Table of Contents

Quick Start

1

Overview

Follow the quick steps described below to install the Residential Gateway-I and power up your wireless network:

1. Connect Cables (page 2-2).
2. Power-up the Unit (page 2-6).
3. Install the Software:
   a. Insert the CD-ROM that came with your Residential Gateway-I kit into your computer.

      Your operating system will run the CD automatically
   b. Click the install buttons for the following software:
      - Client Manager, and
      - RG Setup Utility.
   c. Follow the instructions on your screen.

   ⮕ **NOTE:**
      If the CD-ROM does not start automatically:
      1. Click the Windows **Start** button
      2. Select **Run**

3.   Browse to the CD-ROM

4.   Double-click the file "setup.exe".

4. Install the Avaya wireless network adapter on your computer.

■   Set the configuration profile of the wireless network adapter to connect to a Residential Gateway-I.

■   Set Network Name (page 2-9) and Encryption key.

For more information, read the user documentation that came with your wireless network adapter.

5. (Optional) Customize the Residential Gateway-I Settings.

Kit Contents

Your Residential Gateway-I kit includes the following items:
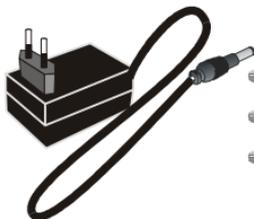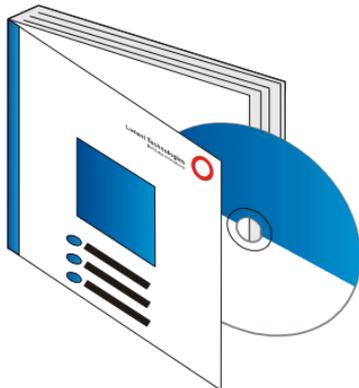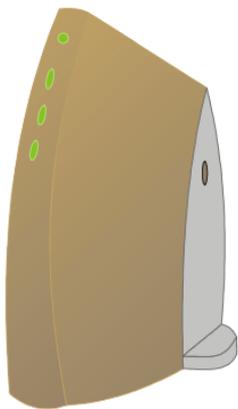
Network Options

The Residential Gateway-I is a Base Station that bridges communication between (wireless) computers and the Internet.

You can use the Residential Gateway-I to provide:

- A Stand-Alone Wireless Network (page 1-5).
- Wireless Internet Access via Telephone Line (page 1-6) using the built-in 56k/V90 modem.
- Wireless Internet Access via External Devices (page 1-7) using an external cable/DSL/ISDN modem.

To build your wireless network, all you need is:

- One Residential Gateway-I, and
- One or more Avaya Wireless Network adapter cards for computers.

Stand-Alone Wireless Network

This is the out-of-the-box mode of operation for the Residential Gateway-I that allows your client stations to share files and printers.

Figure 1-1 Stand-alone Wireless Network

Adding wireless computers is as easy as inserting a wireless client adapter and configuring the computer with the same Network Name (page 2-9).

Wireless Internet Access via Telephone Line

The Residential Gateway-I includes a 56K/V90 built-in modem that allows multiple computers to share Internet access.

To access the Internet via the Residential Gateway-I modem you will need:

- An analog telephone line.
- An ISP (Internet Service Provider) account.
- View/Modify Residential Gateway-I Settings (page 3-4) to enter the ISP dial-up information to in the Residential Gateway-I.

Figure 1-2   Wireless to Internet via Telephone Line

Wireless Internet Access via External Devices

To access the Internet via an ADSL - PPPoE modem, Cable or ISDN modem you will need to:

- Connect the external modem to the Residential Gateway-I using a UTP cable.
- An ISP (Internet Service Provider) account.
- View/Modify Residential Gateway-I Settings (page 3-4) to enter the correct setting for this type of connection.

Figure 1-3   Wireless Internet Access via External Device

Wireless Internet Access via Ethernet LAN

Some companies or educational organizations offer internet access to their employees or students via an existing LAN Infrastructure.

In this mode, the Residential Gateway-I tool will:

- Act as a transparent bridge between the wireless and wired network.
- Disable the integrated DHCP server (i.e. the Residential Gateway-I will no longer assign IP Addresses).
- Try to obtain its own IP Address from a DHCP server on the network.

Connect & Power Up

2

Before you start, carefully read the flyer "Information to the User" that is included in your Residential Gateway-I kit. This flyer contains installation requirements and important information about using this product.

Connect Cables

1. Press the latches (a) and remove the cover (b) of the Residential Gateway-I as pictured in Figure 2-1.

Figure 2-1   Remove the cover
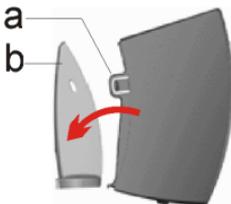
2. Plug the power connector into the power socket on the Residential Gateway-I unit (see Figure 2-2).

Figure 2-2   Connect Power Adapter

3. Connect the cable for internet access:

■ For Wireless Internet Access via Telephone Line (page 1-8), plug the telephone cable to the correspondent socket (as shown in Figure 2-3) and to the telephone outlet.

   Depending on local standards, you may need a special adapter plug to connect the cable to the outlet.

■ For Wireless Internet Access via External Devices (page 1-9), plug in the UTP/Ethernet cable into the ethernet socket.

Figure 2-3   Connect Telephone Cable
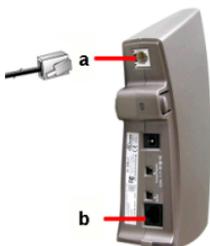
$\Longrightarrow$ **NOTE:**

Telephone adapter plugs and Ethernet cable are not included, but are available at your local computer dealer. See Interfaces (built-in) (page A-3) for information about cable/connector types.

4. Close the cover by attaching it to the unit, pressing the latches as pictured in Figure 2-4.

Figure 2-4   Close the Unit
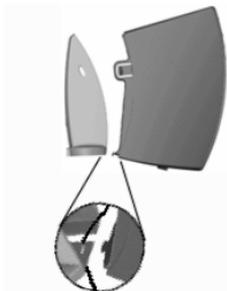
5. Place the unit on a flat surface and route the cables through the cable entrance as shown in Figure 2-5.

Figure 2-5   Place the Residential Gateway-I on a Flat Surface

Power-up the Unit

1. Plug the power adapter into an AC power outlet.

▲ **WARNING:**

After applying power to the Residential Gateway-I, do not cover the unit or block the airflow to the unit with any other objects.

Figure 2-6   Residential Gateway-I LEDs

2. Monitor the LED activity on the unit.

   The LEDs (see Figure 2-6) will change color in the range Yellow, Red and Green to indicate start-up diagnostics. When finished (after approximately 30 seconds), the Residential Gateway-I shows LED activity as listed in Table 2-7 on page 2-7.

Table 2-7   LED Activity Table - Normal Operation

| Icon	Name	Color/Activity	Description
⏻	Power	Steady Green	Power enabled
∫	Wireless	Flashing Green	Wireless activity between Residential Gateway-I and wireless stations. See also: Stand-Alone Wireless Network (page 1-7).
		Off	No communication.
Ι	Ethernet	Flashing Green	Communication between Residential Gateway-I and the wired Ethernet equipment See also: Wireless Internet Access via External Devices (page 1-9).
		Off	No communication.
ℂ	Residential Gateway-I Modem	Flashing Green	Modem activity between Residential Gateway-I and your phone line. See also: Wireless Internet Access via Telephone Line (page 1-8).
		Off	No communication.

$\Longrightarrow$ **NOTE:**

> If the Residential Gateway-I does not switch to normal operation within one minute, consult the section Finding Information (page 3-6).

3. Now proceed with the installation of software as described in the Quick Start Overview (page 1-1).

Network Name

The Network Name is the unique 6-character identification code of your wireless network. It is printed on the label, at the bottom of your Residential Gateway-I.

Figure 2-8   Label with Network Name (example)
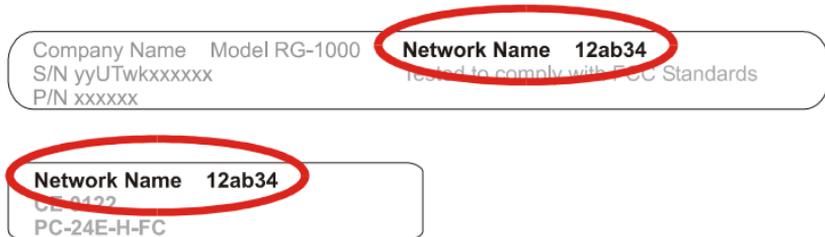
In earlier versions of the Residential Gateway-I devices, the Network Name is also referred to as RG ID.

The last 5 characters of the Network Name also match the default data encryption key.

Customize the Residential Gateway-I settings

Introduction

When you have installed the Wireless LAN network adapters on your computers and set up the Residential Gateway-I, you can start to use your Stand-Alone Wireless Network (page 1-5).

To set up your Residential Gateway-I for Internet access, you will need to:

1. Obtain an account with an Internet Service Provider.
2. Start the RG Setup Utility (page 3-2).
3. Enter the Internet Service Provider Information (page 3-2) into your Residential Gateway-I configuration.

Internet Service Provider Information

When you obtain an account with the Internet Service Provider (ISP), you will typically receive the following information:

■ Telephone numbers to dial in to your ISP

Wireless Internet Access via Telephone Line (page 1-6) option.

■ Account Name (or User Name).

■ Account Password (or User Password).

Subject to the type of internet account you may receive additional settings that you might need to enter in the Residential Gateway-I configuration.

Start the RG Setup Utility

1. Click the **Start** button on the Windows task bar.
2. Select **Programs**, then select Wireless LAN.
3. Select **RG Setup Utility** to start the program.
4. To connect to the Residential Gateway-I, enter the 6-character Network Name (page 2-9) printed on the label on the device.

$\Rightarrow$ **NOTE:**

All alphabetical characters must be entered in lower-case (e.g. abc).

5. Follow the instructions on your screen.

If you encounter difficulty accessing the Residential Gateway-I to view or modify its current settings:

- View/Modify the settings of the wireless adapter in your computer to ensure that:
  - The Network Name matches the value printed on the label at the bottom and at the back of unit.

    Please note that the alphabetical characters are case-sensitive.
  - The encryption key matches the value of the Residential Gateway-I (default key matches the last five digits of the Network Name).
- View/Modify the Networking properties on your computer to:
  - Ensure the TCP/IP protocol is installed for your wireless network adapter.
  - The TCP/IP protocol has DHCP enabled, to obtain an IP Address from the Residential Gateway-I automatically.

  Consult your Microsoft documentation and/or Help system for information about setting the TCP/IP network protocol.
- Consult Finding Information (page 3-6) for more information.

View/Modify Residential Gateway-I Settings

The RG Setup Utility allows you to view or modify the following network settings:

■ Internet Access Settings (page 3-4)
■ Wireless Connection Settings (page 3-4)

Internet Access Settings

To setup your Residential Gateway-I for Internet access you will need information from your Internet Service Provider (ISP), such as account name, password, telephone number and/or IP address.

Next select how you wish to connect to your ISP:

■ Wireless Internet Access via Telephone Line (page 1-6)
■ Wireless Internet Access via External Devices (page 1-7)

Follow the instructions on your screen, or click **Help** for more information.

Wireless Connection Settings

Change these settings to increase the security of your wireless network, set up special connection requirements and improve your wireless communication.

Wireless Channel

To transmit and receive data, the Residential Gateway-I uses a frequency channel.

If neighboring wireless networks are using the same channel, it is advisable to have your Residential Gateway-I network using a different one.

Encryption Key

Communication within your network is only possible to wireless computers using the same Encryption Key.

This is what the Residential Gateway-I uses to enable Data Security on your wireless network.

The default value of the Encryption Key equals the 5 last (most right) characters of the Network Name. To prevent any access to your network without permission, it is strongly advised to change the default encryption key value.

Finding Information

The Getting Started Guide provides only basic instructions.

For more detailed information:

- Consult the CD-ROM to view other user documentation.
- Consult the Online Help that was installed with the software. This Online Help contains detailed instructions, including a troubleshooting section.

    For context-sensitive help press the **Help** button on the screens of your RG Setup Utility.

- Visit our website at: **http://www.avaya.com** for:
    — The list of most frequently asked questions,
    — The latest software and documentation for your product, and
    — More resources for Technical Support.

Using your Residential Gateway-I

4

General Guidelines

When using your Residential Gateway-I please follow the guidelines listed below:

Safety Guidelines

- Do not cover the unit or block the airflow to the unit.
- Keep the Residential Gateway-I away from excessive heat and humidity.
- Keep the unit free from vibration and dust.
- Always disconnect the Residential Gateway-I power adapter before cleaning.

Operation Guidelines

- To maximize the wireless coverage, place the unit as centrally as possible (depending on the wireless computers vicinity). See also Wall Mount the Residential Gateway-I.

- The Residential Gateway-I unit can be cleaned with a soft tissue. To avoid damage, do not use aggressive liquids like alcohol or acetone. Do not rinse the unit with fluids.

- The Residential Gateway-I consumes very little power. In order to extend the life of your Residential Gateway-I it is better to leave the unit powered on.

Wall Mount the Residential Gateway-I

If you want to mount the Residential Gateway-I to the wall proceed as follows:

1. Remove the cover (page 2-2).

2. Use a sharp pointed object (like a small screwdriver) to open the three cover screw holes marked **a** in Figure 4-1.

Figure 4-1   Punch Screw Holes and Mount the Residential Gateway-I to a Wall
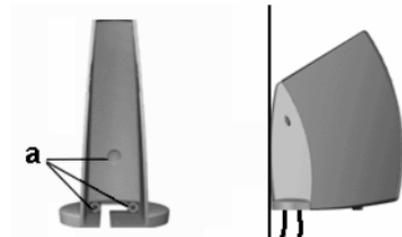
3. Decide where and how you want to place the Residential Gateway-I (you may consider to mount the unit upside down on high spots, to be able to see the LEDs).

4. Place the cover against the wall, and put three marks on the wall to indicate the screw positions.

5. Use the screws and the plugs that came with your kit to fix the cover to the wall.

6. Close the Residential Gateway-I.

Residential Gateway-I Buttons

The Residential Gateway-I unit has two small buttons for troubleshooting purposes.

■ Reset button (page 4-5)

■ Reload button (page 4-5)

Remove the cover (page 2-2) from the main unit to have access to these buttons as described in "Connect Cables" on page 2-2.

Figure 4-2   Reload (a) and Reset (b) Button
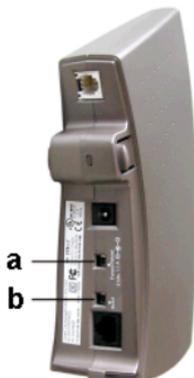
Reset button

This button allows you to recover from a situation where for some reason the Residential Gateway-I is in a deadlock situation and has the same effect as disconnecting the Residential Gateway-I from the power supply source.

After the reset, the Residential Gateway-I will default to the last known configuration profile.

▲ **CAUTION:**
Pressing the reset button will disable all network communications for a few minutes.

Reload button

Use this button only in special situations when you are no longer able to connect to your Residential Gateway-I, for example when you have forgotten the Residential Gateway-I password or Encryption Key.

This button will disable the encryption key and the password. It also resets the DHCP settings of the device, allowing you to access the Residential Gateway-I again.

▲ **CAUTION:**
Pressing the Reload button changes the Residential Gateway-I settings. To prevent irreversible changes, carefully follow the instructions for the reload procedure.

For more information, see Finding Information (page 3-6).

Special modes Residential Gateway-I

Special Residential Gateway-I modes occur:

- After supplying power to the unit (powering up):

  The Residential Gateway-I will start and automatically returns to normal operation within one minute time.

  See: Power-up the Unit (page 2-6)

- After finishing the RG Setup Utility:

  The network settings will be sent from your computer to the Residential Gateway-I.

  The Residential Gateway-I restarts automatically, returning to normal operation mode within one minute time.

- After pressing the Reset button:

  The Residential Gateway-I will restart and automatically returns to normal operation within one minute time.

- After pressing the Reload button for 2 seconds:

  The Residential Gateway-I will enter in Soft Reload mode for 5 minutes time.

Specifications

A

Technical Specifications

Compatibility	IEEE 802.11 Standard for high speed Wireless LANs.
Bit Error Rate	better than 10^{-5}
Range	up to 550 meters (see details on page A-5)
Frequency band / Channels	2.4 Ghz. Selectable channels: - Channel A: 2412 MHz - Channel B: 2427 MHz - Channel C: 2442 MHz - Channel D: 2457 MHz
Encryption	64-bit Wired Equivalent Privacy (WEP) based on the RC4 algorithm

Power Specifications

Input Voltage Residential Gateway-I	7 to 15V DC
Input Voltage Power Adapter	100 to 240V +/- 10%
Power Adapter Types	Subject to local standards. Available types: AU, UK, US/JP, EU
Power Adapter Frequency	47 to 63 Hz

Interfaces (built-in)

a	Wireless LAN Interface	
b	56K V.90 Modem RJ-11 connector (female) 1.8 m/ 6ft. cable included.	
c	10BASE-T Ethernet RJ-45 connector (female) Cable not included. ■ Use cross-over UTP cable to connect the device to external modems. ■ Use regular UTP cable to connect to a network hub or switch	

Physical Specifications

	Residential Gateway-I	**Power Adapter**
Dimensions (HxWxL)	208x52x155 mm	78x48x75 mm
Weight	350 g	-
Operating Temperature	0 to +40 ^oC	0 to +50 ^oC
Storage Temperature	-10 to +50 ^oC	-20 to +85 ^oC
Humidity	max. 95% (non condensing)	20 to 90%
Barometric Pressure	740 to 1050 hPa	-

Radio Specifications

Radio Output Power	15 dBm (nominal)			
Spreading	11-chip Barker Sequence			
	Wireless Data Rate			
Environment	**11 Mb/s**	**5.5 Mb/s**	**2 Mb/s**	**1 Mb/s**
Max. range	160 m (525 ft.)	270 m (885 ft.)	400 m (1300 ft.)	550 m (1750 ft.)
Modulation technique	DSSS CCK	DSSS CCK	DSSS DQPSK	DSSS DBPSK
Receiver Sensitivity (for BER = 10^{-5})	-82 dBm	-87 dBm	-91 dBm	-94 dBm
Delay Spread (at FER of <1%)	65 ns	225 ns	400 ns	500 ns

In open environments with no physical obstructions between the antennas, the device automatically selects the best data rate for the current radio connection.

$\Longrightarrow$ **NOTE:**

The range values provide a rule of thumb and may vary according to the actual radio conditions at the location where the product is installed. The range of your wireless devices can be affected when:
- Antennas are placed near metal surfaces and solid high-density materials.
- The radio signal is absorbed by obstacles or objects. E.g. in areas with floor to ceiling walls, the range can be decreased down to 15% on its maximum value.

Regulatory Information

Wireless communication is often subject to local radio regulations. Although wireless networking products have been designed for operation in the license-free 2.4 GHz band, local radio regulations may impose a number of limitations to the use of wireless communication equipment.

⇒ NOTE:

Refer to the flyer "Information to the User" for more regulatory information that may apply in your country.