



HomePortal® Intelligent Gateway Installation Guide

Supported Hardware Platform: 5011NV/5012NV



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Contents

	About This Guide	iv
	Audience	iv
	Document Layout	iv
	Style Conventions	iv
	Related Documents	v
	Support	v
CHAPTER 1	Introducing the HomePortal Intelligent Gateway	1
	Components	1
CHAPTER 2	Installing the HomePortal Intelligent Gateway	3
	Determining Gateway Location	3
	Connecting the Power Adapter	3
	Connecting Your Computer to the Gateway	4
	Connecting through Local Ethernet	4
	Connecting through Wireless	5
	Connecting the Broadband Interface through DSL port	6
	Connecting the Broadband Interface through the Ethernet Port	6
	Connecting VoIP Interface	7
	Connecting IPTV Set-top Box	8
CHAPTER 3	Troubleshooting Installation Issues	9
	Connection Issues	9
	VoIP Issues	10
	LAN Issues	10
APPENDIX A	Regulatory Information	11
	Electrical	11
	AC Adapter	11
	Telecommunication Cord	11
	Internal Telephone Ports (VoIP)	11
	Location – Electrical Considerations	11
	Equipment	11
	Declaration of Conformity	12
	FCC / Industry Canada Compliance	12
	Part 15 of FCC Rules	12
	TIA 968 (Part 68 of FCC Rules) / IC CS-03	12
	MPE/SAR/RF Exposure Information	13

About This Guide

The *HomePortal® 5011NV/5012NV Intelligent Gateway Installation Guide* is designed to serve as a reference for installing the gateway. The guide contains the following sections:

[Introducing the HomePortal Intelligent Gateway](#) on page 1

[Installing the HomePortal Intelligent Gateway](#) on page 3

[Troubleshooting Installation Issues](#) on page 9

[Regulatory Information](#) on page 11

Audience

This guide is intended for use by:

- End Users
- Sales Engineers
- Support Staff
- ISP Technicians

Document Layout

The [Installing the HomePortal Intelligent Gateway](#) chapter includes the steps to connect the various interfaces of the gateway and the illustrations depicting those steps.

Style Conventions

The following style conventions are used in this guide:

Note Notes contain incidental information about the subject. In this guide, they are used to provide additional information about the product and to call attention to exceptions.



Caution notes identify information that helps prevent damage to hardware or loss of data.



Warning notes identify information that helps prevent injury or death.

Typographical Conventions

Convention	Used For
Blue Text	Cross references
Bold	Interface elements that are clicked or selected, field inputs, and term lists
<i>Italic</i>	Emphasis, book titles, variables

Typographical Conventions

Convention	Used For
Monospace	Command syntax and code
<i>Monospace Italic</i>	Variables within command syntax and code

Related Documents

In addition to this guide, the HomePortal Intelligent Gateway documentation library includes:

Agile Part Number	Description
5100-000899-000	HomePortal® Intelligent Gateway 9.3.1.10 Configuration Guide
5100-000923-000	HomePortal® Intelligent Gateway 9.3.1.10 CLI Reference Guide
5100-000874-000	HomePortal® 5012NV Intelligent Gateway Datasheet

Support

Technical support is available from the 2Wire Web site: <http://support.2wire.com/index.php>.

CHAPTER 1

Introducing the HomePortal Intelligent Gateway

Welcome to the 2Wire family. The gateway delivers a powerful user experience with its easy-to-use features. The gateway provides you high-speed Internet access, integrated data applications, built-in Voice over Internet Protocol (VoIP) optimized for ADSL, and support for wireless-wireline convergence. The gateway also offers a host of other features such as:

- **Flexible Networking Options**
High-powered 802.11b/802.11g/802.11n wireless Access Point (AP) and Ethernet ports on the gateway for optimized home networking. Gigabit Ethernet port is available on the gateway to support higher data transfer speeds on the home network.
- **Superior Wireless Experience**
Wireless technology implemented on the gateway virtually eliminates wireless “cold spots” in your home.
- **Integrated Voice over IP**
The gateway provides built-in VoIP capabilities to support today’s wireline voice needs. The gateway also serves as the convergence point for service providers and their mobility partners to offer wireline-wireless service convergence. VoIP capabilities include full SIP ALG and back-to-back SIP user agent (proxy) to support additional ATA adapters, GSM-UMA (3GPP), and IMS (SCCAN Forum) Voice over Wi-Fi mobile phone support.
- **Super Fast Router**
The gateway offers fast data transfer speeds between your home network and the Internet. The high-performance router distributes data seamlessly to all of the computers on your home network, without compromising performance or speed.
- **Professional Grade Firewall**
The gateway actively detects and defends against common Internet threats (such as Distributed Denial of Service attacks) using Stateful Packet Inspection. Easy-to-use tools enable simple configuration for common in-home applications such as online gaming.
- **Broadband Interface Options**
The gateway supports Broadband connectivity through the ADSL or the Ethernet port.

Components

You can either configure your Broadband connection on your gateway through the DSL or Ethernet port. Before installing your gateway, review the package contents and ensure that you have the required items. The figures below illustrate the installation of the gateway through the **DSL** and **Ethernet** Broadband ports.

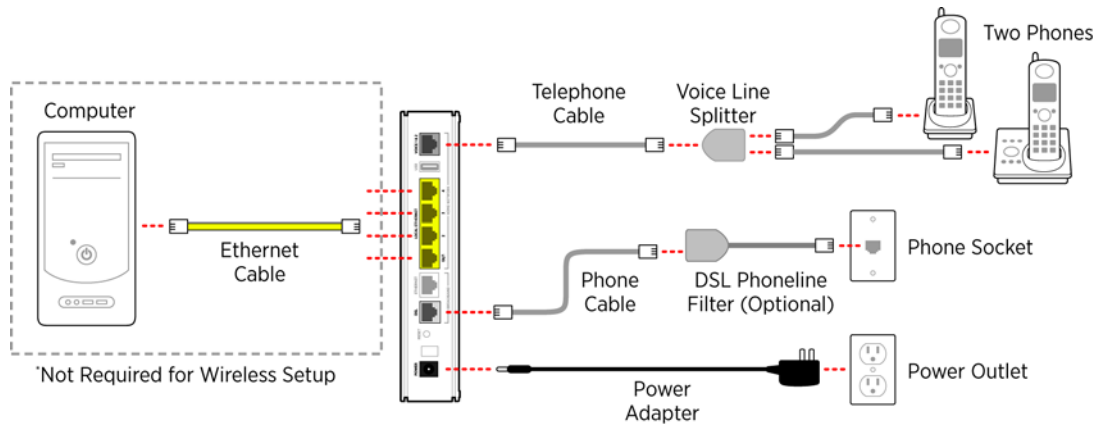


Figure 1: Setup for DSL Broadband Connection

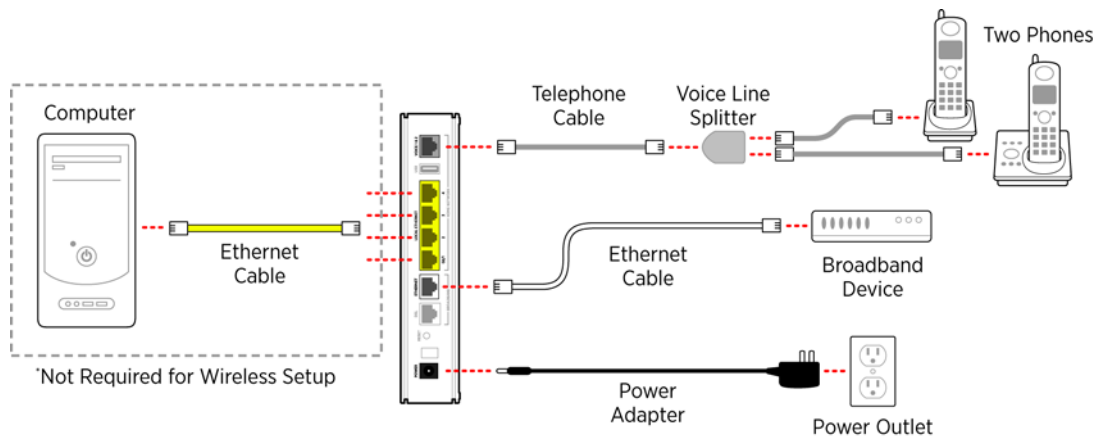


Figure 2: Setup for Ethernet Broadband Connection

Note It is recommended to contact your ISP before configuring VoIP services on the gateway. VoIP is configurable only if your ISP activates the relevant services.

Note The 5012NV has one Gigabit Ethernet (GIGE) port **GE/1**.

See Also

[Installing the HomePortal Intelligent Gateway](#) on page 3

[Regulatory Information](#) on page 11

CHAPTER 2

Installing the HomePortal Intelligent Gateway

The installation of your gateway consists of the following tasks:

[Determining Gateway Location](#) on page 3

[Connecting the Power Adapter](#) on page 3

[Connecting Your Computer to the Gateway](#) on page 4

[Connecting the Broadband Interface through DSL port](#) on page 6

[Connecting the Broadband Interface through the Ethernet Port](#) on page 6

[Connecting VoIP Interface](#) on page 7

[Connecting IPTV Set-top Box](#) on page 8

Determining Gateway Location

Before installing the gateway, you must determine an appropriate location. The gateway must be installed near the main computer to connect through any of the **Local Ethernet** ports. Wireless signals are affected by many items in homes and offices. Reliability and performance are the major considerations when planning your wireless network location.

Consider the following suggestions when determining the wireless AP location:

- Place your gateway at least 5 feet (1.52 meters) from cordless phones, microwave ovens, or other electronic devices to avoid potential interference, and more than 6 inches (15.24 centimeters) away from your television to avoid audio hissing or static.
- Place the gateway in an open area where the wireless range will be susceptible to the least possible interference from its surroundings. Wireless signal strength will be much stronger in an open area than an area with obstructions. In a single-story building, place the gateway as high and as close to each wireless computer as possible.
- Keep the gateway away from large metal objects. Wireless signal quality deteriorates if metal objects reflect or obstruct signals.
- Keep the gateway away from water sources like water coolers and fish tank.

Note It is recommended that the stand provided with the gateway be used to install the gateway in a vertical position, such that nothing can be stacked on top of it.

Connecting the Power Adapter

To power on the gateway:

1. Connect one end of the power adapter to the POWER port of your gateway.
2. Connect the cable's other end to an electrical outlet.

Once the gateway is powered on, the power LED blinks green for a brief period of time and then turns steady green.

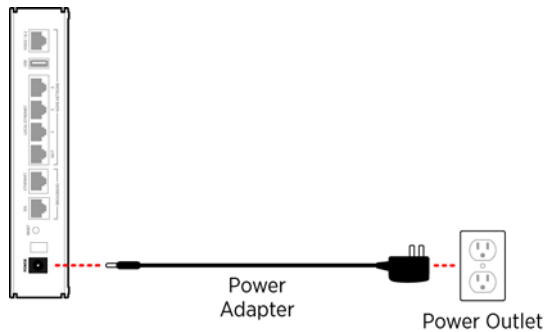


Figure 3: Power Connection

Note Always use the 2Wire power adapter packaged with the gateway, as it is compliant with the local regulatory requirements.

Connecting Your Computer to the Gateway

The first computer you connect to the gateway is used to configure the gateway for proper operation. You can connect your gateway to additional computers and/or other devices via Ethernet cable and wireless AP.

Connecting through Local Ethernet

The gateway has four Ethernet ports for connecting computers or devices to the gateway. Use the Ethernet interface(s) on the gateway to create a home network.

To connect the computer and the gateway using the Ethernet cable:

1. Connect one end of the Ethernet cable (yellow-colored) to any available LOCAL ETHERNET port on the gateway.
2. Connect the cable's other end to the Ethernet port of the Network Interface Card (NIC) on the computer.

Once the gateway recognizes the computer, the relevant **Ethernet** LED turns steady green, and then starts flickering once the computer starts data transfer with the gateway.

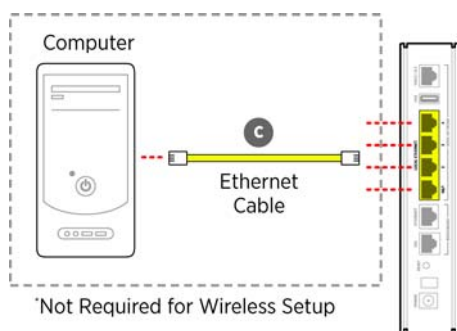


Figure 4: LAN Connection

Note The 5012NV has one Gigabit Ethernet (GIGE) port **GE/1**.

Connecting through Wireless

The gateway has an integrated wireless AP that enables you to connect your wireless-enabled computers to your gateway. By default, the gateway is shipped with pre-enabled WPA-PSK/WPA2-PSK and a pre-configured network name.

Most laptops are equipped with an internal 802.11b/g card. If your computer is not equipped with an internal card, you can install an external wireless adapter for wireless networking.

Note The default network name (SSID) and the encryption key (64-bit hex value) is located at the bottom label on the side of the 2Wire gateway (for example, 1234567891). Mac OS X users may have to enter the “\$” character at the beginning of the encryption key (for example, \$1234567891).

To connect the computer and the gateway using wireless AP:

1. Install and configure your wireless adapter, if required.
2. View the available wireless network connections. Use the network adapter client or **Windows Wireless Network Connection** wizard to view the wireless connections.
3. Select the network name of the gateway from the menu, and click Connect.

A prompt to enter the network key appears.

4. Enter the encryption key and click Connect.

Refer the note above for the location of the key.

Once the gateway recognizes the wireless client, the **WIRELESS** LED turns steady green, and then starts flickering once the wireless client starts the data transfer with the gateway.

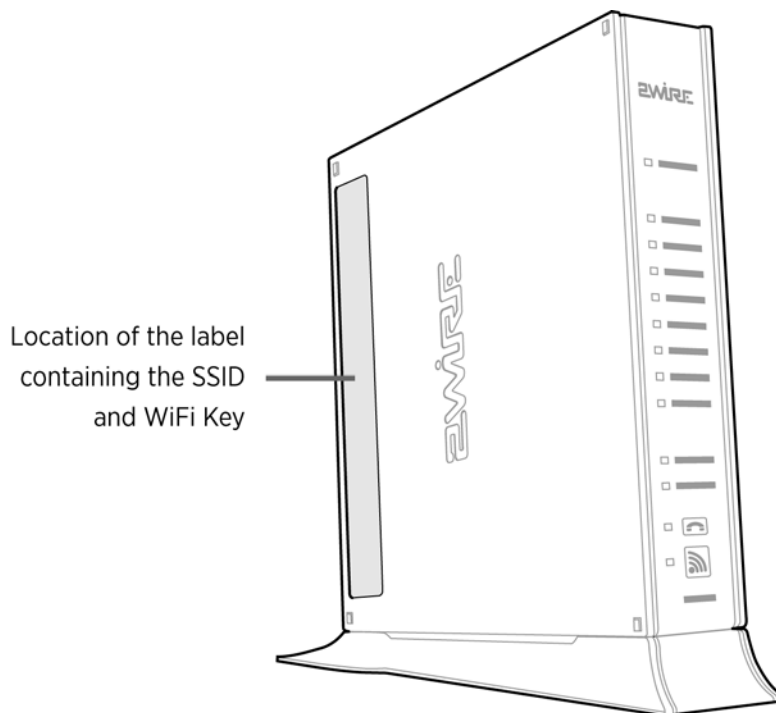


Figure 5: Wireless Network Key Location

Note You can configure Wi-Fi Protected Setup (WPS) for simplifying the process of connecting any home device to the wireless network using the PIN or PUSH method. PIN method establishes the wireless connectivity using the PIN generated by the wireless client. To do so, enter the PIN generated by the wireless client in the **Device PIN** text box on the user interface of the gateway and click **Connect**. PUSH method establishes the wireless connectivity if you push the WPS button found at the front panel of the gateway followed by using the PUSH method on the client device (as advised by the OEM of the

wireless client).

For further information, refer to [Configuring Wi-Fi Protected Setup](#) in the *HomePortal® Intelligent Gateway 9.3.1.10 Configuration Guide*.

Connecting the Broadband Interface through DSL port

To connect the gateway to a Asymmetric Digital Subscriber Line (ADSL) wall jack:

1. Connect one end of the phone cord/twisted pair cable to the DSL port (gray-colored) on your gateway.
2. Connect the cable's other end to the DSL port of the filter, which must be plugged into the ADSL-enabled wall jack outlet.

Once the gateway recognizes the ADSL connection, the Broadband LED blinks green for a brief period of time, and then turns steady green.

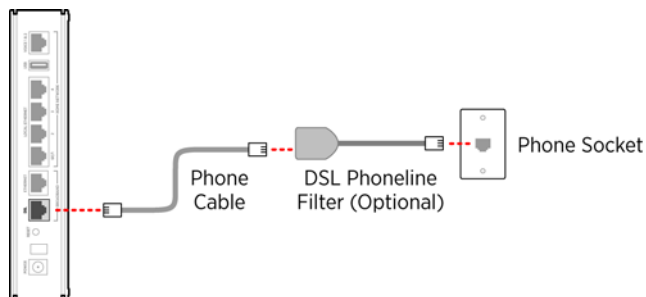


Figure 6: ADSL Broadband Connection

Note The gateway must be connected through the DSL phoneline filter.

Connecting the Broadband Interface through the Ethernet Port

To connect the gateway to a RJ-45 jack of the fiber optic device:

1. Connect one end of the Ethernet cable to the Ethernet port (white-colored) on your gateway.
2. Connect the cable's other end to the Broadband device.

Once the gateway recognizes the Ethernet connection, the Broadband LED blinks green for a few seconds, and then turns steady green.

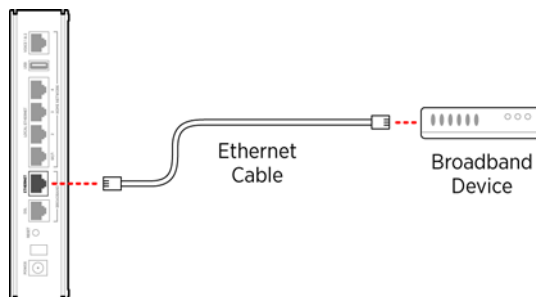


Figure 7: Ethernet Broadband Connection

Connecting VoIP Interface

The gateway includes one RJ-14 port (Voice 1 & 2) with the capacity to support 2 phone lines using a splitter or multi-jack adapter.



Do not connect the VoIP lines to your current home telephone wiring, especially if your home has an alarm system, which may require separate wiring. It is recommended to contact your ISP before configuring VoIP on your gateway.

To connect the VoIP phone to the Voice 1 & 2 port of the gateway:

1. To connect a single phone:
 - a. Connect one end of the phone cable to the Voice 1 & 2 port (gray-colored) of the gateway.
 - b. Connect the cable's other end to the phone jack.

Once the gateway recognizes the phone (configured on Line 1), the **Voice 1** LED turns steady green and flickers when the associated phone is active.

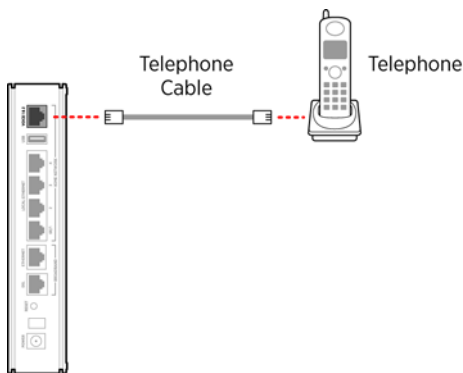


Figure 8: VoIP Connection without Splitter

2. To connect two phones:
 - a. Connect one end of the line splitter to the gateway Voice 1 & 2 port (gray-colored).
 - b. Connect the phone cables to the first and second jack of the splitter.

Once the gateway recognizes the phones (configured on Line 1 and Line 2), the **Voice 1** and **Voice 2** LEDs turn steady green and relevant LEDs flicker when the associated phone is active.

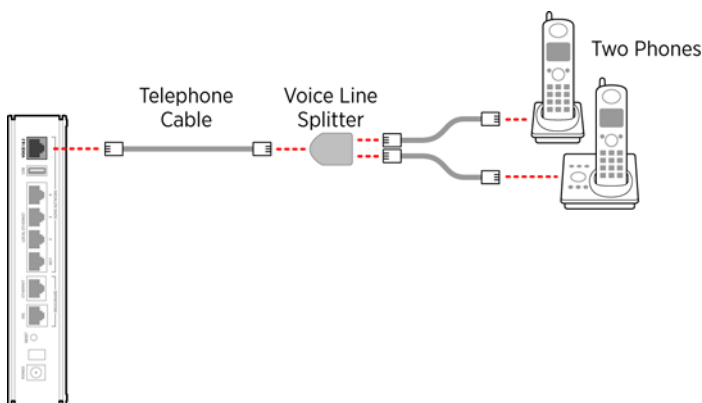


Figure 9: VoIP Connection Using Splitter

Connecting IPTV Set-top Box

The gateway can be configured to use IPTV services through the Local Ethernet port.

To connect the gateway and the set-top box:

1. Connect one end of the Ethernet cable to the **Local Ethernet** port of the gateway.
2. Connect the cables's other end to the Ethernet port of the set-top box.

As soon as the gateway recognizes the set-top box, the relevant **Ethernet** LED turns steady green, and then starts flickering once the set-top box starts data transfer with the gateway.

Note Refer to the set-top box manufacturer's instructions for further information.

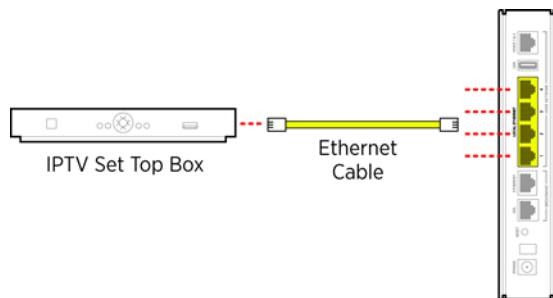


Figure 10: IPTV Connection over Local Ethernet

See Also

[Troubleshooting Installation Issues](#) on page 9

CHAPTER 3

Troubleshooting Installation Issues

This chapter provides information about troubleshooting gateway installation issues. It lists the issues, possible cause(s), and solution(s) for the issues. The issues mentioned in this chapter are based on likely user scenarios.

Connection Issues

The following table provides information to troubleshoot connection issues:

Issue	Possible Cause(s)	What to Do
No POWER light	Power supply is faulty	<ul style="list-style-type: none"> • Verify that the LED on the AC power cable is steady green. • Verify that the AC power cable is securely connected to the gateway. • Ensure that the AC power cable is not plugged into a switched outlet that is powered off. • Power up the gateway with a known good power outlet. • Replace the location of the gateway if it does not power up with a known good power outlet. • If the issue persists, replace the AC power cable.
POWER LED blinks just after starting the device and then turns steady green	Power on self-test (POST)	Normal behavior.
POWER LED is steady red	System POST Failure	<ul style="list-style-type: none"> • Press the Reset button on the gateway for 10 seconds. • Replace the gateway if it does not power up into a normal state.
BROADBAND LED blinking	ADSL connection not established	Verify if ADSL service is activated on the phone cable connected to the gateway. To do so, contact the ISP.
	Loose Ethernet or DSL cable	Check the Ethernet cable connection on the gateway and the phone jack, and make sure it is securely seated in both ports.
SERVICE LED blinking	Internet service not activated	Contact your ISP to activate Internet service.
BROADBAND LED blinks green for an extended period of time, then turns steady red	Failed broadband link synchronization between the gateway and the DSLAM with which it is directly connected	<ul style="list-style-type: none"> • Check the Ethernet cable connection on the computer and gateway, and make sure it is securely seated in both port. • Verify if ADSL service is activated on the phone cable connected to the gateway. To do so, contact the ISP.
SERVICE LED is steady red	Internet service authentication failure and/or failure to receive address assignment	<ul style="list-style-type: none"> • Contact your ISP to check if the Internet connection is activated. • Check if the PPPoE or DHCP server is assigning an IP address to your gateway. • Check if you have entered a valid User name and Password to connect to the Internet.
No ETHERNET light	Inadequate connectivity	Check the Ethernet cable connection on the computer and gateway, and make sure it is securely seated in both the ports.
No WIRELESS light	LAN clients are not connected to the gateway through the wireless interface	Ensure that at least one LAN client is connected to the wireless connection of the gateway.
Internet is not accessible but user interface of the gateway is accessible	Inadequate connectivity	Check the physical connection of the RJ-11 cable to the phone line port of the gateway device. Try using a different cable.

VoIP Issues

The following table provides information to troubleshoot VoIP issues:

Issue	Possible Cause(s)	What to Do
No VOICE 1 and VOICE 2 lights	Inadequate connectivity	Check the cable connection from the gateway to the phone(s) and make sure if the cable(s) are securely seated.
	Inadequate SIP server or Line configuration.	<ul style="list-style-type: none"> For information about configuring SIP server, refer to Configuring SIP Server in the <i>HomePortal® Intelligent Gateway 9.3.1.10 Configuration Guide</i>. For information about configuring Line(s), refer to Configuring Lines in the <i>HomePortal® Intelligent Gateway 9.3.1.10 Configuration Guide</i>.
No dial tone	Service is down	Verify that the phone is in the Active mode. If the issue persists, contact the ISP.

LAN Issues

The following table provides information to troubleshoot LAN issues:

Issue	Possible Cause(s)	What to Do
Unable to connect to the gateway through the local Ethernet port	Loose Ethernet cable connection	<ul style="list-style-type: none"> Check the Ethernet cable connection on the computer and gateway, and make sure it is securely seated in both ports. Check the ETHERNET indicator on the gateway. The associated Ethernet port LED flickers green.
Wireless client is not getting an IP address	Wireless modes on client and AP are not compatible	Ensure that the wireless mode on the wireless client is compatible to the wireless mode on the gateway.
Wireless signal strength is weak	Wireless client is not in the wireless range	Ensure that your wireless client is within the wireless range of the gateway.
Setting custom encryption key on the user interface gives an error	Custom encryption key is not conforming with the security mode, key length, key type, or value type	Configure the custom encryption key in a way that it conforms to the security mode, key length, key type, or value type.

APPENDIX A

Regulatory Information

Electrical

AC Adapter

The AC adapter is designed to ensure your personal safety and to be compatible with this equipment. Please follow these guidelines:

- Do not use the adapter in a high-moisture environment. Never touch the adapter when your hands or feet are wet.
- Allow adequate ventilation around the adapter. Avoid locations with restricted airflow.
- Connect the adapter to a proper power source. The voltage and grounding requirements are found on the product case and/or packaging.
- Do not use the adapter if the cord becomes damaged.
- Do not attempt to service the adapter. There are no serviceable parts inside. Replace the unit if it is damaged or exposed to excess moisture.

Telecommunication Cord



To reduce the risk of fire, use only No. 26 AWG or larger UL Listed or CSA Certified Telecommunication Line Cord.

Internal Telephone Ports (VoIP)

Telecommunication equipment connected to this port (for example, via “Voice 1 & 2” port) should be UL Listed and the connections shall be made in accordance with Article 800 of the NEC.

Location – Electrical Considerations



To reduce the risk of electrical shock or damage, do not use this product near water, including a bathtub, wash bowl, kitchen sink or laundry tub, in a wet basement, or near a swimming pool. Also, avoid using this product during electrical storms. Avoid locations near electrical appliances or other devices that cause excessive voltage fluctuations or emit electrical noise (for example, air conditioners, neon signs, high-frequency or magnetic security devices, or electric motors).

Equipment

Repairs

Do not, under any circumstances, attempt any service, adjustments, or repairs on this equipment. Instead, contact your local 2Wire distributor or service provider for assistance. Failure to comply may void the product warranty.

Location – Environmental Considerations

Do not plug the AC/DC power adapter in an outdoor outlet or operate the gateway outdoors. It is not waterproof or dustproof, and is for indoor use only. Any damage to the unit from exposure to rain or dust may void your warranty.

Do not expose the residential gateway to high heat, dust, humidity, moisture, caustic chemicals, or oils. Keep the gateway away from direct sunlight and any material that radiates heat, such as a stove or a motor.

Do not place the gateway in enclosed areas having restricted airflow, such as, electrical cabinet, closet, or entertainment center. Allow adequate ventilation around the gateway for maximum air flow and cooling.

Declaration of Conformity

FCC / Industry Canada Compliance

This device has been tested and certified as compliant with the regulations and guidelines set forth in the Federal Communication commission - FCC part 15, FCC part 68 and Industry Canada - ICES003 and RSS-210 Radio and telecommunication regulatory requirements / Le présent matériel est conforme aux spécifications techniques applicables d'Industrie Canada. Cet appareil numérique de la classe [*] est conforme à la norme NMB-003 du Canada.

Manufacturer: 2Wire, Inc.

Model(s): 5011NV, 5012NV

Part 15 of FCC Rules

This device complies with Part 15 of the FCC Rules. The operation of this device is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help



Changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate this equipment.

TIA 968 (Part 68 of FCC Rules) / IC CS-03

This equipment complies with the Telecommunication Industry Association TIA-968 (FCC part 68) and Industry Canada CS-03 Telecommunication requirements. On the product is a label that contains, among other information, the IC and FCC registration number and ringer equivalence number (REN) for this equipment. If requested, this information may be provided to the telephone company.

The REN is used to determine the quantity of devices that may be connected to the telephone line. Excessive RENs on the telephone line may result in the device not ringing in response to an incoming call. In most, but not all areas, the sum of the RENs should not exceed five (5.0) / L'indice d'équivalence de la sonnerie (IES) sert à indiquer le nombre maximal de terminaux qui peuvent être raccordés à une interface téléphonique. La terminaison d'une interface peut consister en une combinaison quelconque de dispositifs, à la seule condition que la somme d'indices d'équivalence de la sonnerie de tous les dispositifs n'excède pas 5.

To be certain of the number of devices that may be connected to the line, as determined by the total RENs, contact the telephone company to determine the maximum RENs for the calling area.

This product cannot be used on telephone-company-provided coin service. Connection to Party Line Service is subject to state tariffs.

An FCC-compliant telephone cord and modular plug is provided with this equipment. This equipment is designed to be connected to the telephone network or premises wiring using a compatible modular jack that is Part 68 compliant. If this equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. If advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary. The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of this equipment. If this happens, the telephone company will provide advance notice in order for you to make the necessary modifications to maintain uninterrupted service. If trouble is experienced with this equipment, please contact 2Wire, or your local 2Wire distributor or service center in the U.S.A. for repair and/or warrant information. If the trouble is causing harm to the telephone network, the telephone company may request you to remove this equipment from the network until the problem is resolved. No repairs can be done by a customer on this equipment. It is recommended that the customer install an AC surge arrester in the AC outlet to which this device is connected. This is to avoid damage to the equipment caused by local lightning strikes and other electrical surges.

MPE/SAR/RF Exposure Information

This device was verified for RF exposure and found to comply with Council Recommendation 1999/519/EC and FCC OET-65 RF exposure requirements. This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.



While this device is in operation, a separation distance of at least 20 cm (8 inches) must be maintained between the radiating antenna inside the EUT and the bodies of all persons exposed to the transmitter in order to meet the FCC RF exposure guidelines. Making changes to the antenna or the device is not permitted. Doing so may result in the installed system exceeding RF exposure requirements. This device must not be co-located or operated in conjunction with any other antenna or radio transmitter. Installers and end users must follow the installation instructions provided in this guide.
