RIM OEM Radio Modem for GSM/ GPRS Wireless Networks

RIM 1902G™ and RIM 1802G™

Getting Started Guide

Version 1.2

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Contents

About this guide

This guide provides information on the following topics:

- setting up the Interface and Test Board
- connecting the radio modem to your computer

This guide is intended to help you start testing the RIM 1902G™ or RIM 1802G™ radio modems.

Related resources

Refer to the following documentation, which is included in the Integrator's Kit:

- *Integrator Guide*

  The *Integrator Guide* explains how to integrate the RIM 1802G or RIM 1902G into a variety of devices. This guide explains integration steps, provides an overview of the test board, mounting requirements, power (battery) requirements, and antenna selection and placement.

- *AT Command Reference Guide*

  The *AT Command Reference Guide* lists the AT commands that apply to the RIM 1902G and RIM 1802G.

Support

To discuss the technical integration of the radio modem, contact RIM at `oemsupport@rim.net`.

Chapter 1
Setting up the Interface and Test Board

This guide provides information on the following topics:

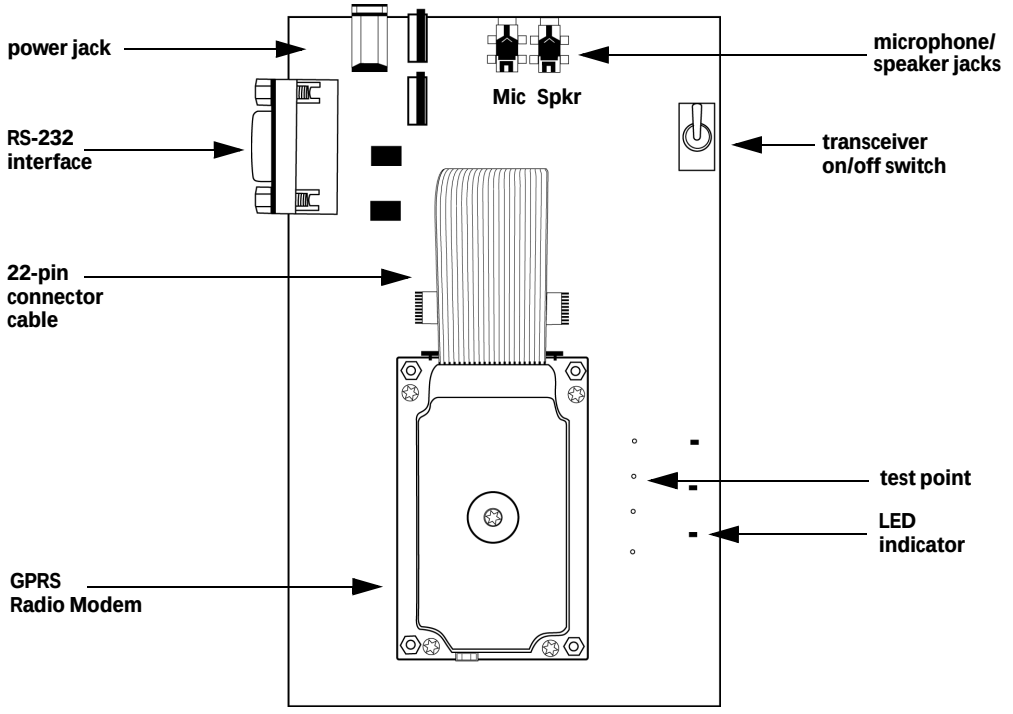
- Setup overview
- Connecting the SIM card
- Connecting the radio modem
- Connecting to the computer
- Inserting the SIM card into the SIM card holder
- Connecting the antenna to the radio modem
- Connecting to an AC outlet
- Turning on the transceiver
- Connecting the headset

Setup overview

To set up the Interface and Test Board, perform these tasks:

1. Insert the SIM card into the SIM card holder on the Interface and Test Board (off-board SIM configuration) or directly onto the radio modem (on-board SIM configuration).
2. Connect the radio modem to the Interface and Test Board using the 22-pin connector cable.
3. Connect the Interface and Test Board to the computer using a standard RS-232 cable.
4. Connect the antenna to the radio modem.
5. Connect the Interface and Test Board to an AC outlet.
6. Turn the transceiver on/off switch to the "on" position
7. Connect the headset.

The following diagram illustrates the Interface and Test Board and major components.



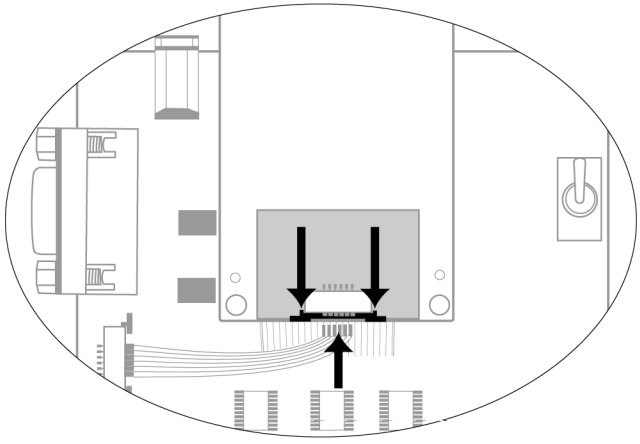
Interface and Test Board (on-board SIM configuration) – top view

Connecting the SIM card

Note: This task only applies to the off-board SIM configuration.

The 6-pin flat SIM interface cable carries the data and power between the Interface and Test Board SIM slot and the radio modem.

1. Remove the radio modem from the Interface and Test Board: unfasten the nuts and lift the radio modem up and away from the Interface and Test Board.
2. On the underside of the modem, on the connector, push the two black tabs up from the connector to widen the opening.



Underside of radio modem showing the 6-pin connector

3. With the blue side facing the Interface and Test Board, insert the end of the cable 6-pin cable into the connector. Verify that the side with the bare pins is in direct contact with the pin side of the connector.

Note: Do not force the cable into the connector.

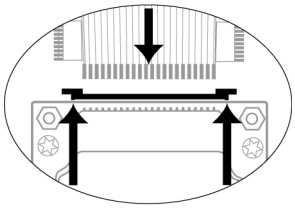
4. Push the black tabs down toward the connector to secure the cable.
5. Repeat steps 2 through 4 to connect the 6-pin connector to the Interface and Test Board.
6. Re-attach the radio modem to the Interface and Test Board.

Connecting the radio modem

Note: This step is only necessary if the radio modem is not already connected to the Interface and Test Board.

The 22-pin flat interface cable supplies clean, regulated power to the radio and carries most of the data and all of the voice between the Interface and Test Board and the radio modem. This cable also carries control and status signals, such as ONI.

1. At the top of the radio modem, push the two black tabs up and away from the connector.



Connecting the 22-pin cable to the radio modem

2. With the blue side facing the Interface and Test Board, insert the end of the 22-pin cable into the connector. Verify that the side with the bare pins is in direct contact with the pin side of the connector.

Note: Do not force the cable into the connector.

3. At the top of the radio modem, push the black tabs down toward the connector to secure the cable.
4. Repeat steps 1 through 3 for the 22-pin connector on the Interface and Test Board.

Connecting to the computer

Use the straight-through DB-9 serial cable to connect the Interface and Test Board to the computer.

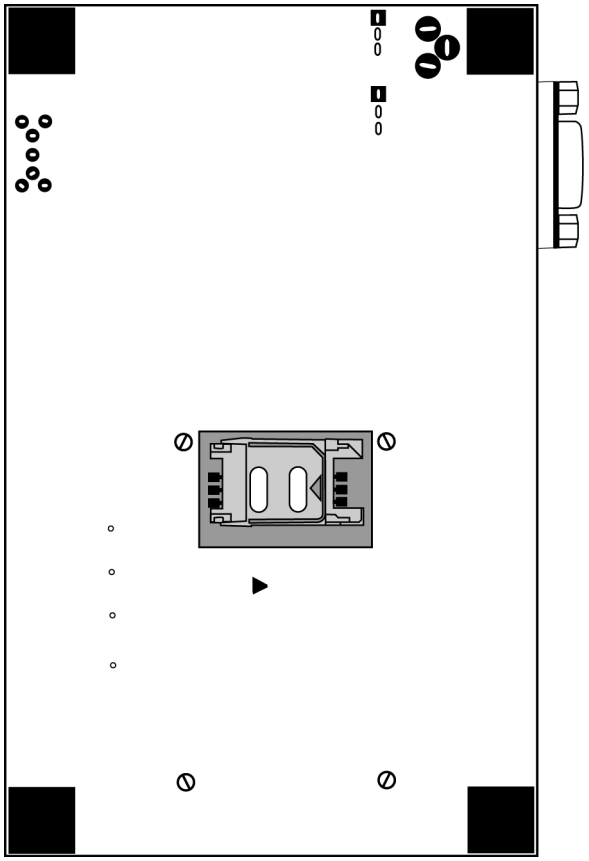
Connect the male end of the cable to the Interface and Test Board. Connect the female end of the cable to an available COM port on the computer.

Inserting the SIM card into the SIM card holder

Note: You must have a SIM card that is authorized for use by the appropriate GPRS network provider. The authorization must also allow access to the Access Point Name (APN) that will be targeted.

Warning: To prevent damage to your SIM card, do not scratch or bend the card or expose it to static electricity or wet conditions.

1. If you are using the on-board SIM configuration, turn the test board over to reveal the cut-out that provides access to the SIM card holder on the underside of the radio modem.



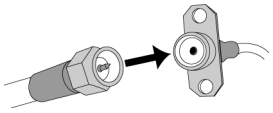
Interface and Test Board (on-board SIM configuration) – bottom view

2. Slide the SIM card holder in the direction of the arrow to unlock it, and then lift the cover open.
3. Slide the SIM card into the cover with the conductive side facing the leads on the board. The notched end of the SIM card should align with the notch in the SIM card holder.
4. Close the cover. Slide the cover in the reverse direction of the arrow to lock it into place.

Connecting the antenna to the radio modem

The Integrator Kit includes a high-performance, 3 dBd-gain magmount antenna, which is terminated by a screw-on SMA plug. The radio modem includes a snap-on MMCX jack.

1. Insert the antenna into the base. Turn the antenna until the two components are securely fastened.
2. Insert the SMA cable connector into the MMCX connector and turn the SMA connector until the two components are securely fastened.



SMA cable connector and MMCX connector

3. Insert the MMCX connector into the radio modem's MMCX jack.
4. Position the antenna for optimal coverage. The magmount antenna provides optimum RF performance when it is placed on a broad metal surface, such as the roof of a car. If you are using the antenna inside a building, place the antenna near a window.

Connecting to an AC outlet

Plug the 5VDC, 2.4A, center-pin-positive power adapter into a wall outlet. Connect the other end to the Interface and Test Board's power jack.

Turning on the transceiver

Turn the switch to the TURNON position to allow the transceiver of the radio modem to power up. When the transceiver is on, the LED marked ONI is lit

Connecting the headset

Insert the microphone plug into the microphone jack. Insert the speaker plug into the speaker jack.

Chapter 2
Connecting the radio modem to a computer

To enable the radio modem to communicate with your computer, you must add the radio modem to your computer, and add a dial-up network connection for the modem.

This section provides information on the following topics:

- Required information
- Connecting with Windows 2000
- Connecting with Windows 95/98
- Setting up HyperTerminal

Required information

Before you start, determine the access point name (APN) of your network.

Connecting with Windows 2000

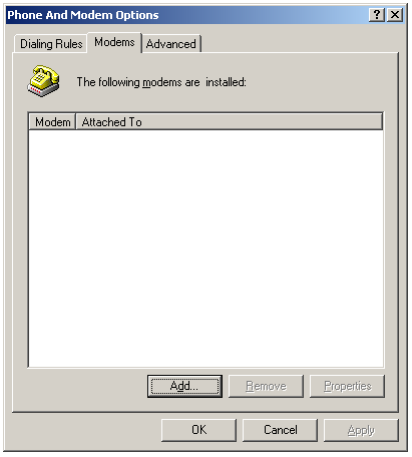
Note: You must use Windows 2000 SP3 or later.

To connect the radio modem to your computer, you must perform the following tasks:

- add the modem
- add a dial-up connection
- edit registry settings

Add a modem

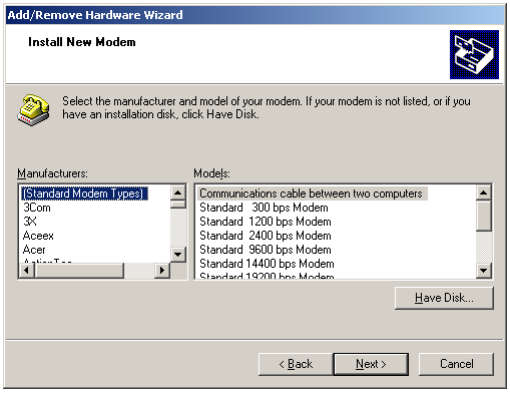
1. On the **Start** menu, select **Settings > Control Panel**. The Control Panel window appears.
2. Double-click the **Phone and Modem Options** icon. The Phone and Modem Options window appears.
3. Click the **Modems** tab, as shown in the following diagram.



Modem Options window – Modems tab

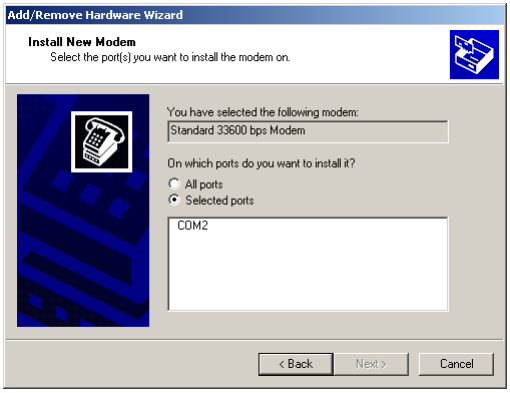
4. Click **Add**. The Add/Remove Hardware Wizard appears.

5. Select the **Don't detect my modem** option. Click **Next**. The model selection window appears, as shown in the following diagram.



Install New Modem window – model selection

6. In the Models list, select **Standard 33600 bps modem**. You do not need to choose a manufacturer. Click **Next**. The port selection window appears, as shown in the following diagram.



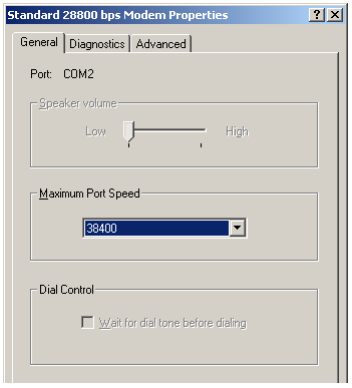
Install New Modem – port selection

7. Select the **Selected ports** option and click the COM port to which the radio modem is connected. Click **Next**.

   A window appears that indicates that your modem has been installed successfully.

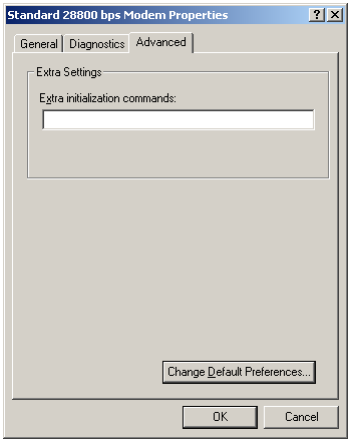
8. Click **Finish**. The Phone and Modem Options window appears.

9. On the **Modems** tab, select the modem that you added and click **Properties**. The Properties window appears.



Modem Properties window – General tab

10. On the **General** tab, from the **Maximum Port Speed** drop-down list, select **115200**.
11. Click the **Advanced** tab.



Modem Properties window – Advanced tab

12. In the **Extra initialization commands** field, type:

    at+cgdcont=1,"IP","*apn_name*"

    where *apn_name* is the access point name (APN) for your network

> **Note:** If you do not have Windows 2000 SP3 installed, the **Extra initialization command** field has a limit of 40 characters. If your APN name results in an entry that is longer than 40 characters, install SP3. In Internet Explorer, on the **Tools** menu, click **Windows Update**.

13. Click **OK**. The Phone and Modem Options window appears.
14. Click **OK**.

Add a connection

1. On the **Start** menu, select **Settings > Network and Dial-up Connections**. The Network and Dial-up Connections window appears.
2. Double-click the **Make New Connection** icon. The Network Connection Wizard appears.
3. Click **Next**.
4. Select the **Dial-up to the Internet** option. Click **Next**. The Internet Connection Wizard appears.
5. Select the **I want to set up my Internet connection manually** option. Click **Next**. The Setting up your Internet connection window appears.
6. Select the **I connect through a phone line and a modem** option. Click **Next**.

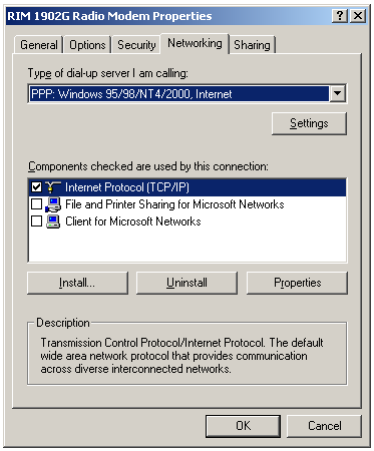
   If you have more than one modem, the Choose Modem window appears. Select the modem that you added earlier. Click **Next**.

   The Step 1 of 3 window appears.
7. Clear the **Use area code and dialing rules** option.
8. In the **Telephone number** field, type ***99#**. Click **Next**. The Step 2 of 3 window appears.
9. Leave the **User name** and **Password** fields blank. Click **Next**. Two dialog boxes appear to confirm that you have not set a user name and password.
10. In each dialog box, click **Yes**. The Step 3 of 3 window appears.
11. In the **Connection name** field, type a descriptive name for the new connection. Click **Next**. The Set Up Your Internet Mail Account window appears.
12. Select **No**. Click **Next**. The Completing the Internet Connection Wizard window appears.

13. Click **Finish**. The new connection appears in the Network and Dial-up Connections window.

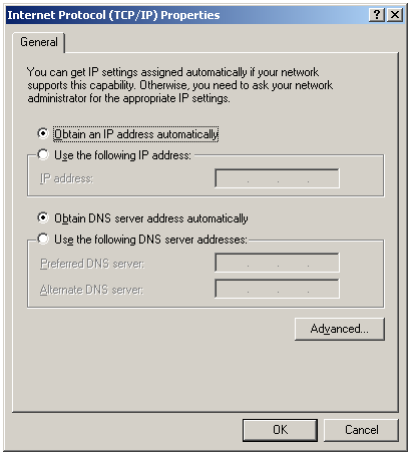
Note: If you do not have Windows 2000 SP3 installed, clear the **To connect to the Internet immediately** option.

14. Right-click the new connection icon and click **Properties**. The Properties window appears.
15. Click the **Networking** tab, as shown in the following diagram.



Dial-up Properties window – Networking tab

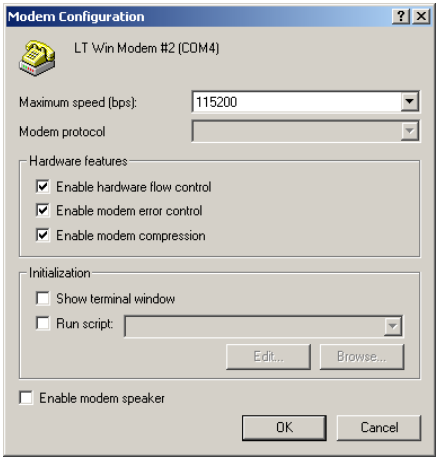
16. Click **Internet Protocol (TCP/IP)** and click **Properties**. The Internet Protocol (TCP/IP) Properties window appears, as shown in the following diagram.



Internet Protocol (TCP/IP) Properties window

17. Select the **Obtain DNS server address automatically** option.

18. Click **OK**. The Properties window appears.
19. Click the **General** tab and click **Configure**. The Modem Configuration window appears.
20. From the **Maximum speed (bps)** drop-down menu, select **115200**.
21. Select the following options: **Enable hardware flow control**, **Enable modem error control**, and **Enable modem compression**.



Modem Configuration window

22. Click **OK**.
23. Click **OK**.

Change registry settings

Perform the following steps so that the modem disconnects and reconnects correctly.

1. In a command prompt, type:

   regedit

   The Registry Editor appears.

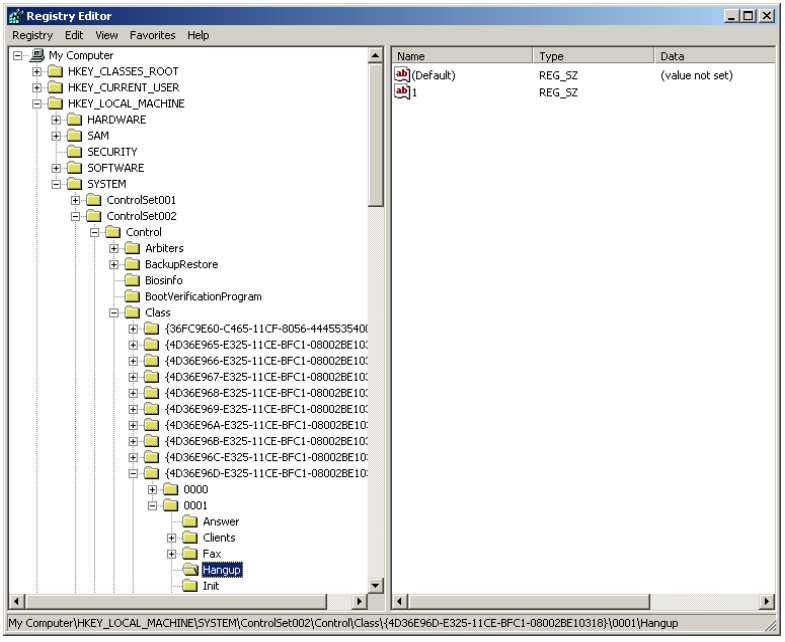
2. Click the following key:

   `HKEY_LOCAL_MACHINE > SYSTEM > CurrentControlSet > Control > Class > {4D36E96D-E325-11CE-BFC1-08002BE10318} > xxxx > Hangup`

   where *xxxx* is the 4-digit number that corresponds to the standard 33600 bps modem that is used to communicate with the RIM OEM Radio Modem.

Tip: To determine which 4-digit number to use, click the 4-digit key (such as **0001**) and view the **Model** string. The value data of the **Model** string should be **Standard 33600 bps Modem**.

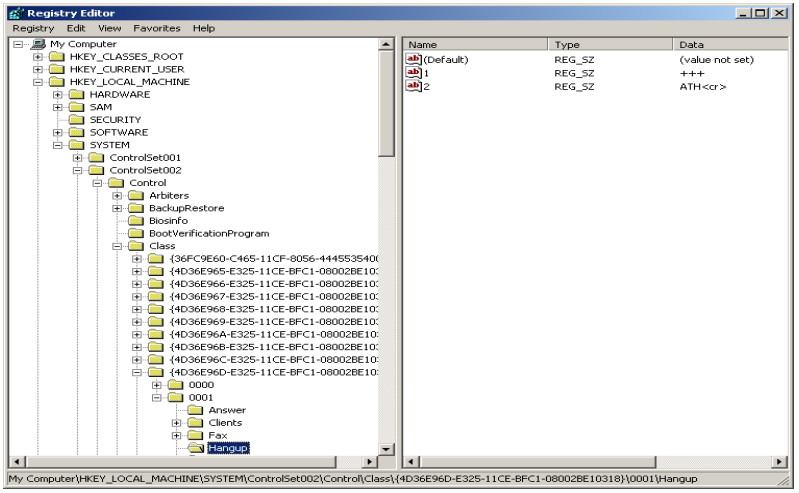
The following diagram shows the Registry Editor window with the **Hangup** key selected.



Registry Editor with the Hangup key selected

3. Double-click on the **1** value.
4. In the **Value** data field, type: **+++**
5. Click **OK**.
6. On the **Edit** menu, click **New > String Value**. A new entry appears under the **Name** column in the Registry Editor window.
7. Type **2** for the name.
8. Double-click on the **2** value that you just added. The Edit String window appears.
9. In the **Value data** field, type:

   ATH<cr>
10. Click **OK**. The Registry Editor window appears as shown in the diagram below.



Registry Editor with new value added for Hangup key

11. Click **OK**.
12. Close the Registry Editor window.
13. Restart your computer for registry settings to take effect.

The RIM OEM Radio Modem connection is complete.

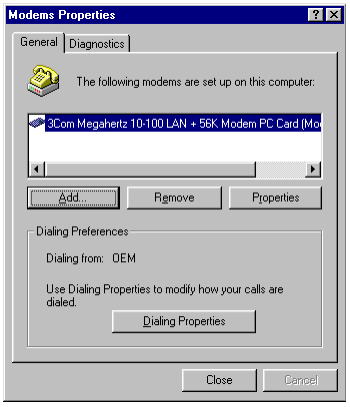
Connecting with Windows 95/98

You must perform the following tasks to connect the radio modem to your computer:

- add the modem
- add a dial-up connection

Add a modem

1. From the **Start** menu, click **Settings > Control Panel**. The Control Panel window appears.
2. Double-click the **Modems** icon. The Modem Properties window appears, as shown in the following diagram.

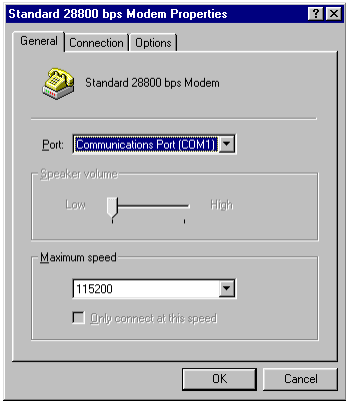


Modems Properties window

3. Click **Add**.
4. Select the **Other** option. Click **Next**.
5. Select the **Don't detect my modem** option. Click **Next**.
6. In the **Models** list, select **Standard 28800 bps Modem**. You do not need to select a manufacturer. Click **Next**.
7. Select the COM port to which you connected the radio modem. Click **Next**.
8. Click Finish.

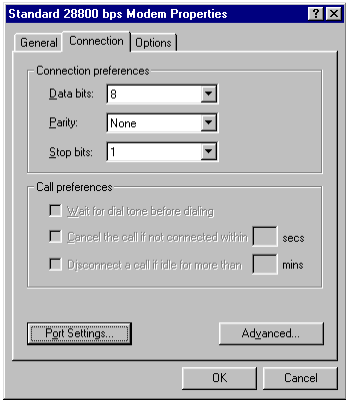
Add a connection

1. On the **Start** menu, click **Programs > Accessories > Communications > Dial-Up Networking**.
2. Double-click the **Make New Connection** icon.
3. Type a descriptive name for the connection.
4. Select the Standard 28800 Modem that you installed.
5. Click **Configure**. The Properties window appears, as shown in the following diagram.



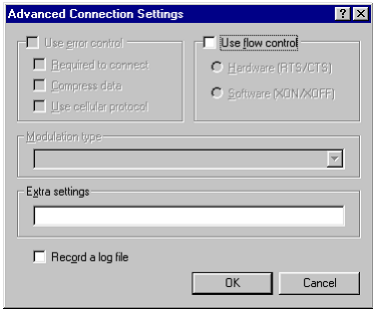
Modem Properties window – General tab

6. On the **General** tab, from the **Port** drop-down list, select the COM port to which the modem is connected.
7. From the **Maximum speed** drop-down list, select **115200**.
8. Click the **Connection** tab.



Modem Properties window – Connection tab

9. Set the fields to the following values:
   - From the **Data bits** drop-down list, select **8**.
   - From the **Parity** drop-down list, select **None**.
   - From the **Stop bits** drop-down list, select **1**.
10. Click **Advanced**. The Advanced Connection Settings window appears, as shown in the following diagram.



Advanced Connection Settings window

11. In the **Extra settings** field, type:

    at+cgdcont=1,"IP","*apn_name*"

    where *apn_name* is the access point name (APN) for your network.
12. Click **OK.** The Modems Properties window appears.

13. Click **OK**. The Make New Connection window appears.
14. Click **Next**.
15. In the **Telephone number** field, type ***99#**. Click **Next**.
16. Click **Finish**.

    The new connection appears in the Network and Dial-up Connections window.
17. Right click on the connection icon that you created, and click **Properties**. The Properties window appears.
18. Clear the **Use area code and Dialing Properties** option.
19. Click the **Server Types** tab. Set the fields to the following values:
    - From the **Type of Dial-Up Server** pull-down list, select **PPP**.
    - Under **Advanced options**, select the **Enable software compression** option.
    - Under **Allowed network protocols**, select the **TCP/IP** option.
20. Click **TCP/IP Settings**. The TCP/IP Settings window appears.
21. Select the **Server assigned IP address** option.
22. Select the **Server assigned name server addresses** option.
23. Select the **Use IP header compression** and **Use default gateway on remote network** options.
24. Click **OK**. The Properties window appears.
25. Click **OK**.

The modem is now set up for dialup access.

Setting up HyperTerminal

You can use HyperTerminal to send AT commands to the OEM radio modem.

1. On the Windows **Start** menu, click **Programs > Accessories > Communications > HyperTerminal**.

   The Connection Description window appears.

2. Type a name and select an icon. Click **OK**.

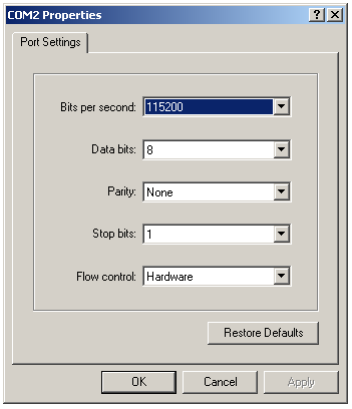
   The Connect To window appears.

3. From the **Connect using** drop-down menu, select the COM port to which the radio modem is connected. Click **OK**.

   The Properties window appears.

4. Set the fields as follows:

   - **Bits per second**: **115200**
   - **Data bits**: **8**
   - **Parity**: **None**
   - **Stop bits**: **1**
   - **Flow control: Hardware**



HyperTerminal Connection Properties

5. Click **OK**. The modem is now ready to receive AT commands.

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