. Set “Stop bits” to “1.”
5. Click **Advanced**.



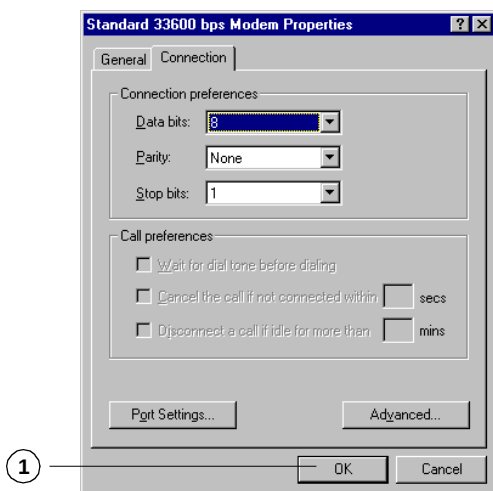
Configuring Flow Control and Hardware Settings

1. In the **Advanced Connection Settings** dialog, select “Use flow control.”
2. Select “Hardware (RTS/CTS).”
3. Click **OK**.



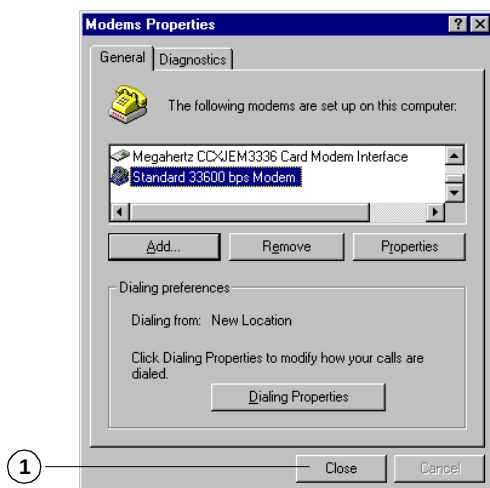
Closing the Connection Tab

1. In the **Standard [33600 or 19200 bps] Modem Properties** dialog, click **OK**.



Completing Modem Setup

1. In the **Modem Properties** dialog, click **Close** to complete your modem setup.



You have finished setting up the modem driver for Windows 95, 98, or NT. Now you must set up Dial-Up Networking.

Setting Up Dial-Up Networking (95, 98, NT)

The procedures in this section configure Dial-Up Networking for:

- Packet data connections (for example, browse the Internet)
- Asynchronous connections that access packet data (for example, dial into a modem behind a firewall, then access a corporate intranet).

To make strictly asynchronous connections using HyperTerminal, you do not need to set up Dial-Up Networking; see “Making a Data Connection” on page 53 instead.



Note

This section applies to Windows 95, 98, and NT. For Windows 2000, do not use this section. Instead, go to “Setting Up a New Connection (Windows 2000)” on page 41.

Making a New Connection

The following procedures create a new Dial-Up Networking Connection, represented by an icon on your Windows desktop.

You must create separate icons for packet data and asynchronous data, if you want to use both types of connections for PPP data. “At a Glance” tables in the procedures show the key settings that differ for packet and asynchronous connections (for example, phone numbers).



Tip

Create a new connection for packet data first. Then, if you also want an asynchronous connection for PPP data, copy your packet data connection icon (right-click, copy), paste it (right-click, paste), and rename it. Change only the properties shown in the “At a Glance” tables.

1. On your Windows desktop, double-click **My Computer**.
2. In the **My Computer** window, double-click **Dial-Up Networking**.
3. If a **Dial-Up Networking** window containing a **Make New Connection** icon appears, Dial-Up Networking is already installed on your computer; go to Step 4.

If a **Dial-Up Networking** wizard containing an **Install** button appears, Dial-Up Networking is not installed. Click **Install**, then follow the wizard dialogs to install it. You may need your Windows installation disks. When installation is complete, go to Step 4.

4. In the **Dial-Up Networking** window, double-click the **Make New Connection** icon.

or

If you are using Windows NT, double-click **New**.



Configuring the New Connection

1. In the **Make New Connection** dialog, in the “Type a name for the computer you are dialing:” field, type a name for your connection. In the examples that follow, the connection is called “GS Packet Data.” For an asynchronous connection, you might call it “GS Async Data.”



Note

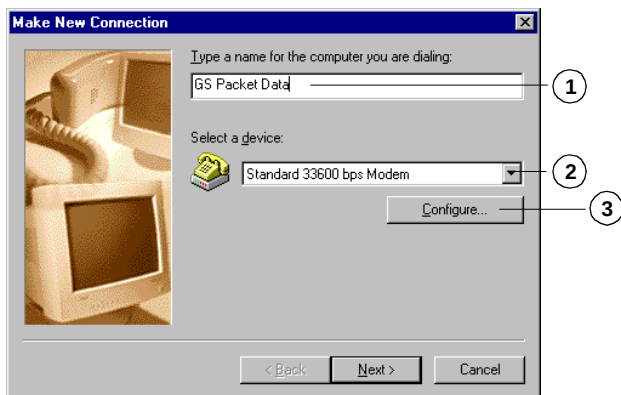
The wizard on the kit’s CD creates a packet connection called “GSP-1600/1620 Packet Data” or an asynchronous connection called “GSP-1600/1620 Async Data.”



Note

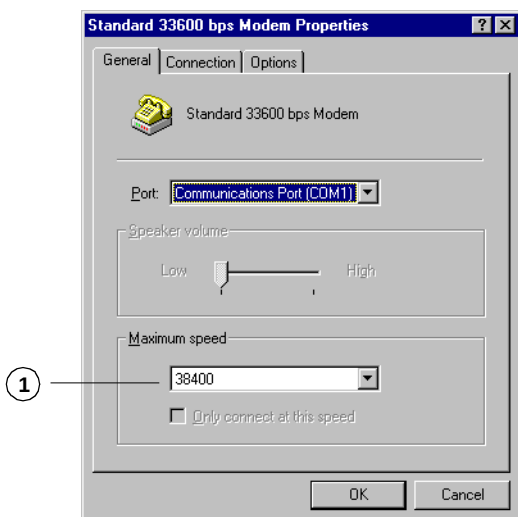
On Windows NT, the **Make New Connection** dialog is called **New Phonebook Entry**.

2. In the “Select a device” drop-down list, select the modem you previously installed (“Standard 33600 bps Modem” or “Standard 19200 bps Modem”).
3. Click **Configure**.



Configuring Modem Properties

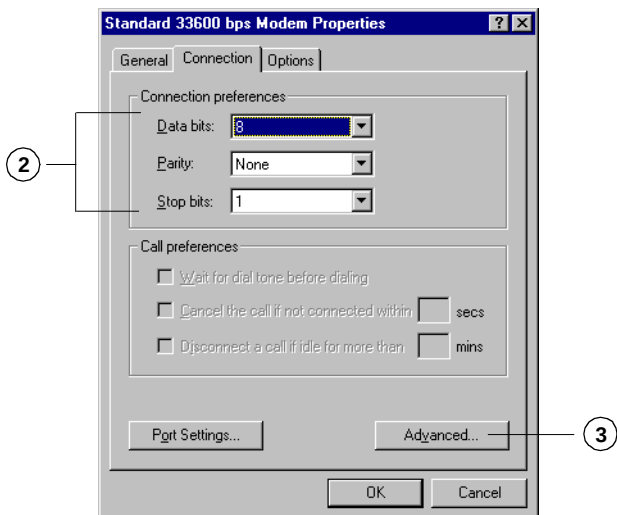
1. In the **Standard [33600 or 19200 bps] Modem Properties** dialog, on the **General** tab, make sure the port and maximum speed (38400 bps) match what you set for the modem (under “Setting the Maximum Speed” on page 19).



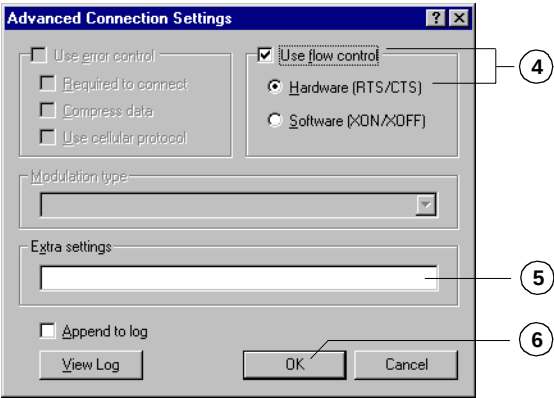
Note

On Windows NT, “Maximum speed” is called “Initial speed.”

2. On the **Connection** tab, make sure the “Connection preferences” are set to “8,” “None,” “1.”
3. Click **Advanced**.



4. In the **Advanced Connection Settings** dialog, make sure “Use flow control” and “Hardware (RTS/CTS)” are selected.

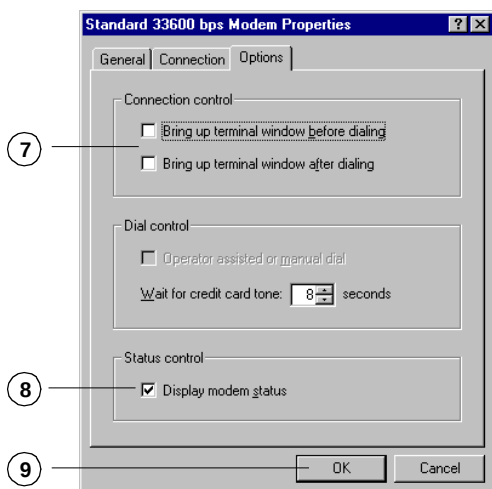


5. In the **Extra settings** field, type the AT (modem attention) command appropriate to packet or asynchronous data, as shown below:

At a Glance: Data Differences

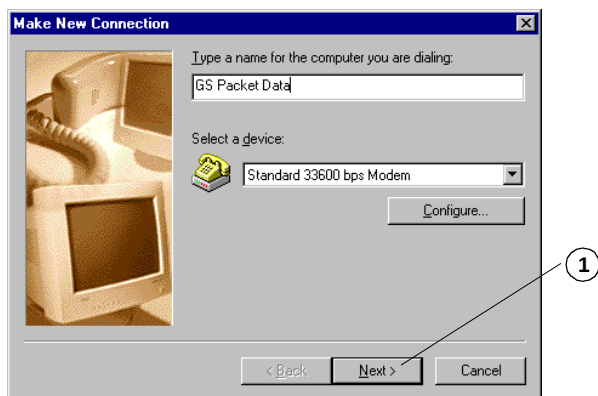
Data Type:	AT Command:
Packet	None (leave the field blank)
Asynchronous	\$QCPKND=2

6. Click **OK** to close the **Advanced Communication Settings** dialog.
7. On the **Options** tab, make sure that none of the check boxes under “Connection Control” are selected.
8. Under “Status control,” select “Display modem status.”
9. Click **OK** to return to the **Make New Connection** dialog.



Making a New Connection

1. In the **Make New Connection** dialog, click **Next**.



2. In the “Area code:” field, enter the information appropriate to packet or asynchronous data, as shown below:

At a Glance: Data Differences

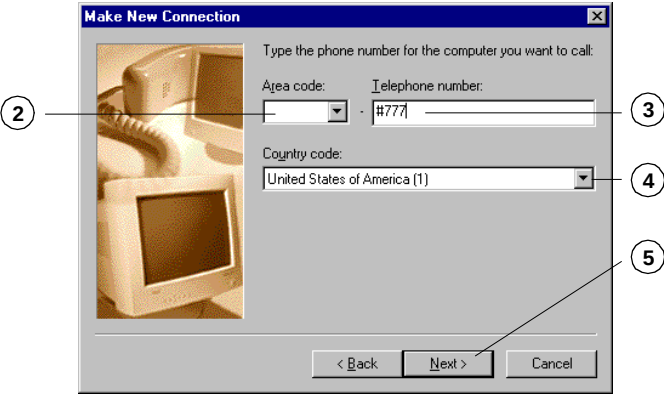
Data type:	Area code:
Packet	Make sure the Area code field is empty.
Asynchronous	Type the Area code for the modem you wish to dial.

3. In the “Telephone number:” field, type the information appropriate to packet or asynchronous data, as shown below:

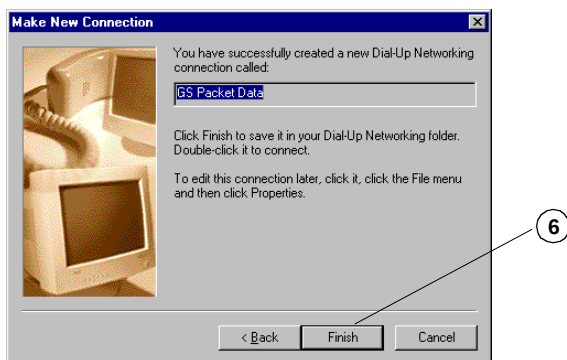
At a Glance: Data Differences

Data Type:	Telephone number:
Packet	#777 The #777 number tells the Gateway to set up a packet data connection.
Asynchronous	Phone number of the modem you wish to dial (for example, 555-1212). -or- A phone book entry from your Tri-Mode Phone (for example, 05). The phone will attempt to make a data call using the telephone number associated with that phone book entry.

4. In the “Country Code” field, select any country (for example, your home country).
5. Click **Next**.



6. To create your connection, click **Finish**.



Your packet data connection (for instance, “GS Packet Data”) should now appear in the **Dial-Up Networking** window. You can drag your connection icon to the desktop to create a shortcut, if you prefer.

Setting Connection Properties

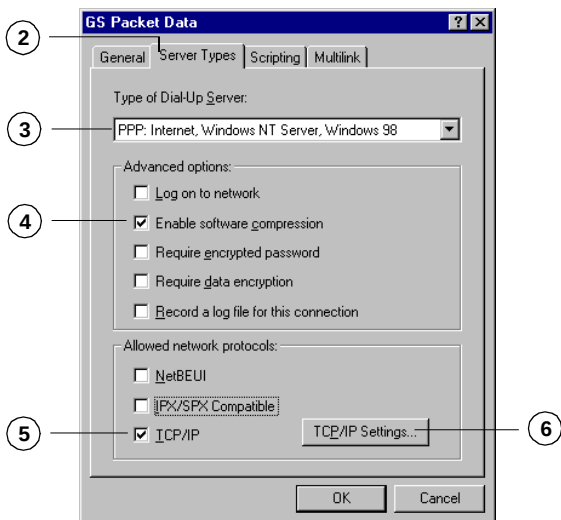
1. In the **Dial-Up Networking** window (or on your desktop), right-click the data connection icon that you have created (for instance, “GS Packet Data”) and select **Properties**.

or

If you are using Windows NT, under “Phone entry to dial,” select the connection you created, click **More**, then select “Edit entry and modem properties...”



2. In the **GS Packet Data** dialog, click the **Server Types** tab.
or
If you are using Windows NT, click the **Server** tab.
3. Under “Type of Dial-Up Server,” select “PPP.”
4. Under “Advanced options,” select “Enable software compression.”
5. Under “Allowed network protocols,” select “TCP/IP.”
6. Click **TCP/IP Settings**.



Configuring TCP/IP Settings

1. In the **TCP/IP Settings** dialog, select “Server assigned IP address.”



Note

Some ISPs automatically set the DNS information in Step 2. (Ask your Service Provider for details.) If yours does, you can skip to Step 3.

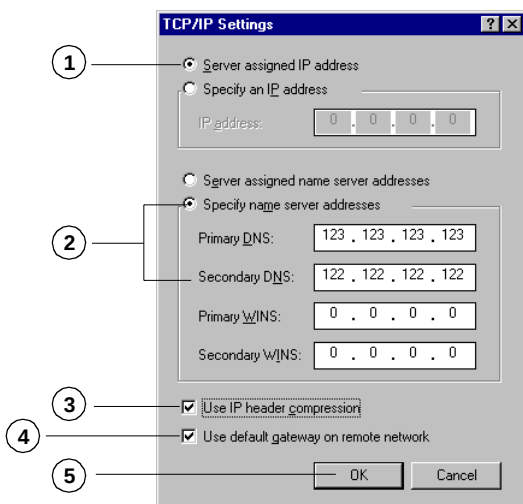
2. Select “Specify name server addresses,” then enter the primary and secondary DNS addresses assigned by your Service Provider or ISP.



Note

DNS address numbers in the illustration are examples only. Ask your Service Provider or ISP for the numbers you should enter.

3. Select “Use IP header compression.”
4. Select “Use default gateway on remote network.”
5. Click **OK**.



6. In the **GS Packet Data** dialog, click **OK**.

Setting Dial Properties

1. Double-click your data connection icon.

or

If you are using Windows NT, make sure “Phone number preview” shows the telephone number you want to dial. At this point, for Windows NT, you have finished setting up Dial-Up Networking. To make a connection, skip ahead to “Making a Data Connection” on page 53.

2. In the **Connect To** dialog, check the “Phone number” field to make sure that, for a Globalstar packet data connection, the “#” character appears in front of the “777”. If it does not, you must add it to the next dialog, in Step 6.

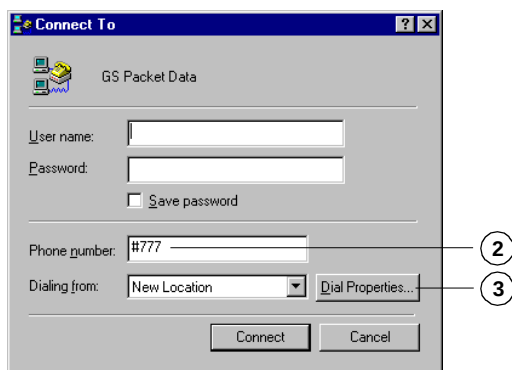
Some versions of Windows may not retain the “#” as part of the telephone number, even though you entered it under “Making a New Connection” on page 23.



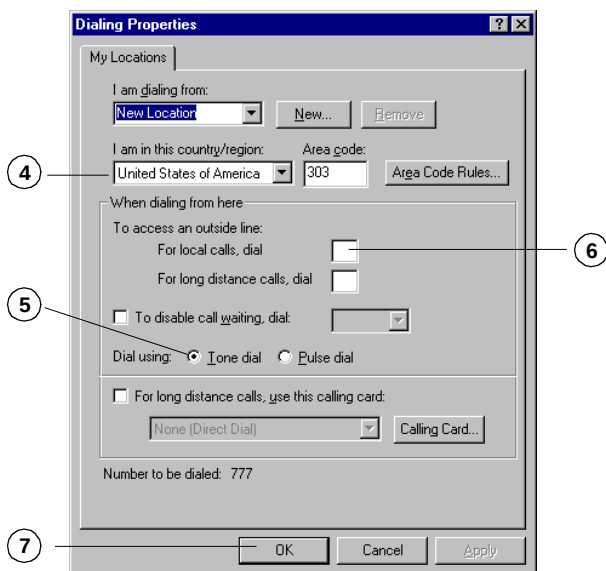
Note

For asynchronous data and digital cellular calls, a “User name” and “Password” are required to make a connection. You can enter that information here or be prompted for it later when you connect. Globalstar packet data calls do not require a user name or password.

3. Click **Dial Properties**.



4. In the **Dialing Properties** dialog, make sure you select the same country that you selected earlier, under “Making a New Connection” on page 27.
5. Under “When dialing from here,” select “Dial using: Tone dial.”
6. If the “#” character did *not* appear in front of the “777” in Step 2., then in the “For local calls, dial” field, type #.
7. Click **OK**.



You have finished setting up Dial-Up Networking for Windows 95 or 98. To make a connection, skip ahead to “Making a Data Connection” on page 53.

Manually Configuring Windows 2000



Tip

Your packet data kit CD contains a Quick Start Wizard, which can help you configure your computer to use a Tri-Mode Phone as a wireless modem. It can also set up a Dial-Up Networking connection for you. ***If you use the kit's wizard, you do not have to read this section.*** For details, see "Quick Start Installation" on page 14.

This section applies only to Windows 2000. It shows how to manually configure a "modem" driver and Dial-Up Networking connection. You need to do this if you want to make:

- Packet data connections (for example: browse the Internet)
- Asynchronous connections that access packet data (for example: dial into a modem behind a firewall, then access a corporate intranet).

The following table shows a quick overview of the process in each case.

Overview: Configuring Windows 2000

For:	Do this:
Packet data	1. Set up a new modem driver. <i>Go to: "Setting Up a New Modem Driver (Windows 2000)" on page 34</i> 2. Configure a new Dial-Up Networking connection. <i>Go to: "Setting Up a New Connection (Windows 2000)" on page 41</i>
Asynchronous connection for PPP data (if desired)	3. Set up a second modem driver. <i>Go to: "Setting Up a New Modem Driver (Windows 2000)" on page 34</i> 4. Configure a second Dial-Up Networking connection. <i>Go to: "Setting Up a New Connection (Windows 2000)" on page 41</i>



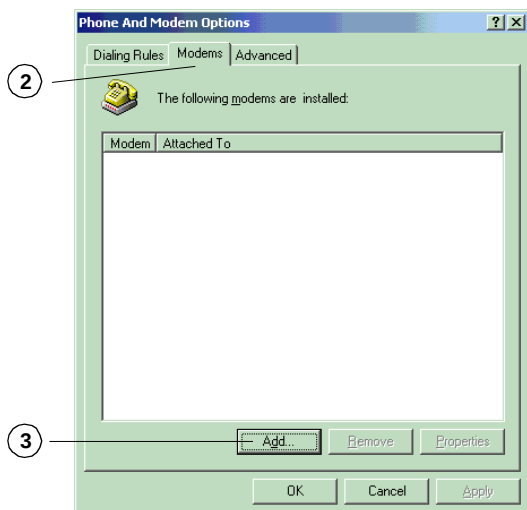
Note

If you are using another version of Windows, do not use the procedures in this section. Instead, go to "Manually Configuring Windows 95, 98, and NT" on page 14.

Setting Up a New Modem Driver (Windows 2000)

The procedures in this section set up a modem driver so your QUALCOMM Globalstar Tri-Mode Phone can act as a wireless modem.

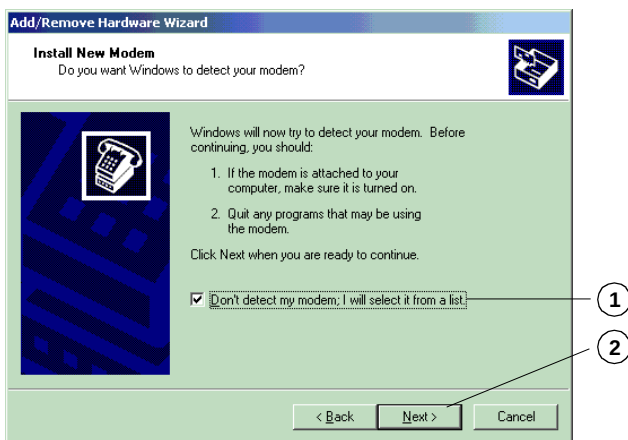
1. Go to the Windows Control Panel, then double-click **Phone and Modem Options**.
2. In the **Phone and Modem Options** dialog, click the **Modems** tab.
3. Click **Add**.



Windows' **Add/Remove Hardware Wizard** appears. Follow the procedures below to enter appropriate information in the wizard dialogs.

Telling Windows Not to Auto-Detect the Modem

1. Select "Don't detect my modem; I will select it from a list."
Since your QUALCOMM Globalstar Tri-Mode Phone acts as a wireless modem, there is no physical modem to detect.
2. Click **Next**.

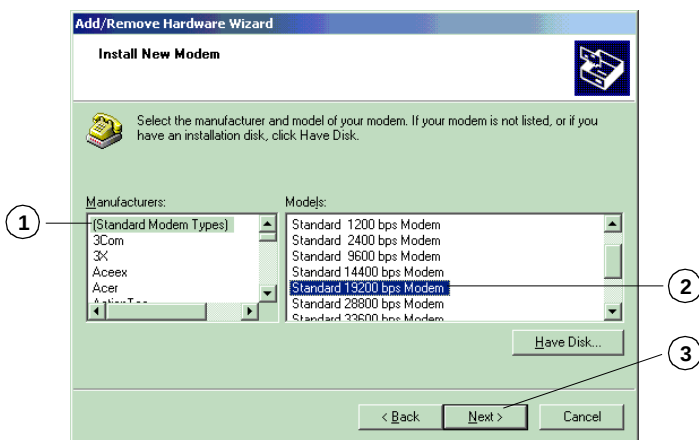


Selecting a Standard Modem

1. From the “Manufacturers:” list, select “(Standard Modem Types).”
2. From the “Models:” list, select “Standard 19200 bps Modem.”

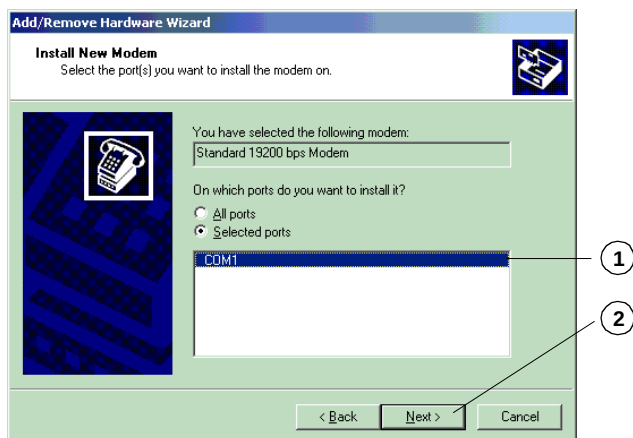
Later (under “Setting the Maximum Speed” on page 37) you will change the modem’s maximum speed to 38400 bps, to match the baud rate on the Tri-Mode Phone.

3. Click **Next**.



Selecting the COM Port

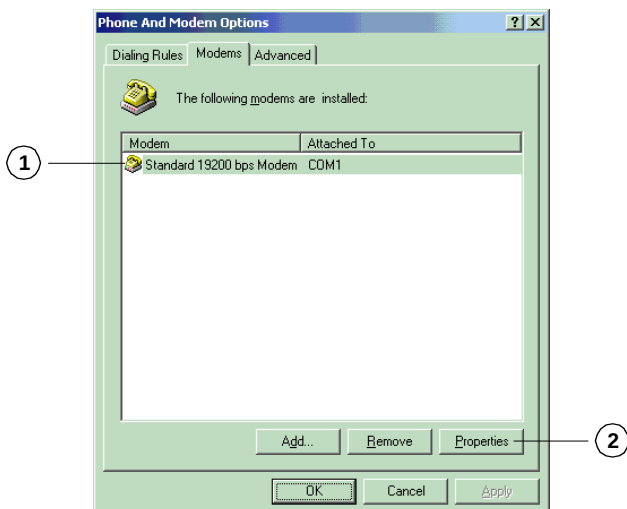
1. Select the Communications (COM) Port to which you have connected the QUALCOMM data cable. This must be an RS-232-capable serial COM port (COM1 is the standard).
2. Click **Next**.



3. When the wizard says, “Your modem has been set up successfully,” click **Finish** to complete the modem installation.

Setting Modem Properties

1. In the **Phone and Modem Options** dialog, on the **Modems** tab, select “Standard 19200 bps Modem.”
2. Click **Properties**.



Setting the Maximum Speed

1. In the **Standard 19200 bps Modem Properties** dialog, make sure the COM port is correct for your QUALCOMM data cable connection.
2. Set “Maximum Port Speed” to 38400 bps.

The maximum speed for the modem must match the baud rate on your Tri-Mode Phone (38400 bps is the phone's default). If the speeds are not the same, the computer cannot communicate with the Tri-Mode Phone.



Tip

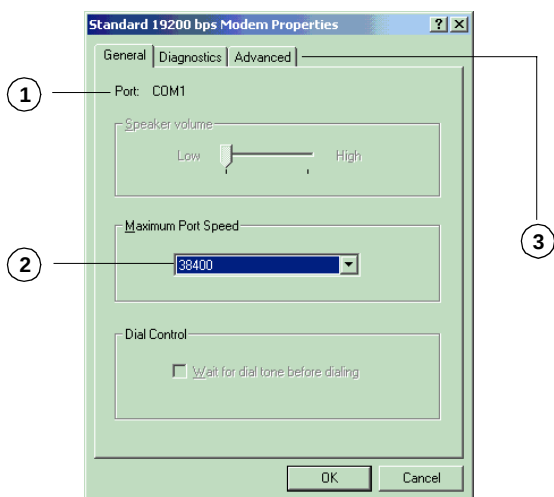
You can check or change the baud rate on your Tri-Mode Phone by selecting **menu**, then selecting **Features > Data > Baud Rate**. If the baud rate on your Tri-Mode Phone is not set to 38400 bps, be sure to change the modem's maximum speed so that the two speeds match.



Note

38400 bps is the speed at which the Tri-Mode Phone communicates with your computer, not the speed at which it communicates with the Gateway.

3. In the **Standard 19200 bps Modem Properties** dialog, click the **Advanced** tab.

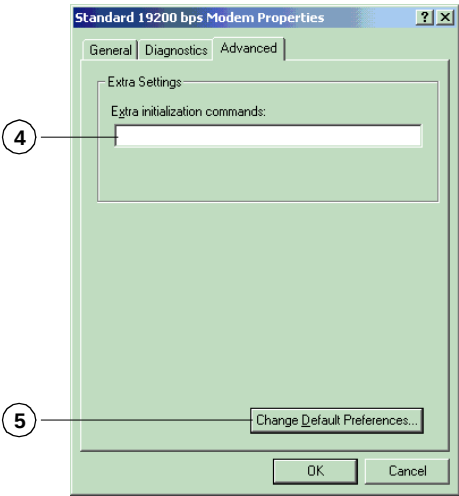


4. In the **Standard 19200 bps Modem Properties** dialog, in the “Extra initialization commands” field, type the AT (modem attention) command appropriate to packet or asynchronous data, as shown below:

At a Glance: Data Differences

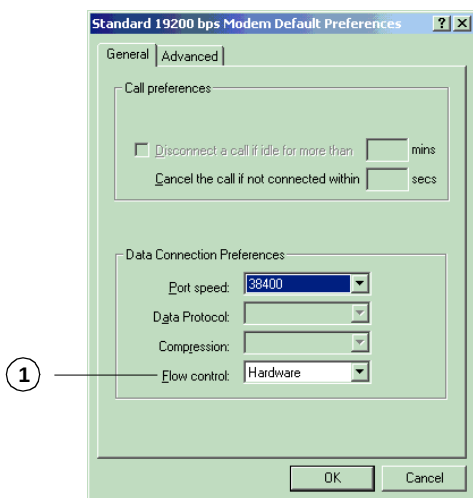
Data Type:	AT Command:
Packet data	None (leave the field blank)
Asynchronous data	\$QCPKND=2

5. In the **Standard 19200 bps Modem Properties** dialog, click **Change Default Preferences**.

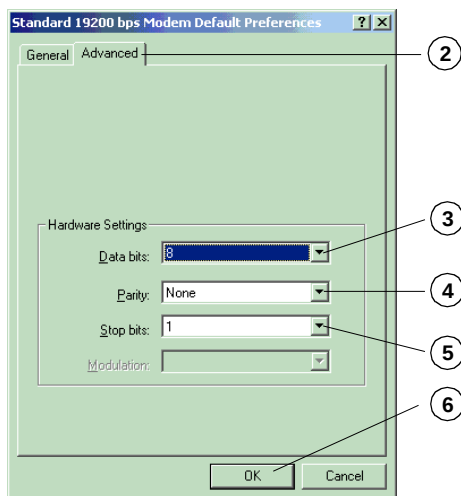


Configuring the Connection

1. In the **Standard 19200 bps Modem Default Preferences** dialog, make sure “Flow control” is set to “Hardware.”

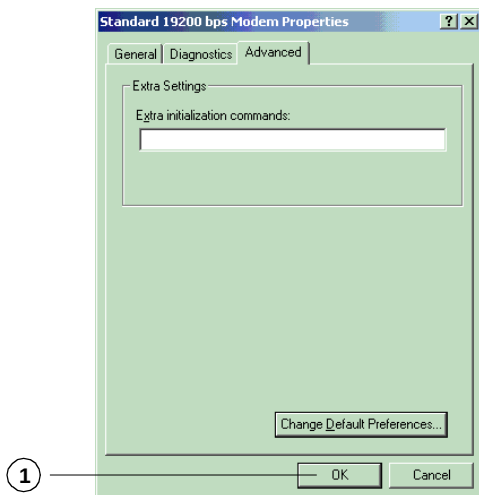


2. In the **Standard 19200 bps Modem Default Preferences** dialog, click the **Advanced** tab.
3. Set “Data bits” to “8.”
4. Set “Parity” to “None.”
5. Set “Stop bits” to “1.”
6. Click **OK**.

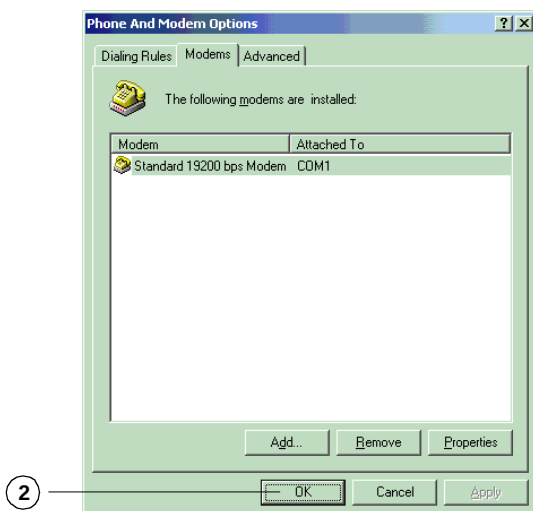


Completing the Modem Setup

1. In the **Standard 19200 bps Modem Properties** dialog, click **OK**.



2. In the **Phone and Modem Options** dialog, click **OK**.



You have finished setting up the modem driver for Windows 2000. Now you must set up a new connection.

Setting Up a New Connection (Windows 2000)



Note

This section applies only to Windows 2000. Before you create a new connection in Windows 2000, you must set up the modem driver. See “Setting Up a New Modem Driver (Windows 2000)” on page 34.

The following procedures create a new Dial-Up Networking Connection, represented by an icon on your desktop.

You must create separate icons for packet data and asynchronous data, if you want to use both types of connections for PPP data. “At a Glance” tables in the procedures show the key settings that differ for packet and asynchronous connections (for example, phone numbers).



Tip

Create a new connection for packet data first. Then, if you also want an asynchronous connection for PPP data, copy your packet data connection icon (right-click, copy), paste it (right-click, paste), and rename it. Then change only the properties shown in the “At a Glance” tables.

Opening Network and Dial-up Connections

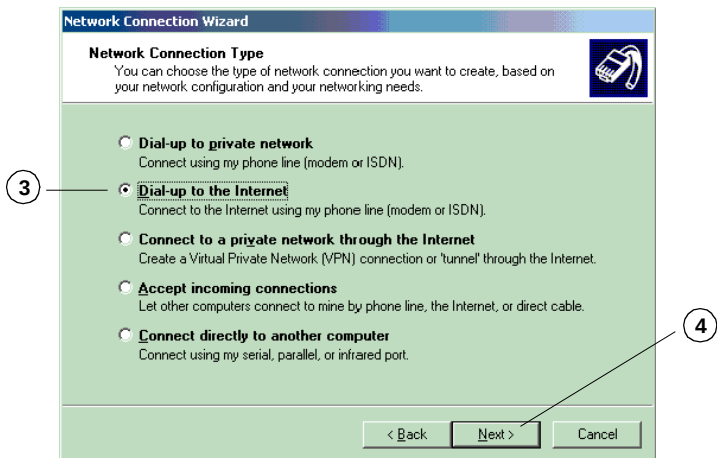
1. Go to the Windows Control Panel, then double-click **Network and Dial-Up Connections**.

Configuring the Connection

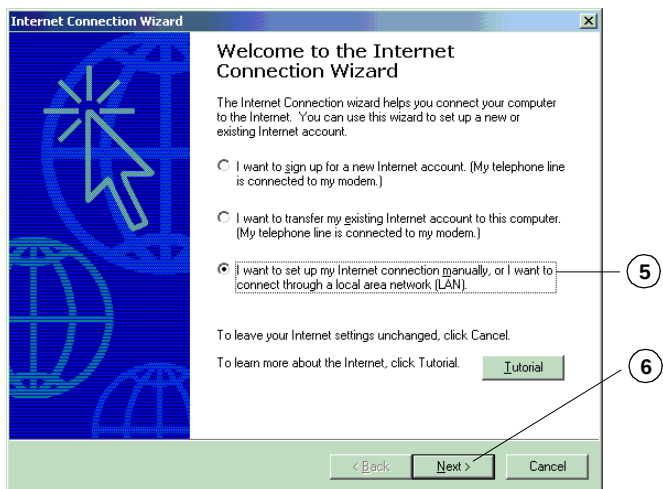
1. In the **Network and Dial-Up Connections** window, double-click the **Make New Connection** icon.
2. In the **Network Connection Wizard** dialog, click **Next**.



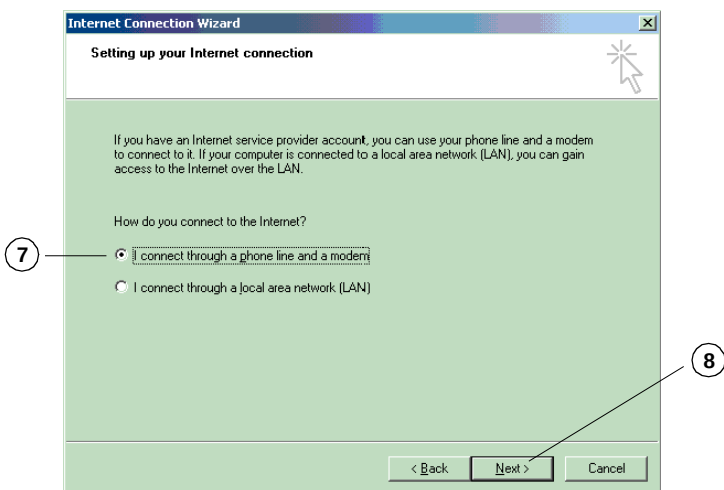
3. Select “Dial-up to the Internet.”
4. Click **Next**.



5. Select “I want to set up my Internet connection manually, or I want to connect through a local area network (LAN).”
6. Click **Next**.



7. Under “How do you connect to the Internet?” select “I connect through a phone line and a modem.”
8. Click **Next**.



Providing Account Information

1. Under “Internet account connection information,” make sure that the “Use area code and dialing rules” check box is set appropriately for packet or asynchronous data, as shown below:

At a Glance: Data Differences

Data type:	Use area code and dialing rules:
Packet	Not checked
Asynchronous	Checked

2. In the “Telephone number:” field, type the information appropriate to packet or asynchronous data, as shown below:

At a Glance: Data Differences

Data type:	Telephone number:
Packet	#777 The #777 number tells the Gateway to set up a packet data connection
Asynchronous	Phone number of the modem you wish to dial (for example, 555-1212). -or- A phone book entry from your Tri-Mode Phone (for example, 05). The phone will attempt to make a data call using the telephone number associated with that phone book entry.

3. Click **Next**.

Internet Connection Wizard

Step 1 of 3: Internet account connection information

Type the phone number you dial to connect to your ISP.

Area code: - Telephone number:

Country/region name and code:

☒ Use area code and dialing rules

To configure connection properties, click Advanced.
(Most ISPs do not require advanced settings.)

Advanced...

< Back Next > Cancel

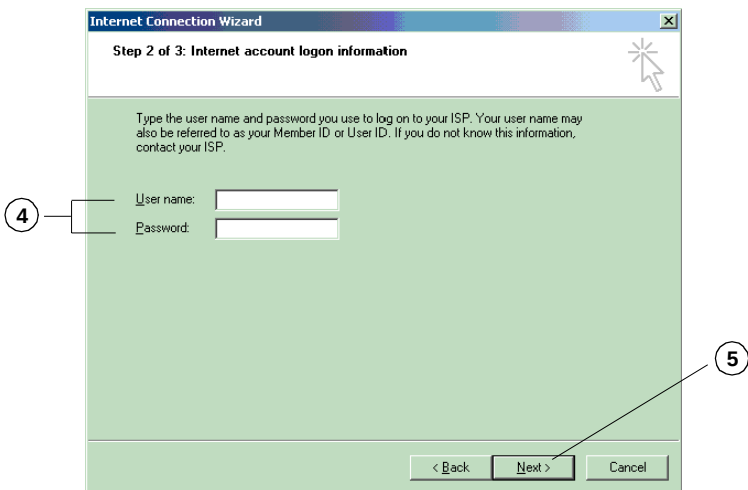
4. For packet data calls, under “Internet account logon information,” leave the “User name” and “Password” fields blank.



Note

For asynchronous data and digital cellular calls, a “User name” and “Password” are required to make a connection. You can enter that information here or be prompted for it later when you connect. Globalstar packet data calls do not require a user name or password.

5. Click **Next**.



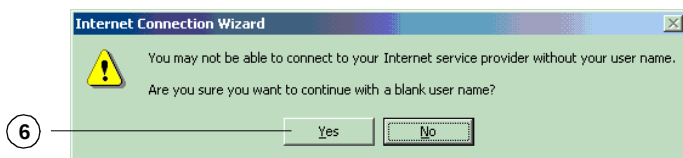
A message box appears, asking if you want to continue with a blank user name.



Note

If you are making an asynchronous data or digital cellular call and entered a user name and password in Step 4., these message boxes will not appear. You can skip to “Naming Your Dial-Up Connection” on page 46.

6. Click **Yes**.



A similar message box appears, asking if you want to continue with a blank password.

7. Click **Yes**.

If you have a user name and password for connecting to your ISP, you will be prompted for these later when you make a data connection.

Naming Your Dial-Up Connection

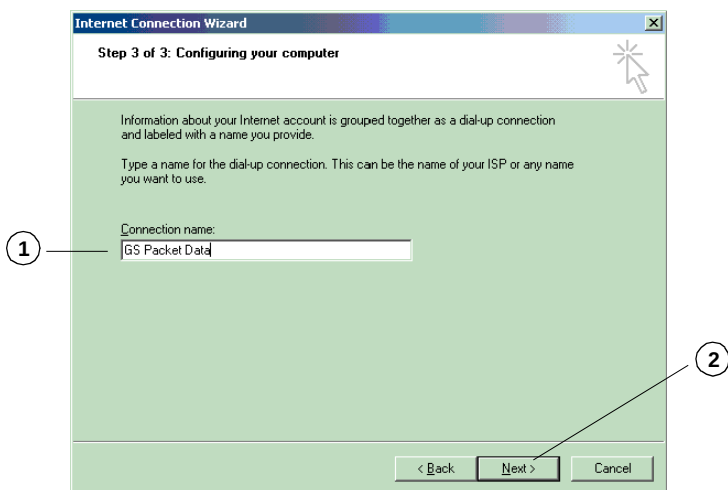
1. In the “Connection name” field, type a name for your dial-up connection. In the examples that follow, the connection is called “GS Packet Data.” For an asynchronous connection, you might call it “GS Async Data.”



Note

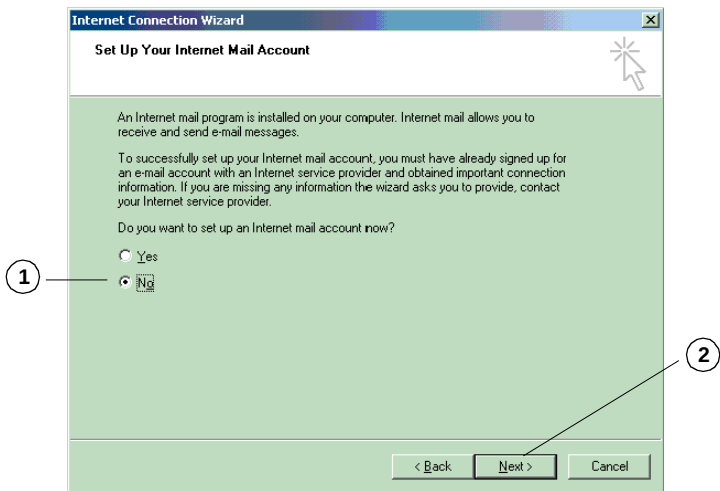
The wizard on the kit’s CD creates a packet connection called “GSP-1600/1620 Packet Data” or an asynchronous connection called “GSP-1600/1620 Async Data.”

2. Click **Next**.

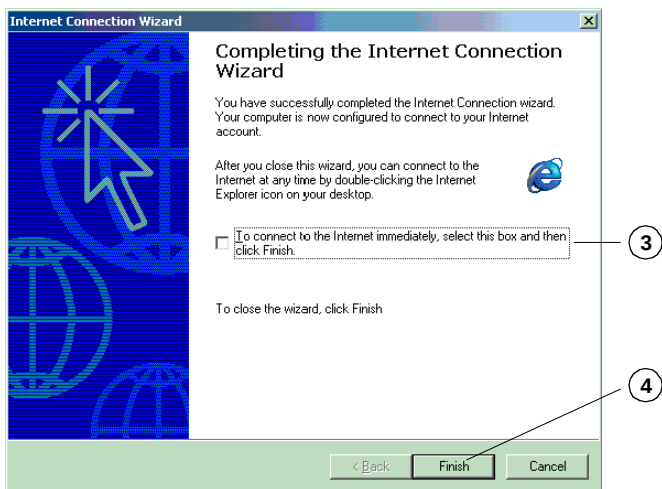


Completing the Configuration

1. On the “Set Up Your Internet Mail Account” screen, under “Do you want to set up an Internet mail account now?”, select **No**.
An Internet mail account is not required for data service.
2. Click **Next**.



3. On the “Completing the Internet Connection Wizard” screen, make sure the check box for “To connect to the Internet immediately” is *not* selected.
4. Click **Finish**.



Configuring Networking Properties

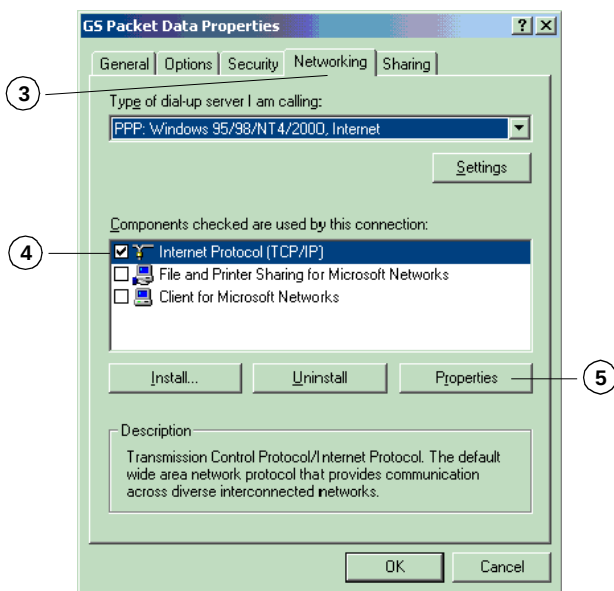
1. In the **Network and Dial-up Connections** window, right-click the **GS Packet Data** icon (or the icon for whatever you have named your dial-up connection).
2. In the popup menu, select **Properties**.
3. On the **GS Packet Data Properties** dialog, click the **Networking** tab.
4. Select “Internet Protocol (TCP/IP).”



Note

Some ISPs set DNS information automatically (ask your Service Provider for details). If yours does, you have now finished creating your new connection for Windows 2000. Click **OK** to close the **GS Packet Data Properties** dialog, then skip to “Making a Data Connection” on page 53.

5. Click **Properties**.



Configuring TCP/IP Properties



Note

Some ISPs set DNS information automatically (ask your Service Provider for details). If yours does, skip to “Making a Data Connection” on page 53.

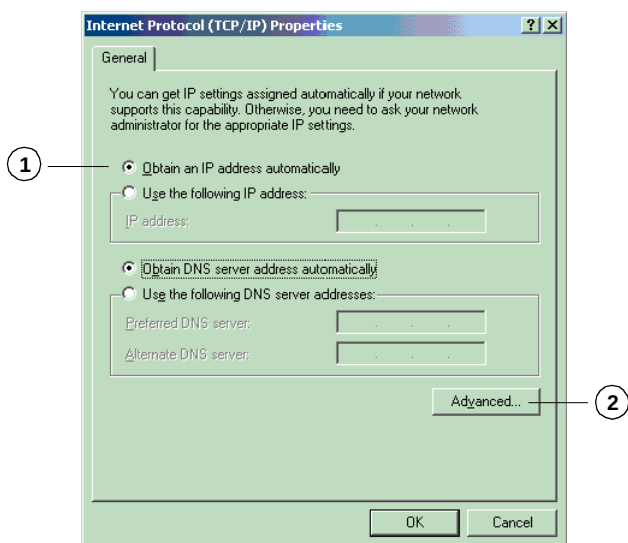
1. On the **Internet Protocol (TCP/IP) Properties** dialog, make sure “Obtain an IP address automatically” is selected.



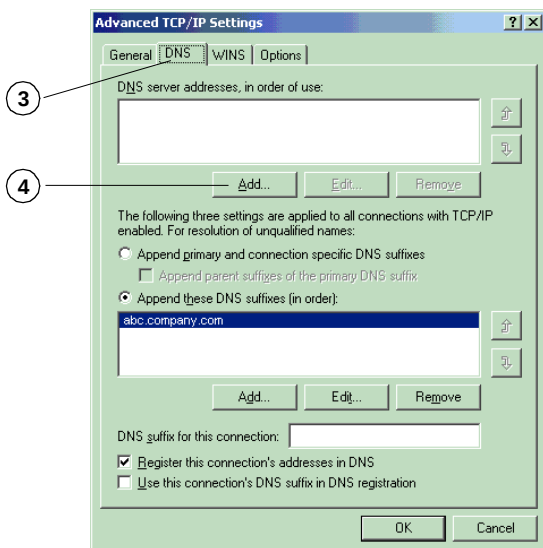
Note

In this dialog, Windows 2000 selects “Obtain DNS server address automatically” by default, but this will change after you add DNS addresses later.

2. Click **Advanced**.



3. On the **Advanced TCP/IP Settings** dialog, click the **DNS** tab.
4. Under “DNS server addresses, in order of use,” click **Add**.

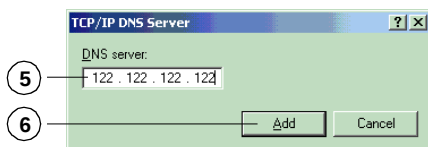


5. In the **TCP/IP DNS Server** dialog, in the “DNS server” field, enter the primary (or “preferred”) DNS address assigned by your Service Provider or ISP.



Note

DNS address numbers in the illustration are examples only. Ask your Service Provider or ISP for the numbers you should enter.

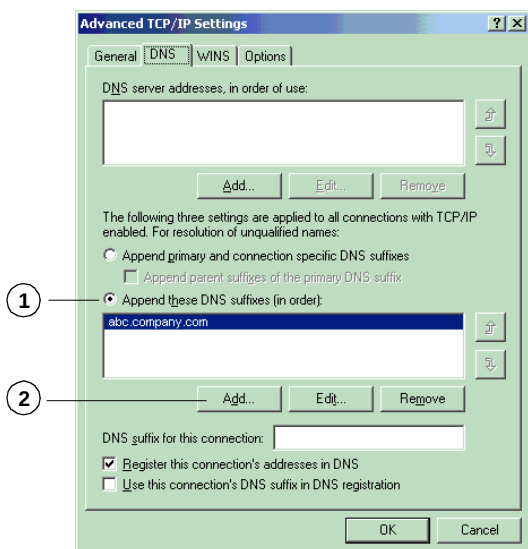


6. Click **Add**.
7. If you have a secondary (or “alternate”) DNS address, enter it by repeating Step 4., Step 5., and Step 6.

Completing Advanced TCP/IP Settings

DNS suffixes are not required to make a connection. If your Service Provider did not give you a DNS suffix, skip to Step 6.

1. On the **Advanced TCP/IP Settings** dialog, select “Append these DNS suffixes (in order).”
2. Under “Append these DNS suffixes (in order),” click **Add**.

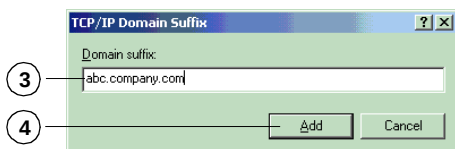


3. In the **TCP/IP Domain Suffix** dialog, enter the domain name assigned by your Service Provider or ISP (for example, “abc.company.com”).



Note

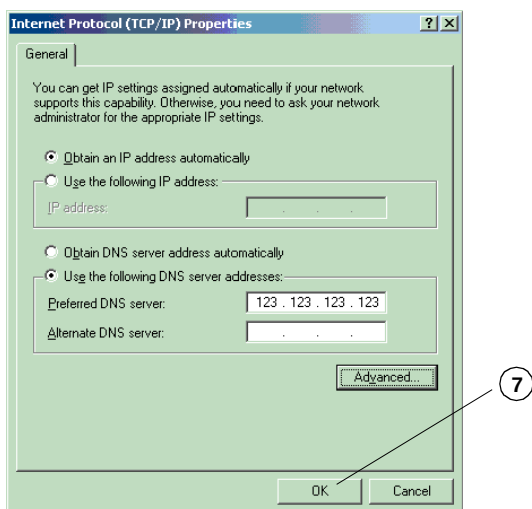
The domain name in the illustration is an example only. Ask your Service Provider or ISP for the name you should enter.



4. Click **Add**.
5. If you have a secondary domain name (suffix), repeat Step 2., Step 3., and Step 4.
6. On the **Advanced TCP/IP Settings** dialog, click **OK**.

The **Internet Protocol (TCP/IP) Properties** dialog appears. Windows 2000 has now automatically selected “Use the following DNS server addresses,” and the DNS server address that you entered appears in the “Preferred DNS server” field.

7. In the **Internet Protocol (TCP/IP) Properties** dialog, click **OK**.



8. In the **GS Packet Data Properties** dialog, click **OK**.

You have finished creating your new connection for Windows 2000. To make a connection, go to the next section, “Making a Data Connection” on page 53.

Making a Data Connection



Caution

On your computer, make sure that no other application is using the serial port (e.g., COM1) assigned for Globalstar data service. If another application, such as Palm HotSync Manager, blocks the serial port, disable its control over the port before attempting a Globalstar data connection.

Making Packet Data Connections

Packet data connections can be either

- Packet (PPP) data only (example: browsing the Internet)
- Asynchronous data with PPP data (example: dialing into a modem behind a firewall, then accessing a corporate intranet)

To make a connection using PPP data

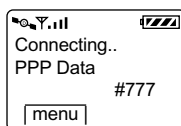
1. Make sure the Tri-Mode Phone is properly connected to your PC or laptop (as described in “Connecting Windows Components” on page 11).
2. Turn on your Tri-Mode Phone.
3. Rotate or fully extend the appropriate antenna for the type of connection you wish to make (Globalstar satellite or cellular, as shown on page 12) and make sure you have a Globalstar or cellular signal.
4. On your computer, double-click the icon you created for your data connection (for instance, “GS Packet Data”).
5. When the **Connect To** dialog opens, click **Connect**.
or
*For Windows 2000: Click **Dial**.*
(Leave the **User name** and **Password** fields blank.)



Note

For asynchronous data and digital cellular calls, a “User name” and “Password” are required to make a connection. Globalstar packet data calls do not require a user name or password.

While the Tri-Mode Phone is establishing the packet data connection, the Tri-Mode Phone screen looks like this:



Note

When you make a cellular call, the Globalstar icon  is replaced with the digital icon . When you make an

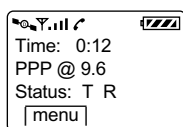
asynchronous call, the screen reads “Async Data” and shows the telephone number.

You are connected to the network when the **Verifying Username and Password** window on your computer minimizes and the Tri-Mode Phone screen says “PPP @ 9.6.” The “PPP @ 9.6” indicates that the over-the-air data rate is 9600 bps. (The “T R” status stands for Transmit and Receive.) For an asynchronous connection, the screen says “Async @ 9.6.”



Note

For cellular calls the Tri-Mode Phone screen says “PPP @ 14.4,” indicating an over-the-air rate of 14400 bps.



You can now open typical communication applications to do anything you would normally do through an Internet Service Provider (ISP).

To disconnect a packet data connection

1. Double-click the packet data connection (or the connection icon in the right-hand bottom corner of the screen).
2. Click **Disconnect**.

Using Typical Communication Applications

Once you have established a packet data connection, you can use any communication applications using IP network protocol, for instance Internet Web browsers, e-mail, FTP, or telnet applications.

The CD that came with your QUALCOMM Globalstar Packet Data Kit may include some typical communication applications for Windows, such as Eudora, Netscape Navigator, or Microsoft Internet Explorer.

Making Asynchronous Data Connections

This section shows how to make a strictly asynchronous data connection (for example: dialing into a BBS).

To make an asynchronous data connection

1. Make sure the Tri-Mode Phone is properly connected to your PC or laptop (as described in “Connecting Windows Components” on page 11).
2. Turn on your Tri-Mode Phone.
3. Rotate the Globalstar satellite antenna (as shown on page 12) and make sure you have a Globalstar signal.
4. On your computer, open HyperTerminal (or a similar application).

5. Make sure the application is configured with the following settings:

Setting:	Value:
Data bits	8
Parity	none
Stop bit	1
Baud rate	Must match the baud rate on your Tri-Mode Phone (default: 38400). To check the baud rate on your Tri-Mode Phone, select menu , then select Features > Data > Baud Rate .

6. Enter the telephone number you want to dial.
7. Enter the \$QCPKND=1 command as part of the modem initialization string.
8. Click **Dial**.

To disconnect an asynchronous data connection

1. From the HyperTerminal pulldown menu, select **Call** and **Disconnect**.
or
Click the **Disconnect** button.

This chapter tells how to configure an Apple Macintosh computer to use Globalstar data service. To do this, you physically connect the Macintosh to your QUALCOMM Globalstar Tri-Mode Phone. Then, for data using Point-to-Point Protocol (PPP), you select a modem script and configure remote access.



Note

To use a terminal emulator application for asynchronous data without PPP data, connect your Macintosh to your Tri-Mode Phone, then skip to “Establishing Asynchronous (non-PPP) Data Connections” on page 75.

You can use Globalstar data service with a Macintosh running MacOS 7.6 or higher.



Note

The following examples use MacOS 9. Setup for other MacOS versions and PPP applications may vary.

Connecting Macintosh Components

You can use Globalstar data service with a Macintosh computer that has either USB or round mini-DIN 8 ports (If you are not sure which you have, refer to these illustrations: “Hardware Setup for a Macintosh with USB” on page 58 and “Hardware Setup for a Macintosh with Mini-DIN 8” on page 60).

Connecting a Macintosh Using USB

For a Macintosh computer with one or more USB ports, you need the following hardware components:

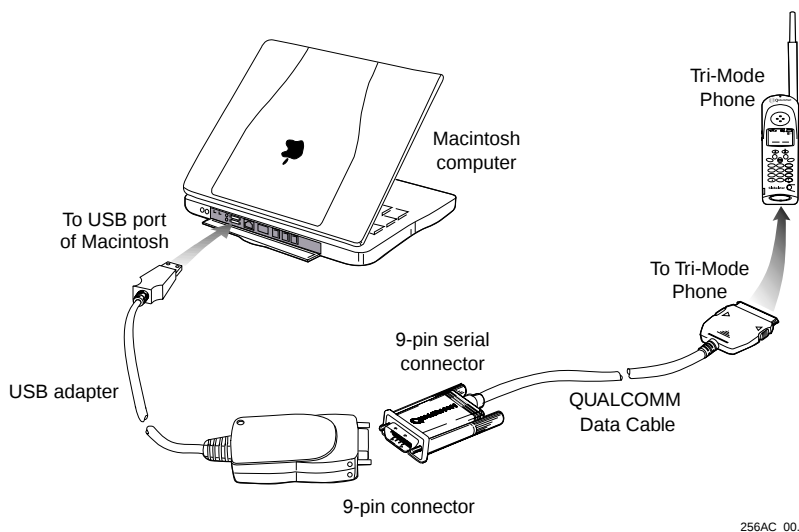
- USB adapter (with associated software installed on your Macintosh)
- QUALCOMM serial data cable (included in QUALCOMM Globalstar Packet Data Kit)
- QUALCOMM Globalstar GSP-1600 Tri-Mode Phone



Note

Connecting your Macintosh to a QUALCOMM Globalstar Hands-Free Car Kit requires a different serial cable. See “QUALCOMM Globalstar Hands-Free Car Kit” on page 107.

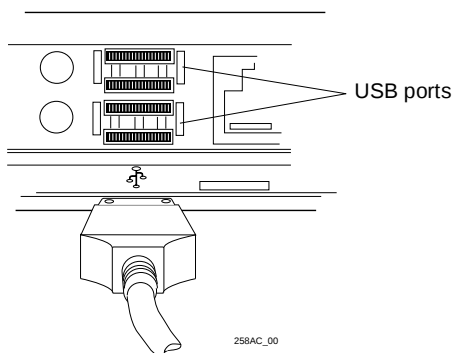
“Hardware Setup for a Macintosh with USB” on page 58 shows how the components fit together.



Hardware Setup for a Macintosh with USB

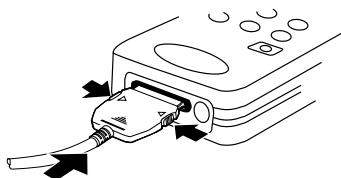
To connect a Macintosh to the Tri-Mode Phone using USB

1. Turn off the power on your QUALCOMM Globalstar Tri-Mode Phone. You can leave your computer turned on.
2. Connect the USB adapter to either USB port on your Macintosh.



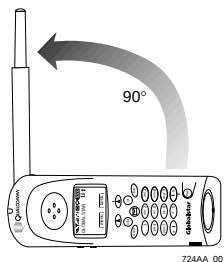
3. Connect the USB adapter to the 9-pin serial connector of the QUALCOMM data cable, as shown in "Hardware Setup for a Macintosh with USB".

4. To connect the QUALCOMM data cable to the Tri-Mode Phone, press both buttons on the side of the connector, then insert it with the arrow facing up (toward the phone's keypad). The connector should snap into place for a secure fit.



723AA_00

5. Turn on your Tri-Mode Phone.
6. Rotate or fully extend the appropriate antenna for the type of connection you wish to make (Globalstar satellite or cellular).



724AA_00

Globalstar Satellite Antenna



Cellular Antenna



Note

If you cannot obtain a signal with the Globalstar Satellite Antenna in a 90° position, try rotating it further until you feel it click into place.

Connecting a Macintosh Using Mini-DIN 8

For a Macintosh computer with a mini-DIN 8 port, you need the following hardware components:

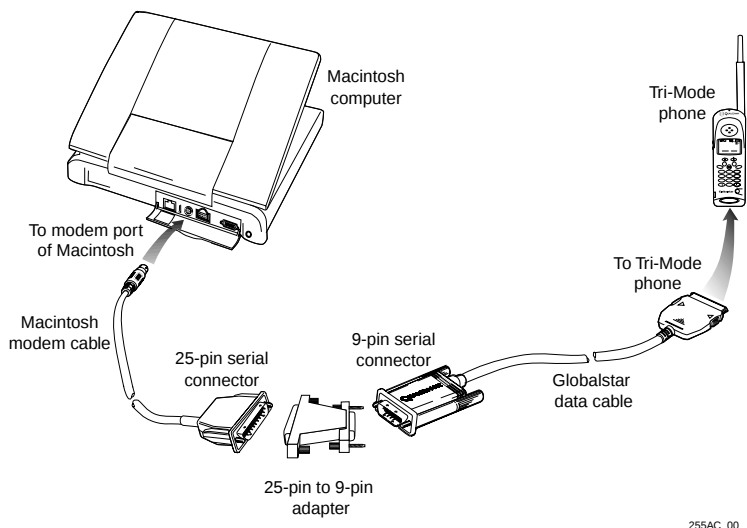
- Macintosh modem cable. See Table 1 on page 110 for required pinout configurations.
- Adapter (25-pin female to 9-pin male). See Table 1 on page 110 for required pinout configurations.
- QUALCOMM serial data cable (included in QUALCOMM Globalstar Packet Data Kit).
- QUALCOMM Globalstar GSP-1600 Tri-Mode Phone.



Note

Connecting your Macintosh to a QUALCOMM Globalstar Hands-Free Car Kit requires a different serial cable. See “QUALCOMM Globalstar Hands-Free Car Kit” on page 107.

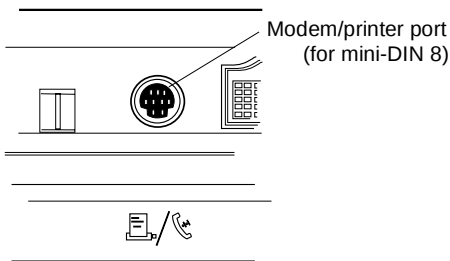
“Hardware Setup for a Macintosh with Mini-DIN 8” shows how the components fit together.



Hardware Setup for a Macintosh with Mini-DIN 8

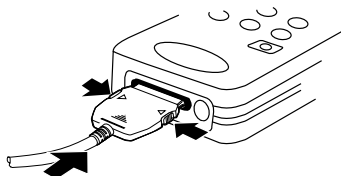
To connect a Macintosh to the Tri-Mode Phone using mini-DIN 8

1. Turn off the power on your QUALCOMM Globalstar Tri-Mode Phone. You can leave your computer turned on.
2. Connect the 8-pin end of the Macintosh modem cable to the modem/printer port on your Macintosh.



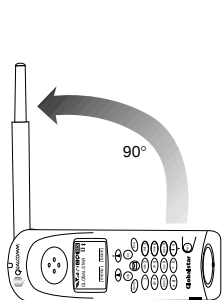
257AC_00

3. Connect the other end of the Macintosh modem cable, the 25-pin-to-9-pin adapter, and 9-pin serial connector of the QUALCOMM data cable, as shown in “Hardware Setup for a Macintosh with Mini-DIN 8” on page 60.
4. To connect the QUALCOMM data cable to the Tri-Mode Phone, press both buttons on the side of the connector, then insert it with the arrow facing up (toward the phone's keypad). The connector should snap into place for a secure fit.



723AA_00

5. Turn on your Tri-Mode Phone.
6. Rotate or fully extend the appropriate antenna for the type of connection you wish to make (Globalstar satellite or cellular).



724AA_00

Globalstar Satellite Antenna



Cellular Antenna



Note

If you cannot obtain a signal with the Globalstar Satellite Antenna in a 90° position, try rotating it further until you feel it click into place.

Configuring Your Macintosh

To configure a Macintosh, you create a networking configuration, a stored collection of settings that enables your computer and Tri-Mode Phone (“modem”) to make a particular type of data connection. A networking configuration includes three types of settings (or sub-configurations): Remote Access, modem, and TCP/IP.

Do I need to set up a networking configuration?

For this type of Globalstar data service:	Networking configuration needed?
Packet data (PPP) connections Example: browsing the Internet or sending e-mail	Yes A networking configuration is required to make a packet data connection.
Asynchronous connections that access packet (PPP) data Example: dialing into a modem behind a firewall, then accessing a corporate intranet	Yes A separate networking configuration is required to make an asynchronous connection—if you will use it to access PPP data.
Asynchronous connections with no PPP data Example: dialing into a BBS	No No networking configuration required — just use a terminal emulator application and connect using a serial port. <i>For details, go to: page 75.</i>

In addition to configurations for packet and/or asynchronous-with-PPP data, you could create *optional* networking configurations to help you connect efficiently, depending on your circumstances. For example, you could make separate networking configurations for

- Multiple SPs or ISPs that you use (with different name servers, phone numbers, or preferences)
- Making calls in Globalstar-only or cellular-only mode
- Any combination of Globalstar data types, SPs/ISPs, or modes

For example, to use packet data service with two different SPs and asynchronous/PPP data with a third SP, you could set up three separate networking configurations.

You decide whether setting up optional networking configurations is convenient.

How Do I Set Up a Networking Configuration?

Before setting up a networking configuration, copy modem script files to your Macintosh from the QUALCOMM Globalstar Packet Data Kit (you need to do this only once). See “Copying Modem Script Files to Your Macintosh”.

Then, for *each* networking configuration you wish to set up, follow the sequence of steps under “Creating a Networking Configuration”.

Copying Modem Script Files to Your Macintosh

1. Locate the CD included in the QUALCOMM Globalstar Packet Data Kit, then insert it into the CD-ROM drive of your Macintosh.
2. Using the Finder, locate the “drag into Modem Scripts” folder on the CD, and copy all the files in it to: **System Folder > Extensions > Modem Scripts**.

These files contain scripts with modem settings for Globalstar data service. One is a basic script that uses the mode preferences set on your Tri-Mode Phone. Others, included for your convenience, can force your Tri-Mode Phone to make data connections using Globalstar or cellular modes only.

Creating a Networking Configuration

Creating a networking configuration consists of the following sequence:

- Create and set up a new *Remote Access* configuration, including setting up the protocol
- Create and set up a new *Modem* configuration
- Create and set up a new *TCP/IP* configuration

To use Globalstar packet data service with a single SP, follow this sequence once. To set up additional networking configurations, repeat the sequence, changing settings as appropriate.

Create separate networking configurations for packet data and asynchronous data, if you want to use both types of connections for PPP data.



Tip

If you create multiple networking configurations, you can use the Location Manager that came with your MacOS to store and manage them.

Creating a New Remote Access Configuration

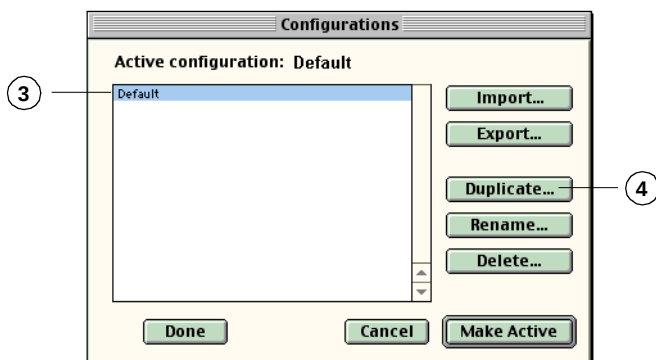
1. From the **Apple** menu, select **Control Panels**, then select **Remote Access**.
The **Remote Access** dialog appears showing the last active setting.



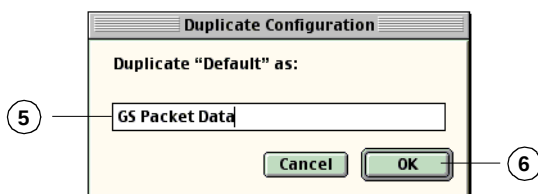
Note

In MacOS 7.6, the **Remote Access** control panel is called **PPP**.

2. From the **File** menu, select **Configurations**.
3. In the **Configurations** dialog, select “Default” from the configuration list.
4. Click **Duplicate**.

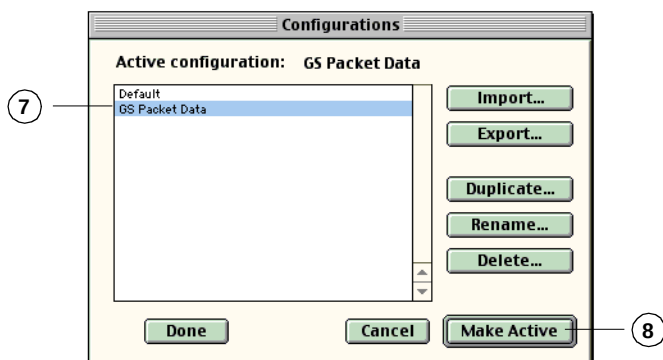


5. In the **Duplicate Configuration** dialog, type a descriptive name for the duplicate configuration, for instance “GS Packet Data” for a Globalstar packet data connection, or “GS Async Data” for an asynchronous connection that accesses PPP data. The steps that follow use “GS Packet Data” as an example.
6. Click **OK**.



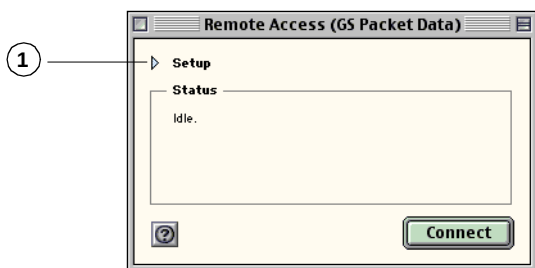
7. In the **Configurations** dialog, select your new configuration from the list.
8. Click **Make Active**.

This activates the configuration and closes the **Configurations** dialog.



Setting Up the Remote Access Configuration

1. In the **Remote Access** (“your configuration name”) dialog, click “Setup” to see all the fields.



2. Select “Registered User” or “Guest,” as instructed by your Internet Service Provider (ISP).
Some ISPs allow you to connect as a guest, while others may require you to connect as a registered user with a user name and possibly a password.
3. If you select “Guest,” skip to Step 6.
4. If your ISP requires you to connect as a registered user, type your user name in the “Name” field.
As a registered user, you must fill in this field to activate the **Connect** button.
5. If you are connecting as a registered user, fill in the “Password” field or leave it blank, as desired. If you fill it in, also select “Save Password.”



Note

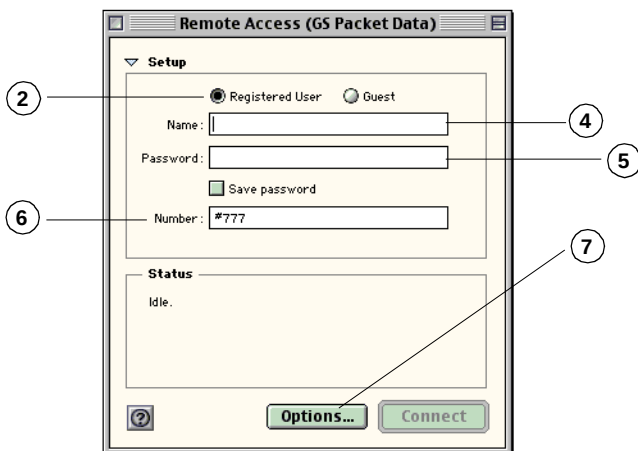
Registered users can enter a password here or be prompted for it later when connecting.

6. In the “Number” field, type the telephone number appropriate to packet or asynchronous data, as shown below:

At a Glance: Data Differences

Data Type:	Telephone number:
Packet	#777 The #777 tells the Gateway to set up a packet data connection.
Asynchronous connection accessing PPP data	Phone number of the modem you wish to dial (for example, 303-555-1212). -or- A one-digit or two-digit phone book entry from your Tri-Mode Phone (for example, 12). The phone will attempt to make a data call using the telephone number associated with that phone book entry.

7. Click **Options**.



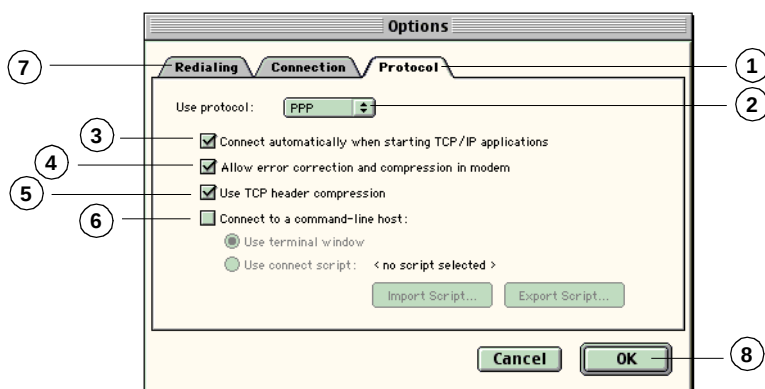
Setting Up the Remote Access Protocol

1. In the **Options** dialog, click the **Protocol** tab.
2. Under “Use protocol,” select “PPP.”

Globalstar data service uses Point-to-Point Protocol (PPP) to carry data packets from your computer to the Globalstar Gateway. Asynchronous connections with PPP data normally use PPP protocol also; however, in some cases the network you wish to access might use something else, such as Appletalk Remote Access Protocol.

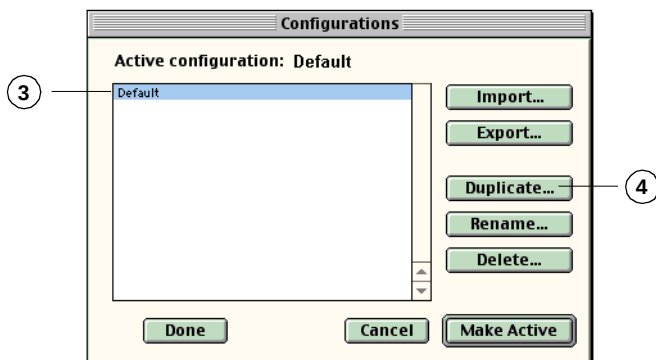
3. Set “Connect automatically when starting TCP/IP applications” as desired.
4. Select “Allow error correction and compression in modem.”
5. Select “Use TCP header compression.”
6. Set all other fields as desired, according to information from your SP. (Probably none will be selected.)
7. Set preferences on the **Redialing** and **Connection** tabs as desired.
8. Click **OK**.

This activates the changes and closes the **Options** dialog.

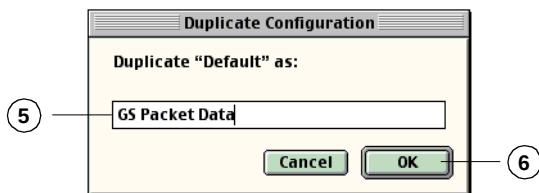


Creating a New Modem Configuration

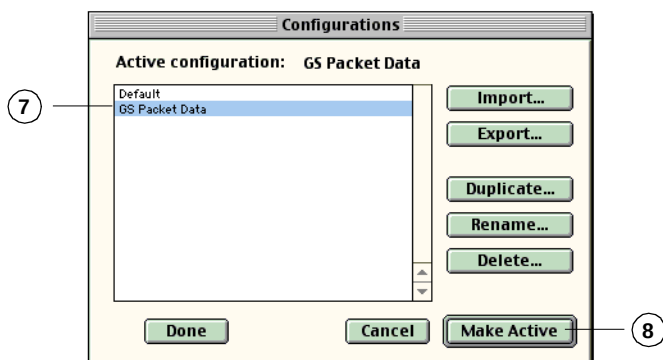
1. From the **Remote Access** pulldown menu, select **Modem**.
2. From the **File** menu, select **Configurations**.
3. In the **Configurations** dialog, select “Default” from the configuration list.
4. Click **Duplicate**.



5. In the **Duplicate Configuration** dialog, type a name for the duplicate modem configuration. This example uses “GS Packet Data,” to match the Remote Access configuration name. You could also choose a name to identify the SP or mode (for example, “Globalstar only” or “Cellular only”).
6. Click **OK**.



7. In the **Configurations** dialog, select your configuration from the list.
8. Click **Make Active**.
This activates the configuration and closes the **Configurations** dialog.



Setting Up the New Modem Configuration

1. In the **Modem** (“your modem name”) dialog, in the “Connect via” field, select the port to which you connected the USB adapter or modem cable (for example, “Printer port/USB” or “Modem Port”).



Note

The USB port (for example, “Printer Port/USB”) appears as an option only if the USB adapter is plugged in *and* the adapter’s software driver is properly installed.

2. From the “Modem” list, select the desired script:
 - ❑ “QUALCOMM GSP-16XX” — This script uses the mode preferences that are set on your Tri-Mode Phone (for details, see “Setting Mode Preferences for Data” on page 7).
 - ❑ “QUALCOMM GSP-16XX SAT only” — This script forces your Tri-Mode Phone to make data connections using the Globalstar satellite system exclusively. Select this only if you do *not* want to make cellular data connections.
 - ❑ “QUALCOMM GSP-16XX CELL only” — This script forces your Tri-Mode Phone to make data connections using a terrestrial digital cellular network exclusively. Select this only if you do *not* want to make Globalstar data connections.



Tip

The QUALCOMM Globalstar modem uses a baud rate to match the rate on your Tri-Mode Phone. For best results, set the phone’s baud rate to 38400 bps. On your Tri-Mode Phone, you can check or change the baud rate by selecting **menu**, selecting **Features > Data > Baud Rate**.



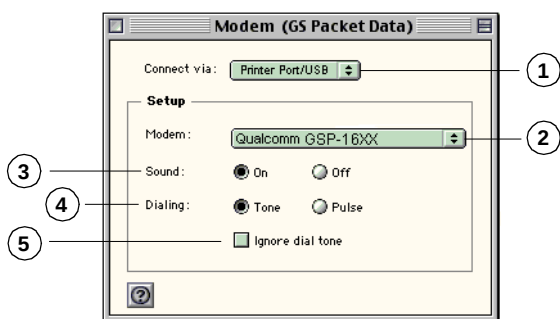
Note

38400 bps is the speed at which the Tri-Mode Phone communicates with your computer, not the speed at which it communicates with the Globalstar satellite or cellular system.

3. In the “Sound” field, select “On.”

Although “Sound” is “on,” you will not hear tones from the Tri-Mode Phone while dialing.

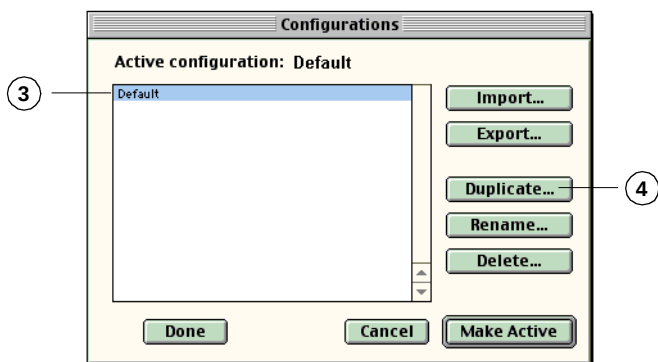
4. In the “Dialing” field, select “Tone.”
5. Make sure “Ignore dial tone” is *not* checked.



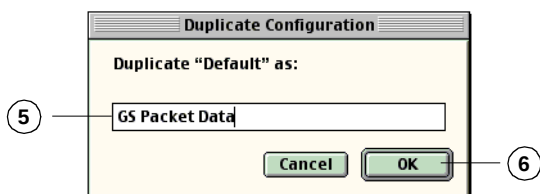
6. Close the **Modem** (“your modem name”) dialog, answering “Yes” when asked if you want to save your changes.

Creating a New TCP/IP Configuration

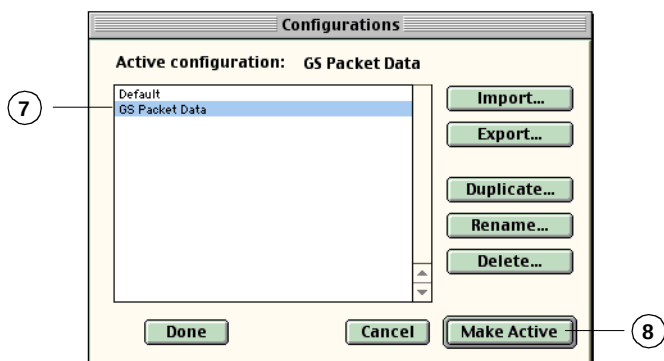
1. From the pulldown menu, select **Remote Access > TCP/IP**.
2. From the **File** menu, select **Configurations**.
3. Select “Default” from the configuration list.
4. Click **Duplicate**.



5. In the **Duplicate Configuration** dialog, type a name for the duplicate TCP/IP configuration. This example uses “GS Packet Data” to match the Remote Access and modem configurations previously set up.
6. Click **OK**.



7. In the **Configurations** dialog, select your new configuration in the list.
8. Click **Make Active**.
This activates the configuration and closes the **Configurations** dialog.



Setting Up the New TCP/IP Configuration

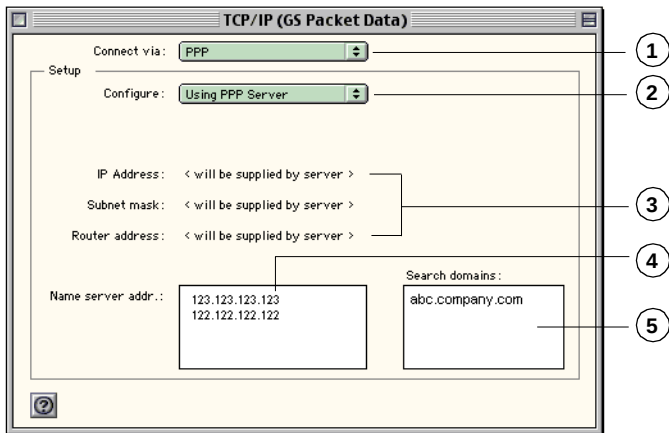
1. In the **TCP/IP** (“your configuration name”) dialog, under “Connect via:” select “PPP.”
Globalstar data service uses Point-to-Point Protocol (PPP) to carry data packets from your computer to the Globalstar Gateway.
2. In the “Configure” list, select “Using PPP Server.”
3. In most cases you should allow the server to set addresses and masks. Contact your SP or Internet Service Provider (ISP) to find out what information is required.
4. In the “Name server addr.:" field, enter one or more DNS addresses if supplied by your ISP. These addresses are often supplied automatically by the PPP server, in which case this field can be left blank.



Note

Name server address numbers in the illustration are examples only. Ask your Service Provider or ISP for the numbers you should enter.

5. In the “Search domains” field, enter the domain name assigned by your SP or ISP or any other domain names you would like appended to incomplete host names when searching. This field can be left blank if you will only be entering complete (fully qualified) host names in your applications.



6. Close the **TCP/IP** (“your configuration name”) dialog, answering “Yes” when asked if you want to save your changes.
7. Close **Remote Access**, answering “Yes” when asked if you want to save your changes.

Establishing a Data Connection



Caution

On your computer, make sure that no other application is using the modem port assigned for Globalstar data (you will see a warning box in this case). If another application such as the Palm HotSync Manager blocks the port, close the application or disable its control over the port before attempting a Globalstar data connection.

Establishing PPP Data Connections

PPP data connections can be either

- Packet (PPP) data only (example: browsing the Internet)
- Asynchronous data with PPP data (example: dialing into a modem behind a firewall, then accessing a corporate intranet)

To establish a connection using PPP data



Tip

Applications that use TCP/IP service (for example, a browser or e-mail application) may connect automatically when you open them, if you have selected “Connect automatically when starting TCP/IP applications” (as shown in “Setting Up the Remote Access Protocol” on page 67).

1. Make sure the Tri-Mode Phone is properly connected to your Macintosh computer (as described in “Connecting Macintosh Components” on page 57).
2. Turn on your Tri-Mode Phone.
3. Rotate or fully extend the appropriate antenna for the type of connection you wish to make (Globalstar satellite or cellular, as shown on page 61) and make sure you have a Globalstar or cellular signal.
4. From the **Apple** menu, select **Control Panel > Remote Access**.

or

From the **Apple** menu, select **Remote Access Status**.

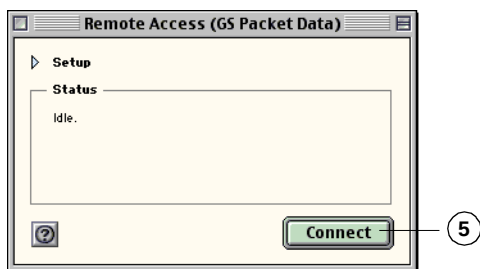
If you select **Control Panel > Remote Access**, the **Remote Access** dialog appears, showing the last active configuration. If that is not the configuration you wish to use for your connection, select **File > Configurations**, then select a configuration from the list and click **Make Active**.



Note

Remote Access Status is an alternate method available after MacOS 7.6. You could also establish a connection from the Control Strip, if you prefer.

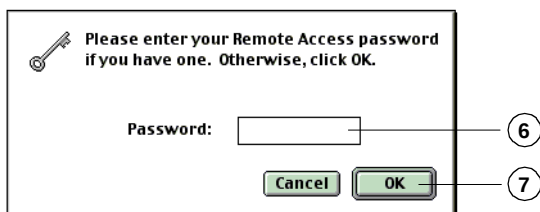
5. In the **Remote Access** or **Remote Access Status** dialog, click **Connect**.



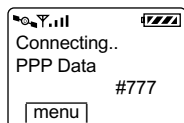
6. If you are connecting as a registered user (instead of a guest) and you chose not to enter a password during Remote Access setup, **Remote Access** prompts for your password. If you use one, enter it; otherwise, leave the box blank.

If you saved your password in “Setting Up the Remote Access Configuration” on page 65, or if you are connecting as a guest, this box will not appear.

7. Click **OK**.



While the Tri-Mode Phone is establishing the packet data connection, the Tri-Mode Phone screen looks like this:



Note

When you make a cellular call, the Globalstar icon  is replaced with the digital icon . When you make an asynchronous call, the screen reads “Async Data” and shows the telephone number.

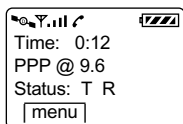
You are connected to the network when **Remote Access Status** on your Macintosh says “Connected,” the **Connect** button changes to **Disconnect**, and the Tri-Mode Phone screen says “PPP @ 9.6.” The “PPP @ 9.6”

indicates that the over-the-air data rate is 9600 bps. (The “T R” status stands for Transmit and Receive.) For an asynchronous connection, the screen shows the “Async” rate (usually 9.6).



Note

For cellular calls the Tri-Mode Phone screen says “PPP @ 14.4” or “PPP @ 9.6,” indicating an over-the-air rate of 14400 or 9600 bps.



You can now open typical communication applications to do anything you would normally do through an ISP.

To disconnect a PPP data connection

1. In the **Remote Access** or **Remote Access Status** dialog, click **Disconnect**.



Note

Remote Access Status is an alternate method available after MacOS 7.6.

Using Typical Communication Applications

Once you have established a packet (PPP) data service connection, you can use any communication applications based on IP network protocol, for instance Internet Web browsers, e-mail, FTP, or telnet applications.

The CD that came with your QUALCOMM Globalstar Packet Data Kit may include some typical communication applications for Macintosh, such as Eudora and Netscape Navigator.

Establishing Asynchronous (non-PPP) Data Connections

This section shows how to make a strictly asynchronous (non-PPP) data connection, using a terminal emulator application (for example: dialing into a BBS).

To establish an asynchronous (non-PPP) data connection

1. Make sure the Tri-Mode Phone is properly connected to your Macintosh computer (as described in “Connecting Macintosh Components” on page 57).
2. Turn on your Tri-Mode Phone.
3. Rotate the Globalstar satellite antenna (as shown on page 61) and make sure you have a Globalstar signal.
4. On your computer, open a terminal emulator application.

5. Make sure the application is configured with the following settings:

Setting:	Value:
Data bits	8
Parity	none
Stop bit	1
Baud rate	Must match the baud rate on your Tri-Mode Phone (default: 38400). To check or change the baud rate on your Tri-Mode Phone, select menu , then select Features > Data > Baud Rate .

6. Enter the AT command \$QCPKND=1 and the AT command “D” (“dial”) followed by the telephone number of the system or modem you want to connect to.

For example: AT\$QCPKND=1;D3035551212 <Enter>

Pressing <Enter> establishes the connection.

This chapter tells how to configure a Palm handheld organizer running the Palm OS to use Globalstar data service. To do this, you physically connect the Palm handheld to your QUALCOMM Globalstar Tri-Mode Phone, then, in most cases, set up a wireless “modem” and a network connection.

Configuration procedures are similar for all models of Palm handhelds (III, V, VII). However, to connect different models you may need different cables or optional adapters.



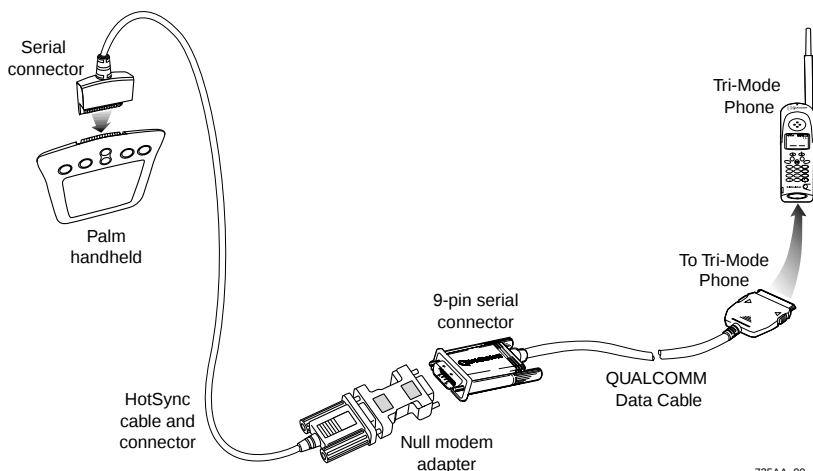
Note

The examples in this chapter use Palm OS 3.1.1. You may need a newer Palm OS, depending on which Palm you use, and newer Palm OS versions may differ from the examples here.

Connecting Palm Components

To use Globalstar data service with a Palm, you connect the following hardware components:

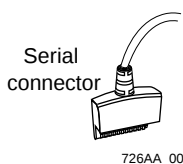
- Palm handheld organizer or PalmPilot
- HotSync cable (be sure you have the correct cable for your Palm model)
- Null modem adapter, male 9-pin on both ends
- QUALCOMM serial data cable (included in QUALCOMM Globalstar Packet Data Kit)
- QUALCOMM Globalstar GSP-1600 Tri-Mode Phone



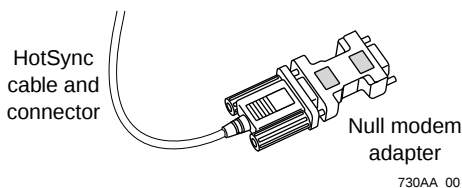
725AA_00

To connect a Palm handheld to the Tri-Mode Phone

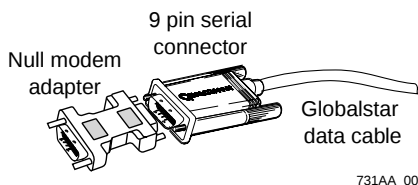
1. Turn off the power on your QUALCOMM Globalstar Tri-Mode Phone.
2. Connect the serial connector on the HotSync cable to your Palm.



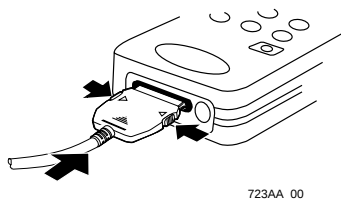
3. Connect the null modem adapter to the other end of the HotSync cable.



4. Connect the 9-pin serial end of the Globalstar data cable to the null modem adapter, and manually tighten the screws to hold it in place.

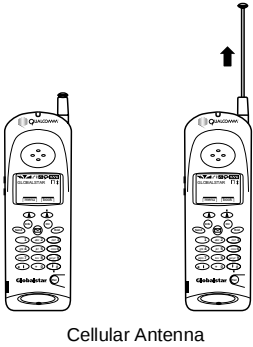
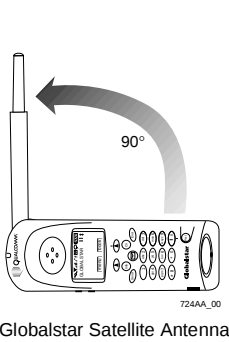


5. Holding the other end of the data cable, press both buttons on the side of the connector, then insert it into your Tri-Mode Phone with the arrow facing up (toward the phone's keypad). The connector should snap into place for a secure fit.



6. Turn on your Tri-Mode Phone.

7. Rotate or fully extend the appropriate antenna for the type of connection you wish to make (Globalstar satellite or cellular).



Note

If you cannot obtain a signal with the Globalstar Satellite Antenna in a 90° position, try rotating it further until you feel it click into place.

Configuring Your Palm Handheld

Configuration differs depending on the type of Globalstar data service you want to use: packet data, asynchronous connection with PPP data, or asynchronous data only, as shown in the following table.

What you need to configure for Palm Handhelds

Type of Globalstar data service:	Modem Preferences required?	Network Preferences required?
Packet data connections Example: browsing the Internet or sending email	Yes A modem preference lets your QUALCOMM Globalstar Tri-Mode Phone act as a wireless modem. <i>Go to: page 80</i>	Yes A network preference lets you access the Internet using Point-to-Point Protocol (PPP). <i>Go to: page 82</i>
Asynchronous connections that access packet (PPP) data Example: dialing into a modem behind a firewall, then accessing a corporate intranet	Yes You must set up a second modem with a different AT command. <i>Go to: page 80</i>	Yes You must configure a separate network preference for an asynchronous connection—if you will use it to access packet data. <i>Go to: page 82</i>

What you need to configure for Palm Handhelds

Type of Globalstar data service:	Modem Preferences required?	Network Preferences required?
Asynchronous data connections only Example: dialing into a BBS	No Not if you use Online or a similar program and just connect using a serial port (e.g., COM1). <i>Go to: page 87</i>	No Connect using Online or a similar program, without using Remote Access. <i>Go to: page 87</i>

Setting Up a Modem

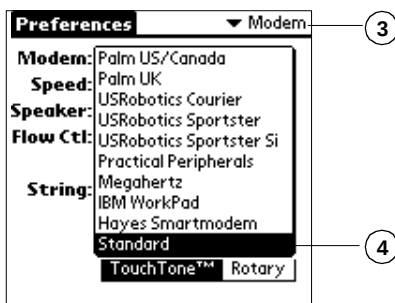
1. On your Palm handheld, tap the **Applications** (or **Home**) icon.
2. Tap **Prefs.**
3. On the **Preferences** screen, tap the Categories menu and select **Modem**.



Note

For some Palm OS versions, **Preferences/Connection** replaces **Preferences/Modem**.

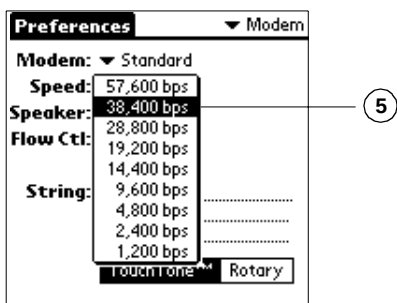
4. Tap **Modem** and select **Standard**.



Note

For some Palm OS versions, tap **New** instead of **Modem**.

5. Tap **Speed** and select **38,400 bps**.



The speed for the modem must match the baud rate on your Tri-Mode Phone (38400 bps is the phone's default). If the speeds are not the same, your computer cannot communicate with the Tri-Mode Phone.



Tip

You can check or change the baud rate on your Tri-Mode Phone by selecting **menu**, then selecting **Features > Data > Baud Rate**. If the baud rate on your Tri-Mode Phone is not set to 38400 bps, be sure to change the modem's speed so that the two speeds match.



Note

38400 bps is the speed at which the Tri-Mode Phone communicates with your Palm handheld, not the speed at which it communicates with the Gateway.

6. Set "Speaker" to "Off."
7. Set "Flow Ctl" to "On."
8. In the "String" field, type the AT (modem attention) command appropriate to packet or asynchronous data, as shown below:

At a Glance: Data Differences

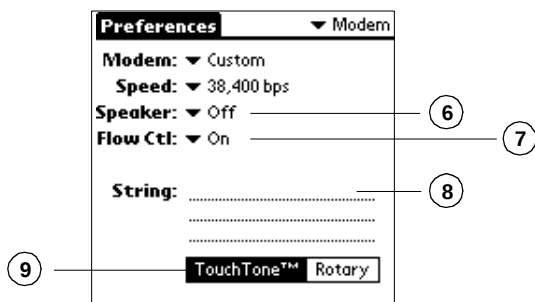
Data Type:	AT Command:
Packet	None (leave the field blank)
Asynchronous	\$QCPKND=2



Note

Make sure the "String" field does not include any AT commands that the Tri-Mode Phone does not support for packet data. See "Supported AT Commands" on page 117.

9. Make sure "TouchTone™" is highlighted.



Wireless modem setup is complete. Next you set up the network connection.

Setting Up Your Network Connection

You must create separate network connections for packet data and asynchronous data, if you want to use both types of connections for PPP data. “At a Glance” tables in the procedures show the key settings that differ for packet and asynchronous connections (for example, phone numbers).



Tip

Create a new connection for packet data first. Then, if you also want an asynchronous connection for PPP data, duplicate your packet data connection and rename it. Change only the properties shown in the “At a Glance” tables.

Configuring a New Network Service

1. On the **Preferences** screen, tap the Categories menu and select **Network**.
2. Tap **Service** and create a new network service called “GS Packet Data.”



Note

For some Palm OS versions there is a “Connection” field that is the name of the modem you are using.

3. “User Name” should remain blank and “Password” should read “-Prompt-”.

Preferences ▼ Network ①

▼ Service: GS Packet Data ②

User Name: ③

Password: -Prompt-

Phone: #777

Details... Connect



Note

In the “Password” field, “-Prompt-” indicates that if a password is required for connecting to your e-mail or other applications, you will be prompted for it at connection time.



Note

When making asynchronous data or digital cellular calls, a “User Name” is required to make a connection. Globalstar packet data calls do not require a user name or password.

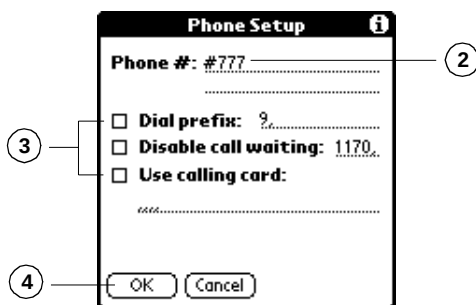
Configuring Phone Setup

1. On the **Preferences/Network** screen, tap the “Phone” field.
2. On the **Phone Setup** screen, in the “Phone #” field, enter the information appropriate to packet or asynchronous data, as shown below:

At a Glance: Data Differences

Data Type:	Telephone number:
Packet	#777 The numbers #777 tell the Gateway to set up a packet data connection.
Asynchronous	Phone number of the modem you wish to dial (for example, 303-555-1212). -or- A phone book entry from your Tri-Mode Phone (for example, 05). The phone will attempt to make a data call using the telephone number associated with that phone book entry.

3. Clear all the other checkboxes.
4. Tap **OK**.



Configuring Network Details

1. On the **Preferences/Network** screen, tap **Details....**
2. On the **Details** screen, make sure the “Connection type” is “PPP.”
Globalstar packet data service uses Point-to-Point Protocol (PPP) to carry data packets from your computer to the Globalstar Gateway.
3. Make sure “Idle timeout” is set to “Power Off.”



Note

Some ISPs automatically set the DNS information in Step 4. and Step 5. If yours does, you can skip to Step 6. Ask your Service Provider for details.

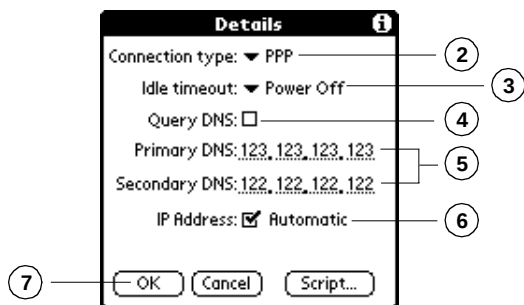
4. Make sure “Query DNS” is not checked, so that the “Primary DNS” and “Secondary DNS” fields appear.
5. In the “Primary DNS” and “Secondary DNS” fields, enter the DNS addresses assigned by your Service Provider or ISP.



Note

DNS address numbers in the illustration are examples only. Ask your Service Provider or ISP for the numbers you should enter.

6. Make sure “IP Address” is checked (“Automatic”).
7. Tap **OK**.



Making a Data Connection

Making Packet Data Connections

Packet data connections can be either

- Packet (PPP) data only (example: browsing the Internet)
- Asynchronous data with PPP data (example: dialing into a modem behind a firewall, then accessing a corporate intranet)

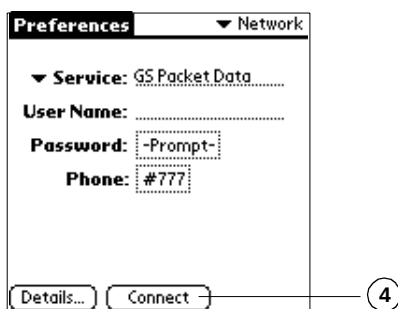
To make a connection using PPP data

1. Make sure the Tri-Mode Phone is properly connected to your Palm handheld (as described in “Connecting Palm Components” on page 77).
2. Power up your Tri-Mode Phone.
3. Rotate or fully extend the appropriate antenna for the type of connection you wish to make (Globalstar satellite or cellular, as shown on page 79) and make sure you have a Globalstar or cellular signal.
4. On your Palm handheld, go to the **Preferences/Network** screen and tap **Connect**.

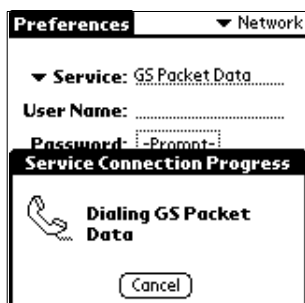


Note

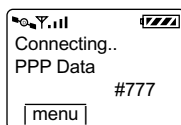
When making asynchronous data or digital cellular calls, a “User Name” is required to make a connection. Globalstar packet data calls do not require a user name or password.



On your Palm handheld, the **Service Connection Progress** dialog appears.



While the Tri-Mode Phone is establishing a packet data connection, the Tri-Mode Phone screen looks like this:



Note

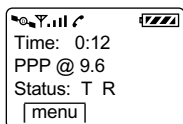
When you make a cellular call, the Globalstar icon  is replaced with the digital icon . When you make an asynchronous call, the screen reads “Async Data” and shows the telephone number.

You are connected to the network when the **Service Connection Progress** dialog says “Signing on, Established,” and then disappears, the **Connect** button changes to **Disconnect**, and the Tri-Mode Phone screen says “PPP @ 9.6.” The “PPP @ 9.6” indicates that the over-the-air data rate is 9600 bps. (The “T R” status stands for Transmit and Receive.) For an asynchronous connection, the screen says “Async @ 9.6.”



Note

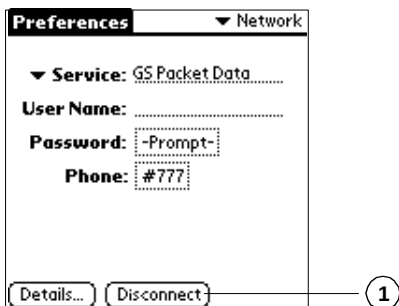
For cellular calls the Tri-Mode Phone screen says “PPP @ 14.4,” indicating an over-the-air rate of 14400 bps.



You can now open typical communication applications to do anything you would normally do through an Internet Service Provider (ISP).

To disconnect a packet data connection

1. On your Palm handheld, go to the **Preferences/Network** screen and tap **Disconnect**.



Using Palm Communication Applications

Once you have established a Globalstar packet data service connection, you can use any communication applications based on IP network protocol. For instance, Eudora Internet Suite provides e-mail and Web browsing applications for Palm handhelds.



Note

Some Web sites may not format pages for a Palm browser.

Making Asynchronous Data Connections

This section shows how to make a strictly asynchronous data connection (for example: dialing into a BBS).

To make an asynchronous data connection

1. Make sure the Tri-Mode Phone is properly connected to your Palm handheld (as described in “Connecting Palm Components” on page 77).
2. Turn on your Tri-Mode Phone.

3. Rotate the Globalstar satellite antenna (as shown on page 79) and make sure you have a Globalstar signal.
4. On your Palm handheld, open a terminal application (such as Online).
5. Make sure the application is configured with the following settings:

Setting:	Value:
Data bits	8
Parity	none
Stop bit	1
Baud rate	Must match the baud rate on your Tri-Mode Phone (default: 38400). To check the baud rate on your Tri-Mode Phone, select menu , then select Features > Data > Baud Rate .

6. Enter the AT command \$QCPKND=1 and the telephone number you want to dial.
For example: \$QCPKND=1;T303-555-1212
7. Make the connection.

This chapter tells how to configure a UNIX computer to use Globalstar data service. To do this, you physically connect the UNIX computer to your QUALCOMM Globalstar Tri-Mode Phone, then, in most cases, configure a “modem” and a packet data or an asynchronous connection.

Globalstar data service has been tested with the following:

- Solaris UNIX
- Red Hat Linux



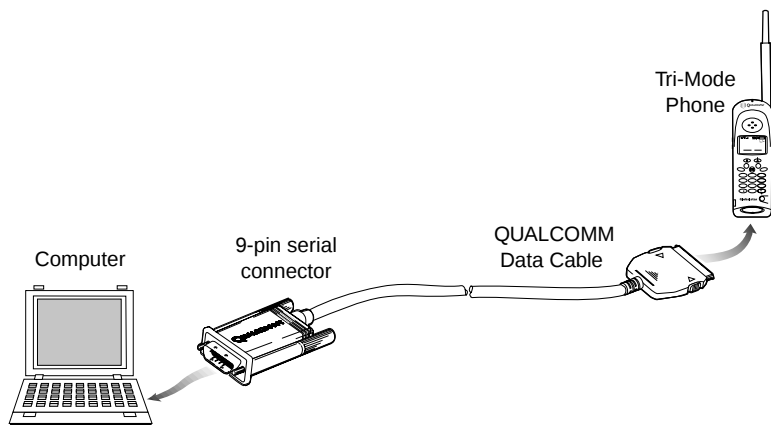
Note

The examples in this chapter use Solaris version 2.6 and Red Hat Linux 6.1. Setup for other UNIX OS versions and PPP applications may vary.

Connecting UNIX Components

To use Globalstar data service with UNIX, you connect the following hardware components:

- UNIX computer running Solaris or Red Hat Linux
- QUALCOMM serial data cable (included in QUALCOMM Globalstar Packet Data Kit)
- QUALCOMM Globalstar GSP-1600 Tri-Mode Phone



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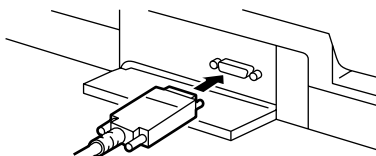
To connect a UNIX computer to the Tri-Mode Phone

1. Turn off the power on your Tri-Mode Phone. You can leave your computer on.
2. Attach the QUALCOMM data cable's 9-pin serial connector to a COM serial port (RS-232) on your workstation, and manually tighten the screws to hold it in place.

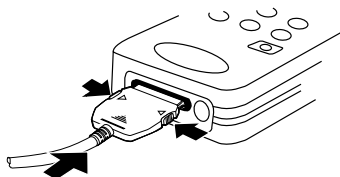


Note

Some computers may require an additional adapter if a 9-pin serial port is not available for connecting the QUALCOMM data cable.

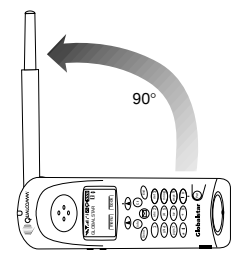


3. Holding the other end of the QUALCOMM data cable, press both buttons on the side of the connector, then insert it into your Tri-Mode Phone with the arrow facing up (toward the phone's keypad). The connector should snap into place for a secure fit.



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4. Turn on your Tri-Mode Phone.
5. Rotate or fully extend the appropriate antenna for the type of connection you wish to make (Globalstar satellite or cellular).



724AA_00

Globalstar Satellite Antenna



Cellular Antenna





Note

If you cannot obtain a signal with the Globalstar Satellite Antenna in a 90° position, try rotating it further until you feel it click into place.

Configuring Your Solaris UNIX Computer

You can interact with a Solaris UNIX system in many ways, from the command line to various graphical interfaces. No matter which interface you use, you must provide the same basic information to configure Globalstar data service.

Configuration differs depending on the type of Globalstar data service you want to use: packet data, asynchronous connection with PPP data, or asynchronous data only, as shown in the following table.

What you need to configure for Solaris UNIX

Type of Globalstar data service:	PPP Client required?
Packet data connections Example: browsing the Internet or sending email	Yes PPP Client lets your QUALCOMM Globalstar Tri-Mode Phone act as a wireless modem. <i>Go to: page 91</i>
Asynchronous connections that access packet (PPP) data Example: dialing into a modem behind a firewall, then accessing a corporate intranet	Yes You must set up a second PPP Client with a different AT command. <i>Go to: page 91</i>
Asynchronous data connections only Example: dialing into a BBS	No Not if you use tip or a similar program and just connect using a serial port (e.g., COM1). <i>Go to: page 96</i>

The configuration procedures in this section use Solstice PPP 3.0.1 as an example. A license and software for Solstice PPP is included with your purchase of the Solaris media. To install Solstice PPP, see the instructions in your Solaris documentation.

Setting Up the PPP Client

You must create separate remote server icons for packet data and asynchronous data, if you want to use both types of connections for PPP data. “At a Glance” tables in the procedures show the key settings that differ for packet and asynchronous connections (for example, phone numbers).



Tip

Create a new connection for packet data first. Then, if you also want an asynchronous connection for PPP data, duplicate your packet data remote server icon and rename it. Change only the properties shown in the “At a Glance” tables.

1. Log in as root or become superuser.
2. From the command line, type **/usr/bin/pppinit** and press **Enter**.
3. Select “[1] - Asynchronous client.”
4. Select “Modem Configuration.”
5. Select “[19] - Standard Hayes modem.”
6. Press **Enter** to set the serial port to default.
7. For the “Name of the remote server,” type **gs_packet_data** and press **Enter**.
8. For “Phone number for this server,” type the information appropriate to packet or asynchronous data, as shown below:

At a Glance: Data Differences

Data Type:	Phone number:	Reason:
Packet	T#777	The #777 tells the Gateway to set up a packet data connection.
Asynchronous	\$QCPKND=2;T303-555-1212	\$QCPKND=2 AT command, plus: Area code and phone number of the modem you wish to dial. -or- A phone book entry from your Tri-Mode Phone (for example, 05). The phone will attempt to make a data call using the telephone number associated with that phone book entry.

9. Press **Enter**.
10. For “Filename of the chat script” press **Enter** to accept the default.
This confirms the name of the script but does not create one.
11. When asked to create a template file, press **n** for no.
Globalstar data does not use chat scripts. Selecting no means no script will be created.



Note

Some PPP software may require that a chat script exist. After finishing this setup, you will need to “touch” the script named in Step 10.

12. For “Enter your IP address” press **Enter** for none.

13. For “Enter your Server IP address” press **Enter** for none.
Leaving these fields blank allows the server to set the addresses.
14. For “IP netmask for this interface” press **Enter** for none.
15. For “Enter your PAP Id” press **Enter** for none.
16. For “Enter your CHAP Name” press **Enter** for none.
17. For “Inactivity timeout” press **Enter** for the default of 120 seconds.
18. For “Do you want to add an access to another server?” press **n** for no.
19. Press **E** to save your changes and exit **pppinit**.

Enabling Domain Name Service

Before you can enable Domain Name Service (DNS), your ISP must provide the following information:

- The domain name of the subnetwork
- The IP addresses of your name servers

Some ISPs set DNS information automatically (ask your Service Provider for details). If yours does, you can skip to “Completing the Setup” on page 93.

1. Edit the file **/etc/nsswitch.conf**.
2. For “hosts,” type **files dns** and press **Enter**.
3. Create the file **/etc/resolv.conf**.
4. For “domain,” type the domain name (for example, **abc.company.com**) and press **Enter**.
5. For the first “nameserver,” type the primary DNS (for example, **123.123.123.123**) and press **Enter**.
6. For the second “nameserver,” type the secondary DNS (for example, **122.122.122.122**) and press **Enter**.
7. Press **Enter** twice to invoke the changes.
Changes take place automatically.

Completing the Setup

1. From the command line, “touch” the chat script, in this case **/etc/opt/SUMWconn/ppp/script/gs_packet_data.scr**.
This creates an empty script file. If the file already exists, open it with a text editor and make sure that it contains no lines of text.
2. Check the **/etc/opt/SUMWconn/ppp/link.conf** file and make sure the speed is set to 38400.
The speed for the PPP client must match the baud rate on your Tri-Mode Phone (38400 bps is the phone’s default). If the speeds are not the same, your computer cannot communicate with the Tri-Mode Phone.



Tip

You can check or change the baud rate on your Tri-Mode Phone by selecting **menu**, then selecting **Features > Data > Baud Rate**. If the baud rate on your Tri-Mode Phone is not set to 38400 bps, be sure to change the line speed for the PPP client so that the two speeds match.



Note

38400 bps is the speed at which the Tri-Mode Phone communicates with your computer, not the speed at which it communicates with the Gateway.

3. Type **exit** to log out as root and invoke the changes.

Checking the GS Packet Data Setup

1. Log in as you normally would (root not required).
2. From the command line, type **/usr/bin/ppptool** and press **Enter**. The information you provided to **pppinit** now appears in **ppptool**.
3. Double-click the host icon you want to connect to.
This is the name of the remote server you entered in **pppinit**: **gs_packet_data**.
4. In the **Connection** window, the “Phone number” field should show the telephone number you want to dial.
5. The “Local IP address” field should read “unassigned.”
6. The “Remote IP address” field should read “unassigned.”
Leaving these fields “unassigned” allows the server to assign the addresses.
7. The “Local inactivity timeout” field should read “120 second(s).”
This is the time the connection can remain unused before it automatically closes.

Making a Data Connection

Making Packet Data Connections

Packet data connections can be either

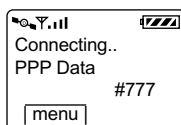
- Packet (PPP) data only (example: browsing the Internet)
- Asynchronous data with PPP data (example: dialing into a modem behind a firewall, then accessing a corporate intranet)

To make a connection using PPP data

1. Make sure the Tri-Mode Phone is properly connected to your UNIX computer (as described in “Connecting UNIX Components” on page 89).
2. Power up your Tri-Mode Phone.

3. Rotate or fully extend the appropriate antenna for the type of connection you wish to make (Globalstar satellite or cellular, as shown on page 90) and make sure you have a Globalstar or cellular signal.
4. In **ppptool**, double-click the host icon you want to connect to.
5. In the **Connection** window, click **Connect**.

The Tri-Mode Phone makes the data call. While the call is connecting, the Tri-Mode Phone screen looks like this:



Note

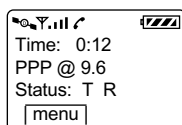
When you make a cellular call, the Globalstar icon  is replaced with the digital icon . When you make an asynchronous call, the screen reads “Async Data” and shows the telephone number.

You are connected to the network when the Status line reads “Connected,” the **Disconnect** button become active, and the Tri-Mode Phone screen says “PPP @ 9.6.” The “PPP @ 9.6” indicates that the over-the-air data rate is 9600 bps. (The “T R” status stands for Transmit and Receive.) For an asynchronous connection, the screen says “Async @ 9.6.”



Note

For cellular calls the Tri-Mode Phone screen says “PPP @ 14.4,” indicating an over-the-air rate of 14400 bps.



You can now open typical communication applications to do anything you would normally do through an Internet Service Provider (ISP).

To disconnect a packet data connection

1. Double-click the host icon you want to disconnect from.
2. In the **Connection** window, click **Disconnect**.

The connection is closed, the Status line reads “Disconnected,” and the **Connect** button becomes active.

Making Asynchronous Data Connections

This section shows how to make a strictly asynchronous data connection (for example: dialing into a BBS).

To make an asynchronous data connection

1. Make sure the Tri-Mode Phone is properly connected to your UNIX computer (as described in “Connecting UNIX Components” on page 89).
2. Turn on your Tri-Mode Phone.
3. Rotate the Globalstar satellite antenna (as shown on page 90) and make sure you have a Globalstar signal.
4. On your computer, open Solaris tip (or a similar application).
5. Make sure the application is configured with the following settings:

Setting:	Value:
Data bits	8
Parity	none
Stop bit	1
Baud rate	Must match the baud rate on your Tri-Mode Phone (default: 38400). To check the baud rate on your Tri-Mode Phone, select menu , then select Features > Data > Baud Rate .

6. Enter the AT command `$QCPKND=1` and the telephone number you want to dial.
For example: `$QCPKND=1;T303-555-1212`
7. Make the connection.

Configuring Your Linux Computer

You can interact with Linux systems in many ways, from the command line to various graphical interfaces. No matter which interface you use, you must provide the same basic information to configure Globalstar data service.

Configuration differs depending on the type of Globalstar data service you want to use: packet data, asynchronous connection with PPP data, or asynchronous data only, as shown in the following table.

What you need to configure for Linux

Type of Globalstar data service:	PPP configuration required?
Packet data connections Example: browsing the Internet or sending email	Yes A PPP configuration lets your QUALCOMM Globalstar Tri-Mode Phone act as a wireless modem. <i>Go to: page 97</i>
Asynchronous connections that access packet (PPP) data Example: dialing into a modem behind a firewall, then accessing a corporate intranet	Yes You must set up a second PPP configuration with a different AT command. <i>Go to: page 97</i>
Asynchronous data connections only Example: dialing into a BBS	No Not if you use Minicom or a similar program and just connect using a serial port (e.g., COM1). <i>Go to: page 106</i>

The configuration procedures in this section use Netconf, a part of the LinuxConf suite, as an example and assume that both Netconf and PPP are installed. To install Netconf and PPP, see the instructions in your Linux documentation.

Setting Up the Modem and PPP Connection

You must create separate configurations for packet data and asynchronous data, if you want to use both types of connections for PPP data. “At a Glance” tables in the procedures show the key settings that differ for packet and asynchronous connections (for example, phone numbers).



Tip

Create a new configuration for packet data first. Then, if you also want an asynchronous connection for PPP data, duplicate your packet data configuration and rename it. Change only the properties shown in the “At a Glance” tables.

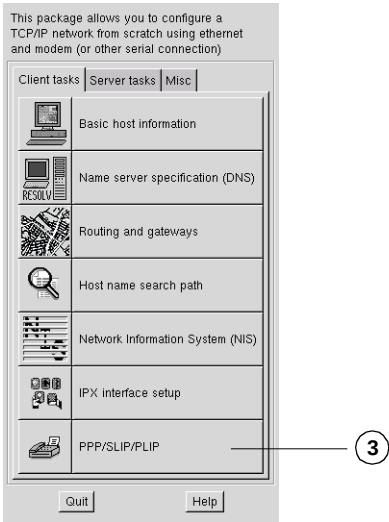
Using Netconf, you can set up a modem and a PPP connection in the same series of steps.

- 1. Log in as root.
- 2. Run **netconf**.
- 3. Click **PPP/SLIP/PLIP** to open the **Configurations** dialog.

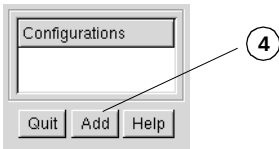


Note

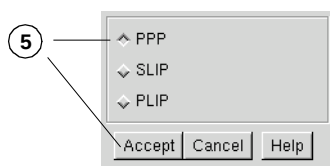
If “**PPP/SLIP/PLIP**” is not available, PPP may not be installed on your system.



- 4. In the **Configurations** dialog, click **Add**.



5. Select **PPP** and click **Accept**.

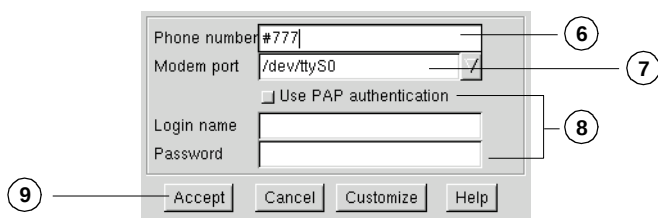


6. In the “Phone number” field, type the information appropriate to packet or asynchronous data, as shown below:

At a Glance: Data Differences

Data Type:	Telephone number:
Packet	#777 The #777 tells the Gateway to set up a packet data connection.
Asynchronous	Phone number of the modem you wish to dial (for example, 303-555-1212). -or- A phone book entry from your Tri-Mode Phone (for example, 05). The phone will attempt to make a data call using the telephone number associated with that phone book entry.

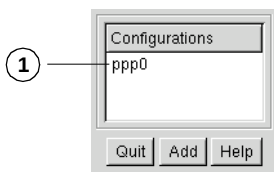
7. Select the modem port you have connected the Tri-Mode Phone to. In most cases it should be the default port.
8. Leave the “Use PAP authentication” and the “Login name” and “Password” fields blank unless your ISP tells you to fill them in.
9. Click **Accept**.



The **Configurations** dialog now has a new entry, “ppp0.”

Configuring the PPP Connection

1. In the **Configurations** dialog, double-click **ppp0**.



2. On the **Hardware** tab, select all of the checkboxes except “Escape control characters.”
3. Set “Line speed” to 38400.

The line speed for the PPP connection must match the baud rate on your Tri-Mode Phone (38400 bps is the phone's default). If the speeds are not the same, your computer cannot communicate with the Tri-Mode Phone.



Tip

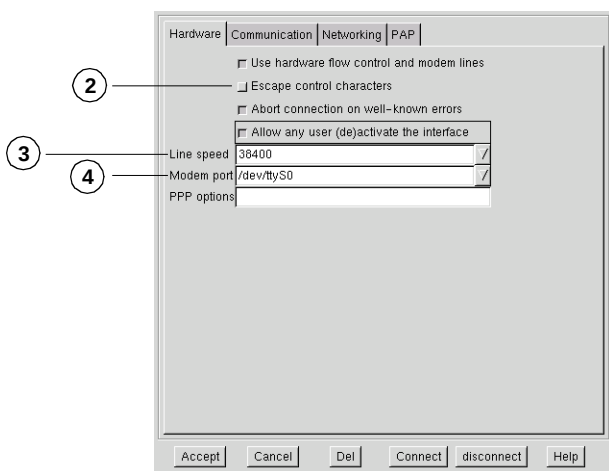
You can check or change the baud rate on your Tri-Mode Phone by selecting **menu**, then selecting **Features > Data > Baud Rate**. If the baud rate on your Tri-Mode Phone is not set to 38400 bps, be sure to change the line speed for the PPP connection so that the two speeds match.



Note

38400 bps is the speed at which the Tri-Mode Phone communicates with your computer, not the speed at which it communicates with the Gateway.

4. The modem port should be set to the port you chose previously.



5. On the **Communication** tab, make sure that “Modem init string” has the ATZ command plus an additional AT command, as shown below:

At a Glance: Data Differences

Type of Globalstar data service:	AT Command:
Packet data	No additional command required
Asynchronous data	\$QCPKND=2



Note

Make sure that “Modem init string” and “Modem dial command” do not include any AT commands that the Tri-Mode Phone does not support for data. (See “Supported AT Commands” on page 117.)

6. Make sure that the telephone number you want to dial appears in the “Phone number” field.
7. Clear all fields in the “Chat” section.

Hardware | Communication | **Networking** | PAP

Modem init string: ATZ (5)

Modem dial command: ATDT

Phone number: #777 (6)

☐ Debug connection

Chat

Expect

Send

Expect

Send

Expect

Send

Expect

Send

Expect

Send

Expect

Send

Expect

Send

Accept Cancel Del Connect disconnect Help

8. The **Networking** tab should not require any changes.

Hardware | Communication | **Networking** | PAP

☒ Activate interface at boot time (8)

☐ Set default route

☐ restart link when connection fails

Timeout values in seconds

No connection: 5

Broken connection:

Maximum package size

MRU (296-1500):

MTU (296-1500):

Infrequently-used options

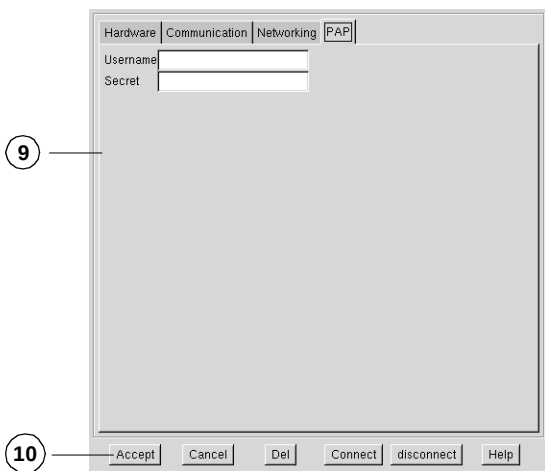
Local IP address:

Remote IP address:

Accept Cancel Del Connect disconnect Help

9. Leave the **PAP** tab blank.

10. Click **Accept**.



Configuring the Name Server

Some ISPs set DNS information automatically. If yours does, you can skip to “Saving Your Settings” on page 104. Ask your Service Provider for details.

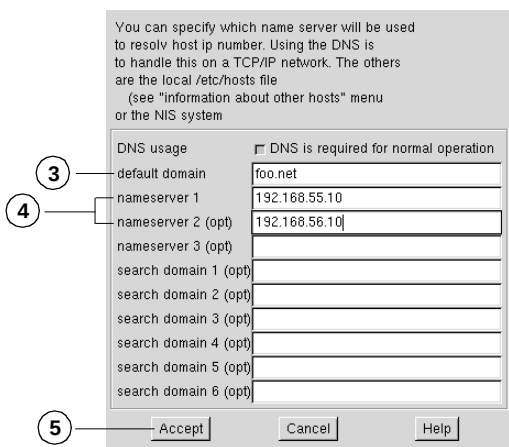
1. In the **Configurations** dialog, click **Quit**.
2. On the Netconf screen, click **Name Server Specification (DNS)**.
3. In the “default: domain” field, enter the domain name assigned by your Service Provider or ISP.
4. In the “nameserver 1” and “nameserver 2” fields, enter the DNS addresses assigned by your Service Provider or ISP.



Note

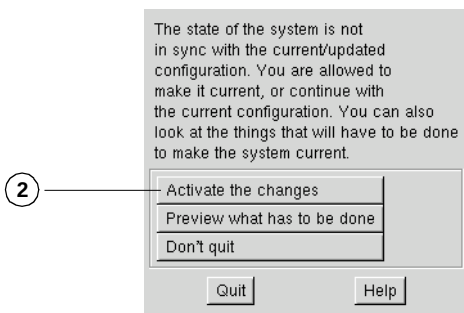
The domain name and DNS addresses in the illustration are examples only. Ask your Service Provider or ISP for the numbers you should enter.

5. Click **Accept**.



Saving Your Settings

1. On the Netconf screen, click **Quit**.
2. On the activation dialog that appears, click **Activate the changes**.



3. Type **exit** to log out as root.

Your computer is now ready to make a data connection.

Making a Data Connection

Making Packet Data Connections

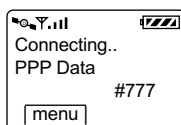
Packet data connections can be either

- Packet (PPP) data only (example: browsing the Internet)
- Asynchronous data with PPP data (example: dialing into a modem behind a firewall, then accessing a corporate intranet)

To make a connection using PPP data

1. Make sure the Tri-Mode Phone is properly connected to your Linux computer (as described in “Connecting UNIX Components” on page 89).
2. Power up your Tri-Mode Phone.
3. Rotate or fully extend the appropriate antenna for the type of connection you wish to make (Globalstar satellite or cellular, as shown on page 90) and make sure you have a Globalstar or cellular signal.
4. On the command line of your computer, type **usernetctl ppp0 up** and press **Enter**.

The Tri-Mode Phone makes the data call. While the call is connecting, the Tri-Mode Phone screen looks like this:



Note

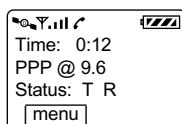
When you make a cellular call, the Globalstar icon  is replaced with the digital icon . When you make an asynchronous call, the screen reads “Async Data” and shows the telephone number.

You are connected to the network when the Tri-Mode Phone screen says “PPP @ 9.6.” The “PPP @ 9.6” indicates that the over-the-air data rate is 9600 bps. (The “T R” status stands for Transmit and Receive.) For an asynchronous connection, the screen says “Async @ 9.6.” When the connection is made, the status is logged to the system log.



Note

For cellular calls the Tri-Mode Phone screen says “PPP @ 14.4,” indicating an over-the-air rate of 14400 bps.



You can now open typical communication applications to do anything you would normally do through an Internet Service Provider (ISP).

To disconnect a packet data connection

1. On the command line of your computer, type **usernetctl ppp0 down** and press **Enter**.

The connection is closed and the status is logged to the system log.

Making Asynchronous Data Connections

This section shows how to make a strictly asynchronous data connection (for example: dialing into a BBS).

To make an asynchronous data connection

1. Make sure the Tri-Mode Phone is properly connected to your Linux computer (as described in “Connecting UNIX Components” on page 89).
2. Turn on your Tri-Mode Phone.
3. Rotate the Globalstar satellite antenna (as shown on page 90) and make sure you have a Globalstar signal.
4. On your computer, open Minicom (or a similar application).
5. Make sure the application is configured with the following settings:

Setting:	Value:
Data bits	8
Parity	none
Stop bit	1
Baud rate	Must match the baud rate on your Tri-Mode Phone (default: 38400). To check the baud rate on your Tri-Mode Phone, select menu , then select Features > Data > Baud Rate .

6. Enter the AT command **\$QCPKND=1** and the telephone number you want to dial.
For example: **\$QCPKND=1;T303-555-1212**
7. Make the connection.

QUALCOMM Globalstar Hands-Free Car Kit

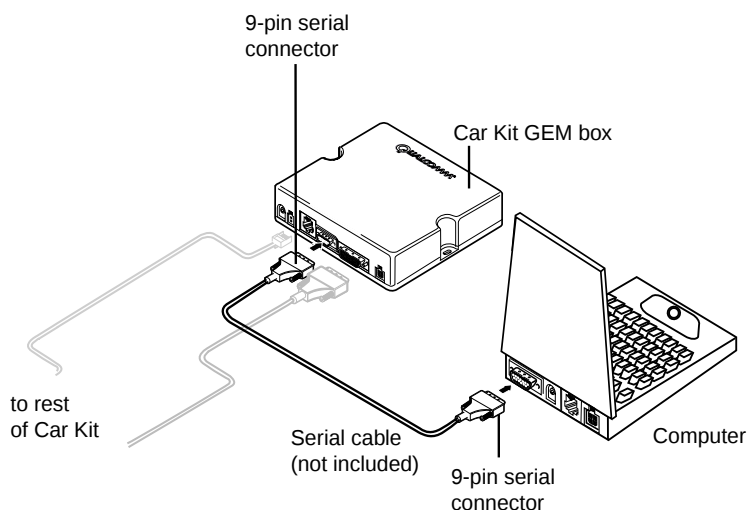
You can use Globalstar data service in a vehicle equipped with a QUALCOMM Globalstar Hands-Free Car Kit.

Connecting Car Kit Components

To use Globalstar data service with a QUALCOMM Globalstar Hands-Free Car Kit, the car kit should be installed as usual for your QUALCOMM Globalstar Tri-Mode Phone. For details, see the *QUALCOMM Globalstar GCK-1400 Hands-Free Car Kit Installation / User Guide* (document number 80-98438-1).

In addition, you connect the following hardware components:

- A laptop or handheld computer
- A serial cable with a male 9-pin connector on one end and a female 9-pin connector on the other
- Other cables or adapters, if required for your specific computer



To connect a computer or Palm handheld to the car kit

1. Attach the 9-pin connector of the serial cable to the 9-pin serial port on the GEM (Globalstar Electronic Module) box of the car kit.
2. Attach the other end of the serial cable to a 9-pin COM port (RS-232) on your Windows or UNIX computer.

or

Attach the other end of the serial cable to adapters or additional cables, as required, for your Macintosh computer or Palm handheld. See “Connecting Macintosh Components” on page 57 or “Connecting Palm Components” on page 77 for details.

Commercially Available Accessories

The QUALCOMM Globalstar Packet Data Kit includes the following accessories:

- QUALCOMM serial data cable
- Compact Disc (CD-ROM) that includes this User Guide

This chapter describes optional accessories that you may need to complete your hardware setup, depending on which computer you use. These accessories are readily available from commercial retail outlets that carry computer supplies, for example electronics, computer, or office supply stores such as (but not limited to) Radio Shack, CompUSA, Staples, or Office Depot.

Indoor/Outdoor Extension Cable

An extension cable lets you place the Tri-Mode Phone outdoors and connect it to a computer inside a building, to avoid sun glare and make the computer screen easier to read. The cable should have a 9-pin male connector on one end and a 9-pin female on the other, with a maximum length of 30 meters.

Palm Cable and Null Modem Adapter

If you are using a Palm handheld without a built-in 9-pin D serial port, you need a cable and adapter to interface with the QUALCOMM data cable for the Tri-Mode Phone (TIA/EIA-574 DTE serial interface).

A Palm cable connects a Palm handheld to a null modem adapter, which attaches to the QUALCOMM data cable. Depending on the Palm model, this may be a HotSync cable or other type of Palm cable. For connection details, [see “Connecting Palm Components” on page 77](#).

The null modem adapter (for a TIA/EIA-574 DTE serial interface) should have 9-pin male connectors on each end. Alternatively, you could use a 9-pin male-to-female null modem adapter and a gender-changer adapter to connect to the Palm. (Most commercially available null modem adapters are male-to-female.)

Macintosh Adapters and Modem Cable

If you are using an Apple Macintosh, you need accessories to interface with the QUALCOMM data cable for the Tri-Mode Phone (TIA/EIA-574 DTE serial interface).

If your Macintosh has USB (Universal Serial Bus) ports, you need a USB adapter to connect your Macintosh to the QUALCOMM data cable. Associated software for the USB adapter must be installed on your Macintosh.

If your Macintosh has mini-DIN 8 (non-USB) ports, you need a Macintosh modem cable and an adapter.

The modem cable should have a round mini-DIN 8 connector on one end, to connect to your Macintosh. On the other, it should have a 25-pin female connector. An adapter connects the 25-pin end of the Macintosh modem cable to the 9-pin end of the QUALCOMM data cable. For connection details, see “Connecting Macintosh Components” on page 57.

Both the Macintosh modem cable and the adapter must have specific pin configurations to work with Globalstar data. For pinout details, see [Table 1](#).

**Table 1. Required Pinouts for Macintosh Modem Cable and Adapter
(for Non-USB Computers)**

Mini-DIN-8	Apple Signal	EIA-232 Signal	DB-25 pin	EIA-574 DE-9 pin
1	HSKo	RTS/RFR and DTR	4 and 20	7 and 4
2	HSKi	CTS	5	8
3	TxD–	TxD	2	3
4	GND	GND	7	5
5	RxD–	RxD	3	2
6	TxD+	NC	NC	NC
7	GPi	RLSD (DCD)	8	1
8	RxD+	GND	7	5

QUALCOMM Globalstar Hands-Free Car Kit Cable

To use Globalstar data service in a vehicle equipped with a QUALCOMM Globalstar Hands-Free Car Kit, you need one additional cable: a serial cable with a male 9-pin connector on one end and a female 9-pin connector on the other. This is the same type of cable as the optional extension cable, only shorter.

This cable connects the GEM (Globalstar Electronic Module) box of the car kit to a laptop computer. For connection details, see [“Connecting Car Kit Components” on page 107](#).

Troubleshooting

If you are having a problem with Globalstar data service, try the following troubleshooting tips. If that does not solve the problem, contact your service provider's customer care center.

Problem	Solution
<i>General</i>	
Your Tri-Mode Phone cannot get a signal.	General: ■ Make sure the Tri-Mode Phone's battery is charged and properly installed. Cellular: ■ Fully extend the cellular antenna. ■ Make sure you are clear of any objects that could block the signal. Globalstar: ■ Make sure the Tri-Mode Phone is outdoors. ■ Extend the Globalstar Satellite Antenna at least 90°, or, if that does not work, rotate it further until you feel it click into place. ■ Position the Tri-Mode Phone so the Globalstar Satellite Antenna points straight up to the sky. ■ Make sure the Globalstar Satellite Antenna has a clear view of the sky, not blocked by tall obstacles such as buildings and trees.
Your Tri-Mode Phone has a signal but you cannot connect to the data network.	■ Make sure the Tri-Mode Phone and your computer are connected correctly and make sure all connectors are tight (see the appropriate chapter for your type of computer). ■ Check your modem and network settings (see the appropriate chapter for your type of computer). ■ For packet data, make sure the telephone number being dialed is #777.

Problem	Solution
Nothing happens on the Tri-Mode Phone when you try to connect, a message says “No dial tone,” or a message says “hardware failure.”	■ Make sure the baud rate in your “Globalstar data modem” settings matches the baud rate on your Tri-Mode Phone (default: 38400). Check the baud rate on your Tri-Mode Phone by selecting menu > Features > Data > Baud Rate, then change it if necessary. ■ Make sure the battery for the laptop or Palm handheld is charged, or that the laptop or Palm is properly plugged into a power supply. It is possible to have a low battery charge that will run the laptop but will not drive the serial port.
When you try to connect, your computer says “No dial tone” and the screen on your Tri-Mode Phone says “Check mode preferences” or “Mode mismatch.”	■ Make sure the data mode preferences (Globalstar satellite, digital cellular) on your Tri-Mode Phone are compatible with those set for voice service. Check the preferences on your phone by selecting menu > System > AutoMode > Data or Voice. See “Setting Mode Preferences for Data” on page 7 for more information. ■ Make sure “Analog only” is not selected under menu > System > AutoMode > Voice > Cell Pref. Data service is not available for analog cellular connections. ■ Make sure “Analog” is not selected under menu > System > Manual Mode. Data service is not available for analog cellular connections.
You have a PPP connection but your Internet applications cannot connect to your ISP.	■ Your Internet applications must be set up for your ISP. Check these settings and contact your ISP for further information.

Problem	Solution
<i>Asynchronous Data</i>	
When you try to connect, your Tri-Mode Phone says "Busy."	■ The target modem (or modem pools used for routing) may be busy. Try connecting again later.
When you try to connect, your Tri-Mode Phone says "No carrier."	■ You may have dialed a wrong number, reaching a voice phone instead of a modem. Check the phone number. ■ Make sure the Globalstar antenna is extended at least 90°.
When you try to connect, your Tri-Mode Phone says "No answer."	■ The target modem is not answering, or a wrong number is not answering. Check the phone number and try connecting again later.
When you try to connect, your Tri-Mode Phone says "No dial tone."	■ Make sure "Cell Only" is not selected under menu > System > AutoMode > Data or menu > System > AutoMode > Voice. Asynchronous data service is not available for cellular connections. See "Setting Mode Preferences for Data" on page 7 for more information.
Your asynchronous call takes a long time to connect.	■ This may be normal. Asynchronous connections have higher overhead and thus are slower than packet data calls.

Problem	Solution
Windows Computers	
Your Tri-Mode Phone has a signal but you cannot connect to the data network.	■ Make sure that Maximum Speed for your “Globalstar data modem” matches the baud rate on your Tri-Mode Phone. Check the baud rate on your Tri-Mode Phone by selecting menu > Features > Data > Baud Rate, then change it if necessary. ■ For a packet data connection, make sure the number being dialed is #777. If the # character does not appear in the dial string, you can type it in manually before connecting. For a more permanent fix, see “Setting Dial Properties” on page 31. ■ Make sure you have selected the COM port to which the Tri-Mode Phone is connected. (See “Selecting the COM Port” on page 18.) ■ On your computer, make sure that no other application is using the serial port (e.g., COM1) assigned for Globalstar data service. If another application, such as Palm HotSync Manager, blocks the serial port, disable its control over the port before attempting a data connection.
Your serial mouse does not function properly.	■ A COM port conflict may exist. Make sure you have properly configured the COM port to which the Tri-Mode Phone is attached. Refer to your computer’s manual for additional assistance on managing COM ports.
Your computer locks up when accessing the Tri-Mode Phone.	■ A conflict with COM ports and IRQs may exist. Refer to your computer’s manual for additional assistance.

Problem	Solution
<i>Macintosh Computers</i>	
Your Tri-Mode Phone has a signal but you cannot connect to the data network.	■ Make sure the baud rate on your Tri-Mode Phone matches that for the “QUALCOMM Globalstar Phone Modem.” Check the baud rate on your Tri-Mode Phone by selecting menu > Features > Data > Baud Rate, then change it to 38400 bps if necessary. ■ On your computer, make sure that no other application is using the modem port assigned for Globalstar data service. If another application, such as Palm HotSync Manager, blocks the port, disable its control over the port before attempting a data connection.
<i>Palm Handhelds</i>	
The Palm tries to connect but the Tri-Mode Phone does not respond.	■ Make sure you have a current Palm operating system (OS) installed. Sometimes a newer Palm model running an older OS version cannot make data connections properly. ■ Make sure the String field under Preferences/Modem does not include any AT commands that the Tri-Mode Phone does not support for data. (See “Setting Up a Modem” on page 80 and “Supported AT Commands” on page 117.)
You have a connection but your browser cannot access a Web page, or you are having authentication problems not due to user name/password errors.	■ If Web pages use CHAP (Challenge Handshake Authentication Protocol), you may need to upgrade your Palm OS to work with them.

Problem	Solution
<i>UNIX Computers</i>	
The computer tries to connect but the Tri-Mode Phone does not respond.	■ Make sure the PPP daemon is running (see the PPP documentation). ■ Make sure the modem initialization string and dial commands do not include any AT commands that the Tri-Mode Phone does not support for data. (See “Supported AT Commands” on page 117.) ■ Make sure the baud rate for your “Globalstar data modem” matches the baud rate on your Tri-Mode Phone. Check the baud rate on your Tri-Mode Phone by selecting menu > Features > Data > Baud Rate, then change it if necessary.

Supported AT Commands

For data service, your QUALCOMM Globalstar phone works as a wireless modem. In other words, it functions as Data Communications Equipment (DCE) that communicates with your computer, or Data Terminal Equipment (DTE).

In the process, your computer sends AT (modem attention) commands to the phone. Table 2 shows the AT (Hayes modem compatible) commands that the phone supports for data. For many commands, the entries for “Value Range,” “No Value Range,” “No Value Definition,” or “Power ON Definition” have no valid value. These entries have different symbols in place of values:

- A dash “-” character means that, for this command, the value is either not present or not allowed.
- A caret “^” character means that no current value state (or Power-ON state) is kept internally.
- An asterisk “*” character means you should consult a footnote for this entry.

The command syntax uses the following conventions:

- Words enclosed in <angle brackets> identify parameters that can be specified as part of the command.
- Syntactical elements enclosed in [square brackets] are optional and may be omitted from the command line.
- Syntactical elements enclosed in {brackets} are required and must be specified as part of the command.
- The use of | between syntactical elements indicates only one of the elements may be specified as part of the command. For example, the command syntax for S3{=<value>|?} must be either S3=<value> or S3?.
- The “+” and “\$” characters are used to identify extended AT commands. “+” and “\$” denote standard and manufacturer-specific extended commands respectively.
- A semicolon (“;”) is used to concatenate additional commands (basic or extended) after an extended command.

Table 2. Supported AT Commands

AT Command and Syntax	AT Command Description (brief)	Value Range	No Value Definition	Power ON Definition
E[<value>]	Echo OFF ON	[0-1]	0	1
I[<value>]	Request Identification Information	[0-2]	0	^
L[<value>]	Monitor Speaker Loudness	[0-3]	0	^

Table 2. Supported AT Commands (continued)

AT Command and Syntax	AT Command Description (brief)	Value Range	No Value Definition	Power ON Definition
M[<value>]	Monitor Speaker Mode	[0-2]	0	^
P	Select Pulse Dialing	-	-	^
Q[<value>]	Result Code Suppression	[0-1]	0	0
T	Select Tone Dialing	-	-	^
V[<value>]	DCE Response Format	[0-1]	0	1
X[<value>]	Result Code Selection Command	[0-4]	0	4
Z[<value>]	Reset Default Configuration	0	0	^
&C[<value>]	DCE RLSD (DCD) Behavior	[0-2]	0	1
&D[<value>]	DTE DTR Behavior	[0-2]	0	2
&F[<value>]	Set to QUALCOMM-Defined Default Configuration	0	0	^
A	Answer Command	-	-	-
A ¹	Repeat Last Command	-	-	^
D<dial string>[:]	Dial	Dial strings = #*0123456789ABCD String modifiers = W,!@\$TP	^	^
H[<value>]	Hook Control	[0, 777]	0	^
O[<value>]	Return to Online State	0	0	^
S0[=<value> ?]	Automatic Answer	[0-255]	-	0
S3[=<value> ?]	Command Line Termination Character	[0-127]	-	13
S4[=<value> ?]	Response Format Character	[0-127]	-	10
S5[=<value> ?]	Command Edit Character	[0-127]	-	8
S6[=<value> ?]	Pause Before Blind Dialing Time	[2-10]	-	2
S7[=<value> ?]	Connection Completion Timeout in seconds	[1-255]	-	50

Table 2. Supported AT Commands (continued)

AT Command and Syntax	AT Command Description (brief)	Value Range	No Value Definition	Power ON Definition
S8[=<value> ?]	Comma Dial Modifier Time	[0-255]	-	2
S9[=<value> ?]	Carrier Detect Threshold Timeout	[0-255]	-	6
S10[=<value> ?]	Carrier Loss to Disconnect Timeout	[1-255]	-	14
S11[=<value> ?]	DTMF Tone Duration and Spacing	[50-255]	-	95
S777[=<value> ?]	Silent Retry Timeout (QUALCOMM-specific command)	[0-255]	-	150
+ICF[=<format> ?][=<format> , [<parity>]]? =?]	Character Framing Settings	(0-3)	3,3	3,3
+IFC[=<DCE_by_DTE> ?][=<DCE_by_DTE> , [<DTE_by_DCE>]]? =?]	Local Flow Control Settings	(0-3)	2,2	2,2
+IPR[=<rate> ? =?]	Rm Interface Baud Rate Setting	300, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200	*2	The power-on default baud rate is set through the phone's user interface ([menu] <4> <3>).
+CRM[=<value> ? =?]	Rm Interface Protocol Setting	(1-1)	1	1
~+++~ ³	Direct the DCE to change from online to online-command mode.	-	-	-
+CFG[=<string> ?]	Set Remote Config String Command	*4	*4	*4
+GSN[=<value> ?]	Read Phone ESN	-	-	-
+DS[=<dir> , <comp_neg> , <max_dict> , <max_string>]] ? =?]	IWF (Interworking Function) Data Compression Control	(0-3), (0-1), (512-65535), (6-250)	3, 0, 2048, 6	3, 0, 2048, 6
+ES[=<orig_rqst> , <orig_fbk> , <ans_fbk>]] ? =?]	IWF Error Control Selection	(0-4), (0-4), (0-6)	3, 0, 2	3, 0, 2
+MS[=<carrier> , <automode> , <min_rate> , <max_rate> , <min_rx_rate> , <max_rx_rate>]]]] ? =?]	IWF Modulation Selection	*4	*4	*4
\$QCMODE[=<mode> ? =?]	Set Mode: Auto, Globalstar, Digital, Analog	(1-4) 1=Auto-detect 2=Globalstar 3=Digital 4=Analog	1	1 ⁵
\$QCERR	Send formatted Error Log info to DTE	-	-	-

Table 2. Supported AT Commands (continued)

AT Command and Syntax	AT Command Description (brief)	Value Range	No Value Definition	Power ON Definition
\$QCCLR	Clear Error Log	-	-	-
\$QCSA[=<alert> ? =?]	Set Alert on Service change	(0-1) 0=Service Alert OFF 1=Service Alert ON	1	0
\$QCSTATUS	Send formatted Service Status to DTE	-	-	-
\$QCTOD[=<tformat> =?]	Send formatted Time-of-Day to DTE	(0-1) 0=<YYY>:<DOY> <HH:MM:SS> 1=<DD> <MM> <YYY> <HH:MM:SS>	0	-
\$QCPLS[=<position type> = [<position type>], [<tformat>] =?]	Send formatted Position info to DTE	(0-1) 0=Request Current 1=Get last (0-1) 0=TOD format 0 1=TOD format 1	0, 0	-
\$QCMSTATS	Send formatted Markov statistics to DTE	-	-	-
\$QCQNC[=<value> ? =?]	Set Packet Data call Service Option	(0-1) 0=disabled 1=enabled	1	1
+CMUX[=<mux> ? =?]	Set Forward MUX Option	(1-2) 1=rateset 1 2=rateset 2	2	2
\$QCPKND[=<mode> ? =?]	Set Data Packet Reconnect Methods	(0-2) 0=Packet data 1=Asynchronous data 2=Selective mode: uses same mode as last data call	0	0
\$QCSMSA[=<alert> ? =?]	Set Alert on new SMS message arrival	(0-1)	1	0
\$QCSMSI	Send SMS message counts info to DTE	-	-	-
\$QCSMSL[=<lock> =?]	Lock current SMS message	(0-1)	0	-
\$QCSMSM[=<move> = [<move>], [] =?]	SMS list traversal and manipulation	(0-3), (0-1)	0, 0	-
\$QCSMSP[=<tformat> =?]	Print formatted info for current SMS message	[0-1]	0	-

Table 2. Supported AT Commands (continued)

AT Command and Syntax	AT Command Description (brief)	Value Range	No Value Definition	Power ON Definition
⁶ \$QCTCP[=<tcpmod> =<tcpmod>[,<lowertxmss>[,<uppertxmss>[,<rxmss>[,<minrto>[,<maxrt>[,<minato>[,<maxato>[,<maxtcpbackoff>]]]]]] ? =?]	TCP Stack Changes	(0-1) ⁷ (0-1500) (0-1500) (0-1500) (0-1500) (0-120000) (0-120000) (0-1000) (0-6000) (0, 1-100)		0 536 536 536 500 6000 100 6000 0
⁶ \$QCVJ[=<usevj> ? =?]	Use Van Jacobsen Header Compression	(0-1)	1	1

¹A/ command is a special function that does not require the AT command header or the S3 command terminator character and causes the execution of the previously entered AT command.

²When no parameter value is sent with the +IPR command, the default baud rate is assumed.

³The ~ character represents "guard-time" before and after the +++ escape sequence.

⁴This parameter is a quoted string, saved in the phone, and downloaded to the Gateway Interworking Function modem when establishing an Asynchronous Data call.

⁵The phone will always Power-On in Auto mode, using the service based on the user's preferences.

⁶This is an advanced AT command. Do not use it if you do not understand what it does.

⁷If <tcpmod> is equal to one, the values in the rest of the variables will be put into effect. If <tcpmod> is set to zero, the rest of the values entered into the AT command will be ignored, and the default values will be restored to the internal variables.

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