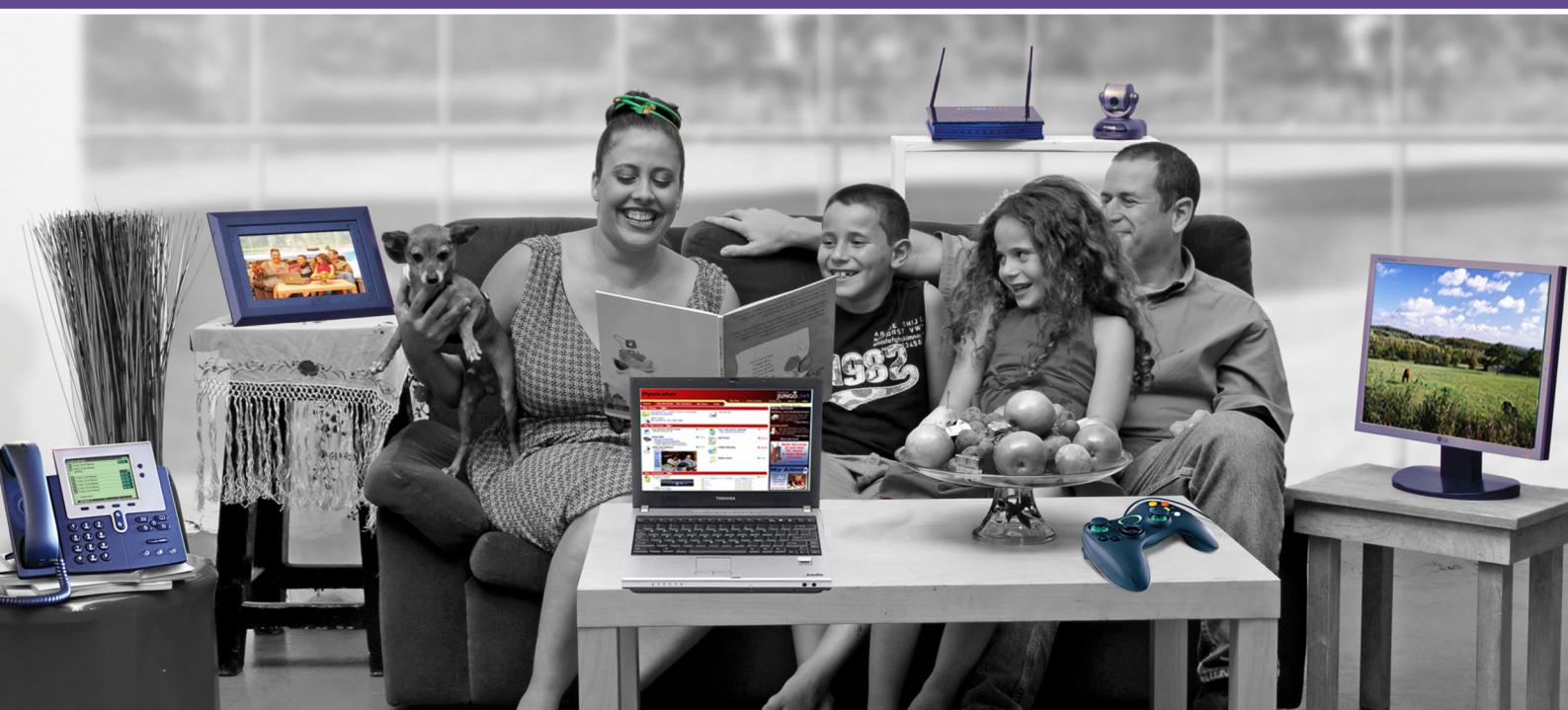


# OpenRG User Manual

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Version 4.11



# **OpenRG User Manual**

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**Version 4.11**

*Jungo Software Technologies Ltd.*

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## OpenRG User Manual: Version 4.11

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This document is available for download at: <http://www.jungo.com/openrg/documentation.html>, version 4.11

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# **Part I Installing Your Gateway**

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# 1

## Introduction to OpenRG

OpenRG™ is a leading software solution for broadband service delivery. Its unique hardware-independent design enables service providers to concentrate on enhancing service to their subscribers, offering full flexibility to select the best suited CPE, and eliminating the complexity and costs that are typically associated with using multiple CPE models and deploying new ones.

OpenRG is a best-of-breed middleware product for residential gateways, which resides in the CPE. The middleware includes drivers, OS, protocols and advanced applications to enable all of the broadband applications and services.

OpenRG empowers various network devices in the digital home, including triple play residential gateways, home/SOHO routers, home gateways, wireless access points, cable/DSL routers, voice gateways and more.



Broadband operators worldwide have selected and deployed OpenRG-based home gateways to drive revenue generating business models and services.

Jungo also offers OpenSMB—gateway middleware for the small and medium-sized business market. References to OpenRG in this document also apply to OpenSMB.

You can view OpenRG's specification as well as additional documentation at <http://www.jungo.com/openrg/documentation.html>, version 4.11.

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# 2

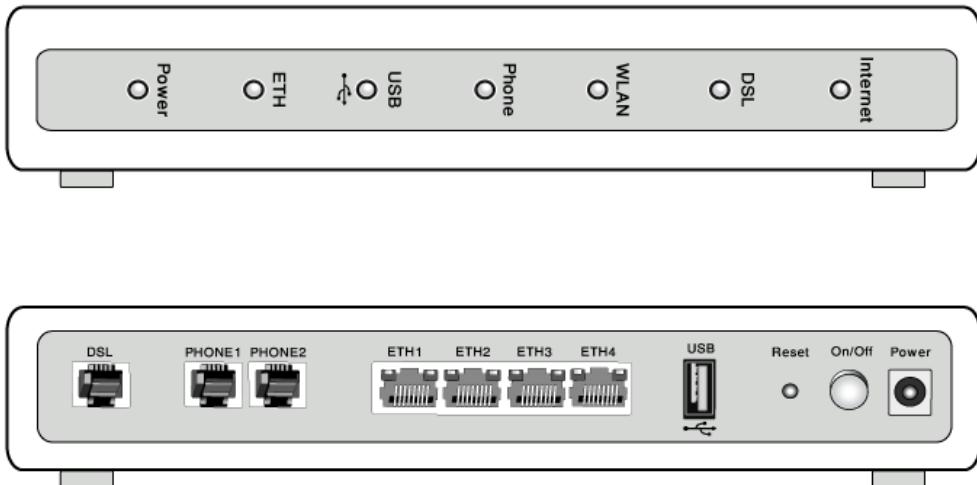
## Connecting Your Gateway

Connecting your computer or home network to the gateway is a simple procedure, varying slightly according to different operating systems. By the end of this chapter you will have your gateway installed and be able to browse the Internet from a computer connected to the gateway. You will also have peripheral equipment installed, such as a telephone, printer, mass storage device, or a media client.



**Figure 2.1 Your Home Network**

Your supplied kit includes a gateway and a power cable. The following illustrations represent a DSL gateway, viewed from both the front and the rear.

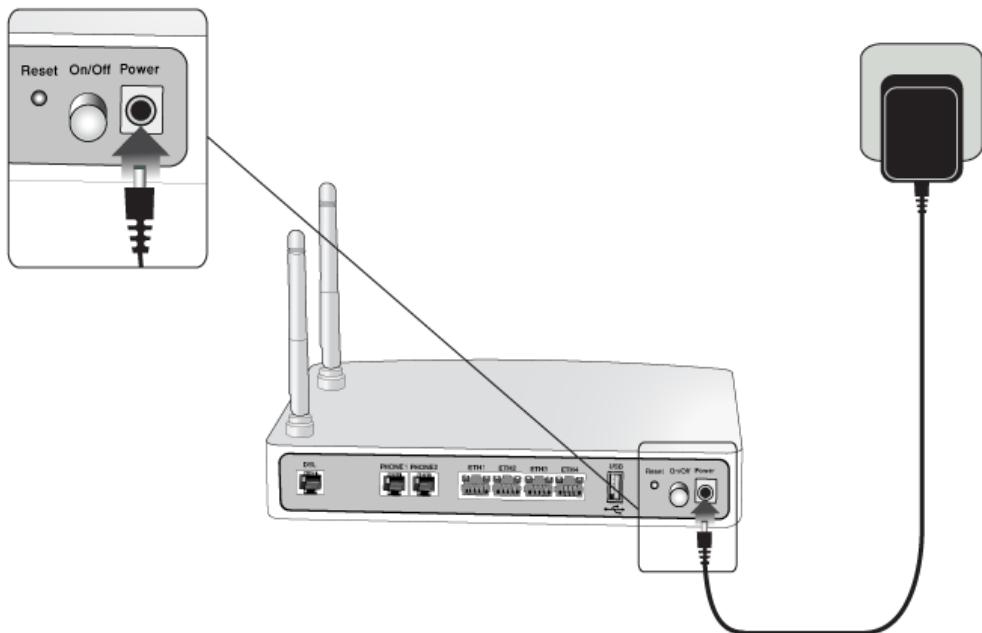


**Figure 2.2 Front and Rear Panels**

The front panel features LEDs that provide feedback for the features they represent. The rear panel contains various input sockets, as well as an On/Off switch and a reset button, that when pressed for three seconds will restore the gateway's factory settings.

## 2.1 Power Connection

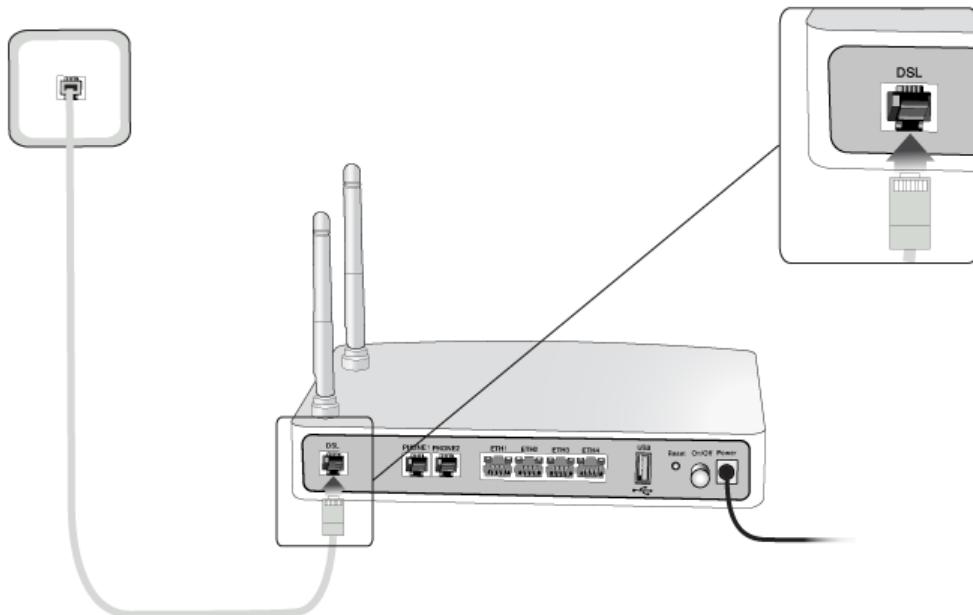
Connect the supplied power cable to its matching socket on the rear panel of the gateway, and to a wall power outlet. Then, switch the gateway on by pressing the On/Off button.



**Figure 2.3 Power Connection**

## 2.2 Wide Area Network (WAN) Connection

Your connection to the Internet is determined by the type of gateway that you have. If your gateway has a built-in DSL modem, connect its DSL socket to the wall socket using a telephone cable.

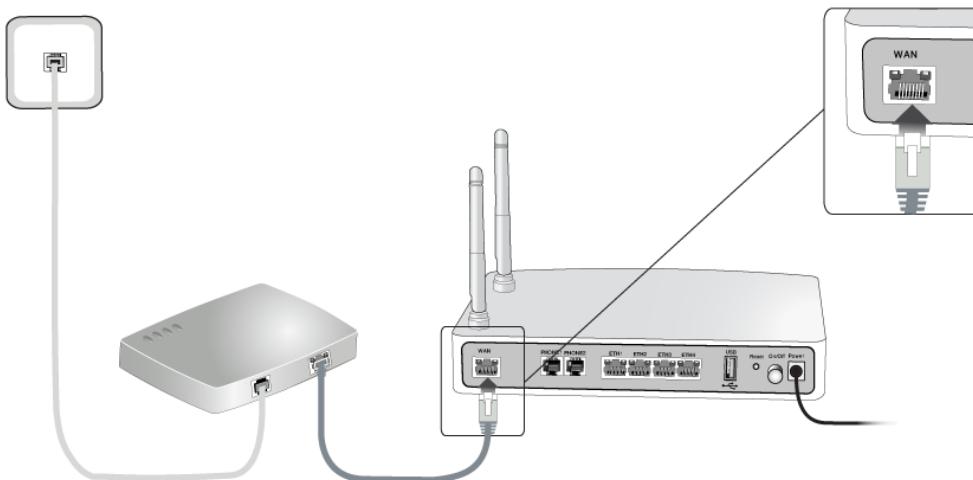


**Figure 2.4 DSL Connection**



Note: When using DSL, you must add a filter between every telephony device and its wall socket.

If your gateway has an Ethernet socket for the WAN, connect it to the external modem you have (or any other Ethernet socket you might have), using an Ethernet cable. Your modem should be connected to the wall socket. Refer to your modem's documentation if necessary.



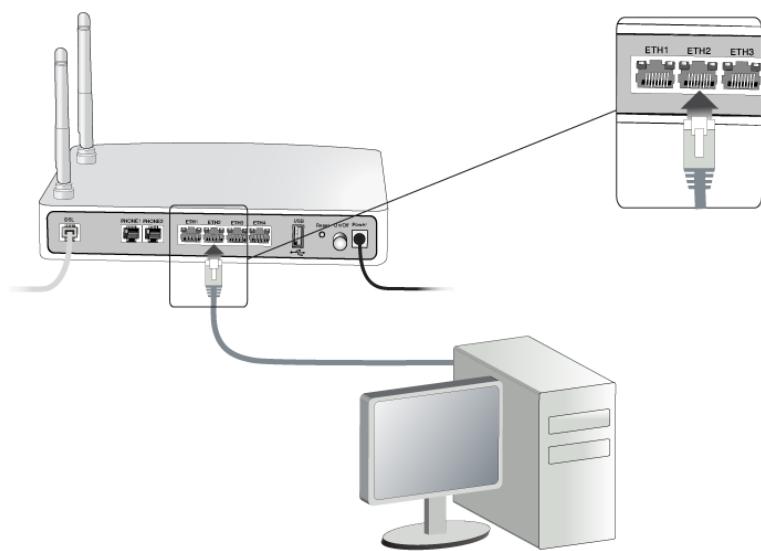
**Figure 2.5 WAN Connection**

# 3

## Connecting Your PC

### 3.1 Local Area Network (LAN) Connection

Using an Ethernet cable, connect your computer's network card to any one of the four Ethernet ports on your gateway.



**Figure 3.1 LAN Connection**

OpenRG provides a DHCP server on its LAN, meaning it will automatically assign an IP address to any computer that connects to its Ethernet ports, thus making it part of its LAN.

In most cases, a computer's network interface is configured by default to automatically obtain an IP address. However, if your computer fails to connect to OpenRG, you might have to configure its network interface. For more information, refer to [Chapter 11](#).

## 3.2 Wireless LAN Connection



**Figure 3.2 Wireless Network**

If your PC has wireless capabilities, Windows will automatically recognize this and display a wireless connection icon in the system tray (alternatively, this icon is displayed in the Windows 'Network Connections' screen, accessed from the Control Panel). Click this icon to search for and connect to your gateway's wireless networks.

Alternatively, you can use the wireless client software supplied with your wireless hardware to connect to your wireless networks.

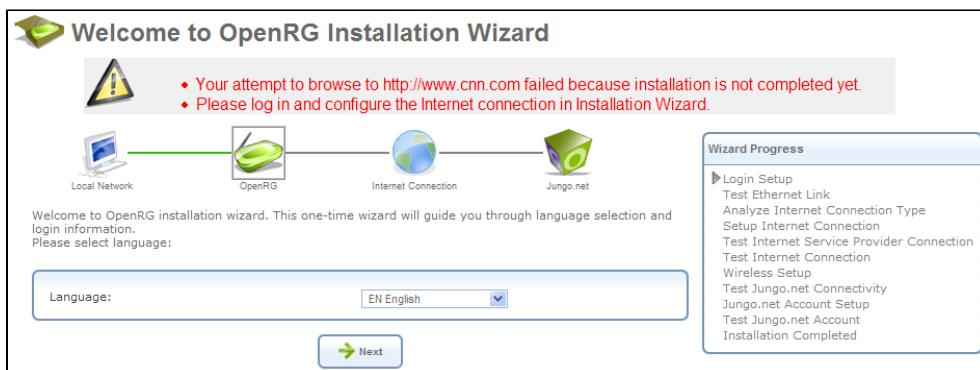
However, to be able to connect to OpenRG's wireless network, you must first complete the installation wizard, described in the following section.

# 4

## Connecting to the Internet

### 4.1 Web Interception

On your first attempt to browse the Internet, whether from a wired or a wireless connection, your gateway will present you with the installation wizard's 'Welcome to OpenRG' screen, along with an attention message:



**Figure 4.1** Web Interception Message

To gain Internet access and setup your gateway, follow the steps of the wizard procedure. Once an Internet connection is established, the interception attention message will re-appear with a 'here' link that you can click in order to browse to your originally requested Internet address.



**Figure 4.2** Attention

## 4.2 Installation Wizard

When logging into OpenRG for the first time, the installation wizard is the first screen to appear. This wizard is the first and foremost WBM configuration procedure, which automatically diagnoses your network environment and configures its components. It is a step-by-step procedure that guides you through establishing an Internet connection, a wireless network, and helps you to subscribe for different services by creating a Jungo.net account. The wizard progress box, located at the right hand side of the screen, provides a monitoring tool for its steps during the installation progress.



**Figure 4.3 Welcome to OpenRG Installation Wizard**

To start the installation wizard, perform the following:

1. Select the desired language and click 'Next' to continue. The 'Login Setup' screen appears.



**Figure 4.4 Login Setup**

2. Enter a valid email address. It will be used by your service provider for sending you important service information.
3. The 'User Name' field is auto-completed by the username part of your email address. You can enter another username, which may only consist of letters and numbers.
4. Enter a password, and retype it in the next field to verify its correctness.



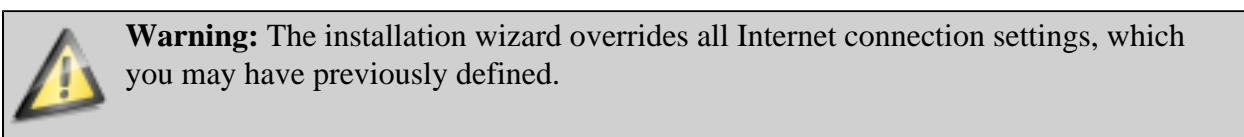
Note: It is recommended to write down your login details on a piece of paper, and store it in a safe place.

5. Click 'Next'. The wizard is now ready to begin your gateway's configuration.



**Figure 4.5 Installation Wizard**

6. Click 'Next'. The wizard procedure will commence, performing the steps listed in the progress box consecutively, stopping only if a step fails or if input is required. The following sections describe the wizard steps along with their success/failure scenarios. If a step fails, use the 'Retry' or 'Skip' buttons to continue.



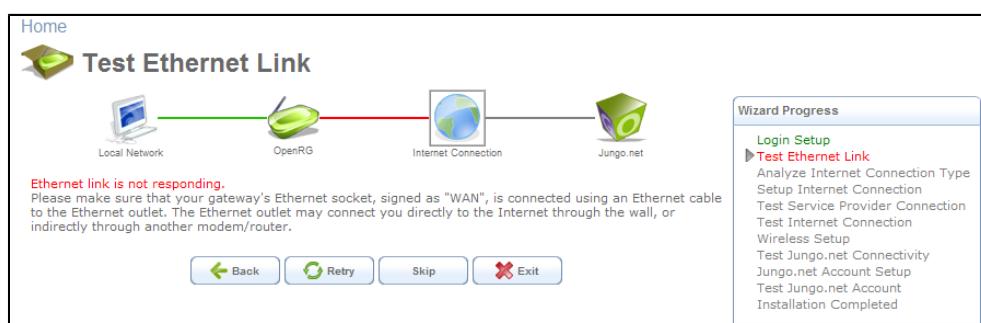
## 4.2.1 Step 1: Test Ethernet Link

The first step is a test of the Ethernet connection.



**Figure 4.6 Test Ethernet Link**

This step may fail if OpenRG cannot detect your Ethernet link (for example, if the cable is unplugged). In this case, the screen changes to the following.

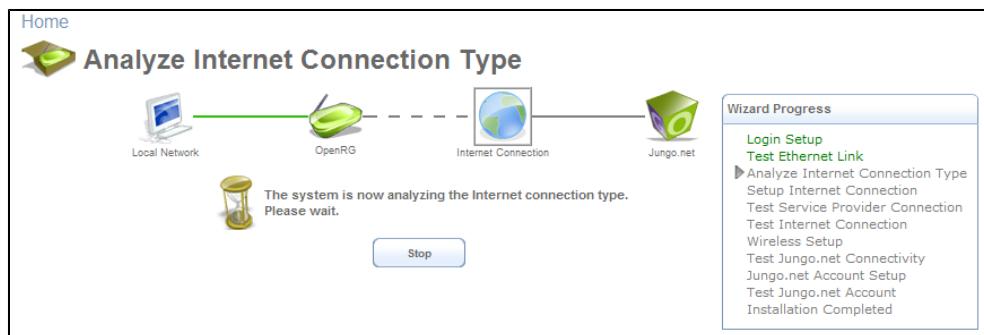


**Figure 4.7 Test Ethernet Link – Failure**

Verify that your Ethernet/DSL cable is connected properly, and click 'Retry'.

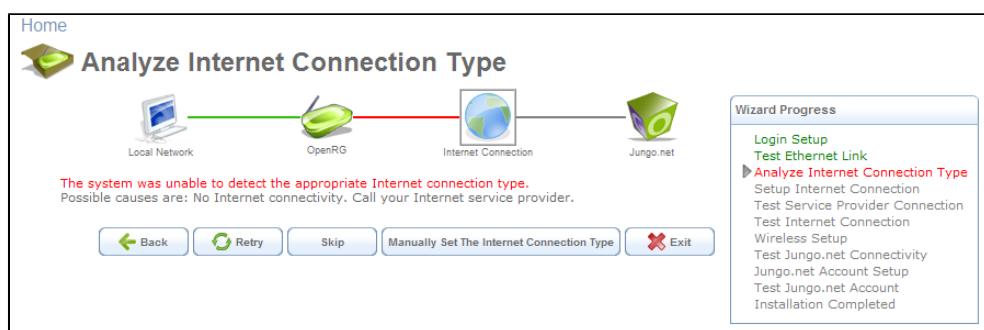
## 4.2.2 Step 2: Analyze Internet Connection Type

The next step is an analysis of your Internet connection.



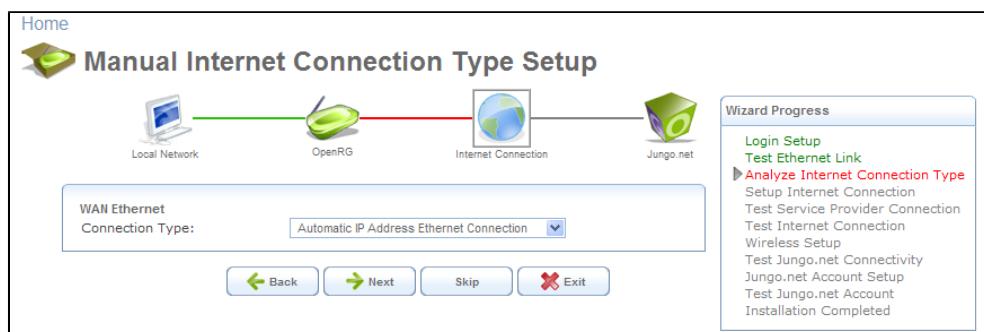
**Figure 4.8 Analyze Internet Connection Type**

This step may fail if OpenRG is unable to detect your Internet connection type.



**Figure 4.9 Analyze Internet Connection Type – Failure**

In this case, you can manually set the Internet connection type, by clicking the corresponding button. The following screen appears.



**Figure 4.10 Manual Internet Connection Type Setup**

## 4.2.3 Step 3: Setup Internet Connection

If your Internet connection requires login details provided by your Internet Service Provider (ISP) (e.g. when using PPPoE), the following screen appears.



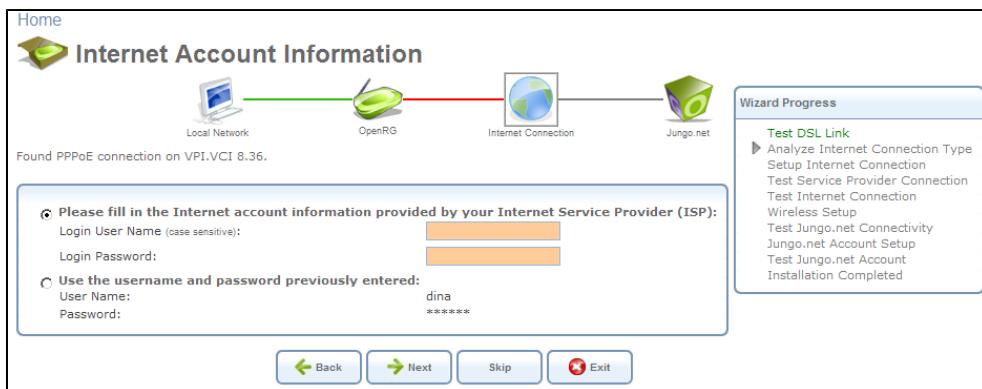
**Figure 4.11 Internet Account Information**

Enter your user name and password and click 'Next'. Failure to enter the correct details yields the following message. Click 'Back' and try again.



**Figure 4.12 Setup Internet Connection**

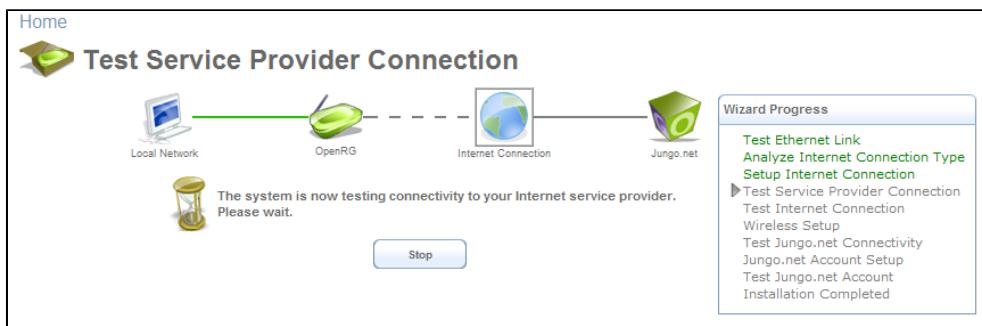
In case you had already entered a user name and password in the past, the following screen appears, enabling you to either enter new login details, or use your old ones.



**Figure 4.13 Internet Account Information**

## 4.2.4 Step 4: Test Service Provider Connection

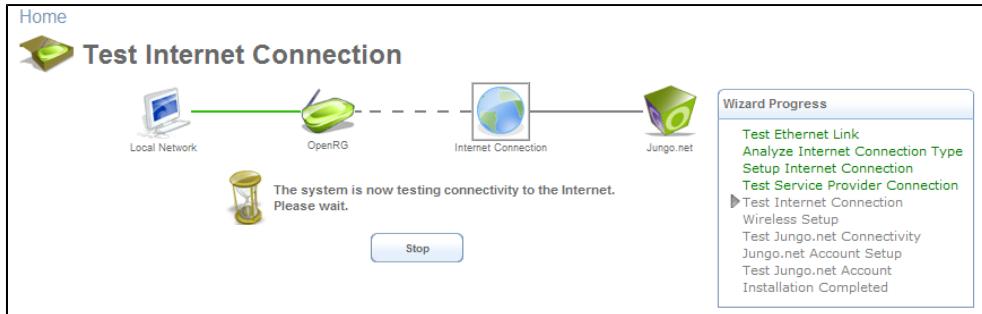
This step tests the connectivity to your ISP.



**Figure 4.14 Test Service Provider Connection**

## 4.2.5 Step 5: Test Internet Connection

This step tests the connectivity to the Internet.



**Figure 4.15 Test Internet Connection**

## 4.2.6 Step 6: Wireless Setup

This step enables you to rename your wireless network, as well as increase its security level.

**Figure 4.16 Wireless Setup**

OpenRG personalizes the default "OpenRG" SSID with your username (e.g. "OpenRG admin"). You may of course change this name according to your preference. Next, select the

wireless security level. The default "Medium" level secures your network by requiring users to provide a password in order to connect. "High" level utilizes the Wi-Fi Protected Access (WPA) protocol, requiring a password (network key) as well, but also encrypts the wireless traffic. When selecting this option, enter an eight-character password in the provided field. Click 'Next' to continue.

#### 4.2.6.1 Setup via Wireless Connection

If you are running the installation wizard while being connected to OpenRG via a wireless connection, the wizard does not change the default SSID (to prevent you from disconnecting). If you choose to change it manually, the following screen appears, requesting that you re-establish your wireless connection (from your computer) before proceeding with the wizard.

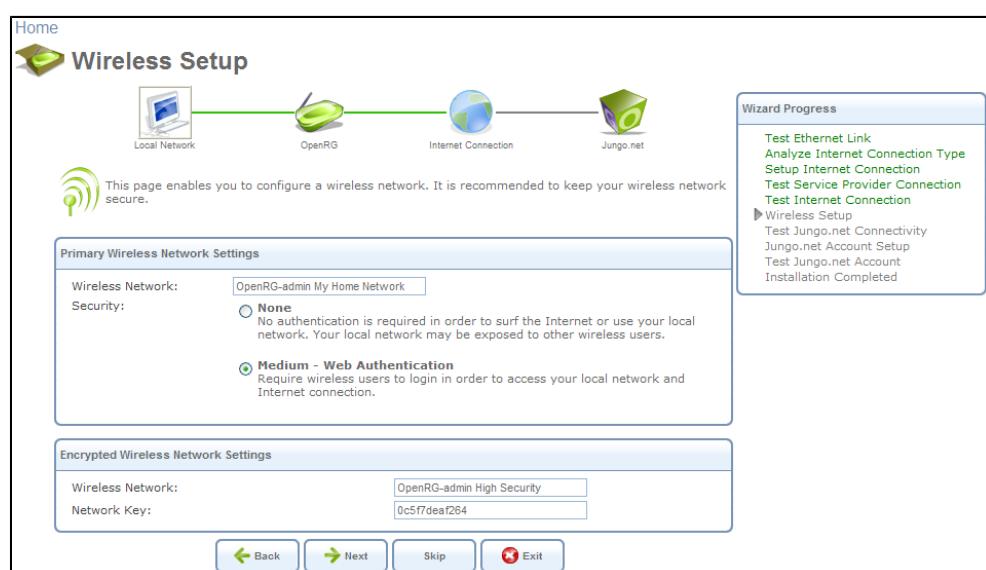


**Figure 4.17 Wireless Setup**

This screen also appears after selecting the High wireless security level, or after changing the previously entered WPA password (see [Figure 4.16](#)).

#### 4.2.6.2 Additional SSIDs with Virtual Access Points

If your gateway supports multiple virtual access points, an additional pre-configured WPA-secured wireless network is displayed in 'Wireless Setup' screen.



**Figure 4.18 Wireless Setup**

You can change the default name and network key (password) of this encrypted wireless network in their respective text fields (clicking 'Next' will save the new details). This wireless network will also appear in the 'Network Connections' screen under the 'System' tab, where it can be edited or deleted such as any other network connection.

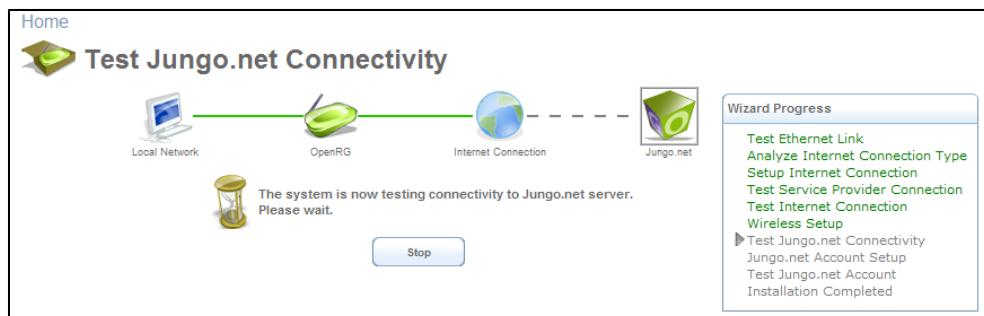


**Figure 4.19 Network Connections**

 Note: In order to delete this connection, you must first remove it from under the LAN bridge.

## 4.2.7 Step 7: Test Jungo.net Connectivity

This step tests connectivity to the Jungo.net server.



**Figure 4.20 Test Jungo.net Connectivity**

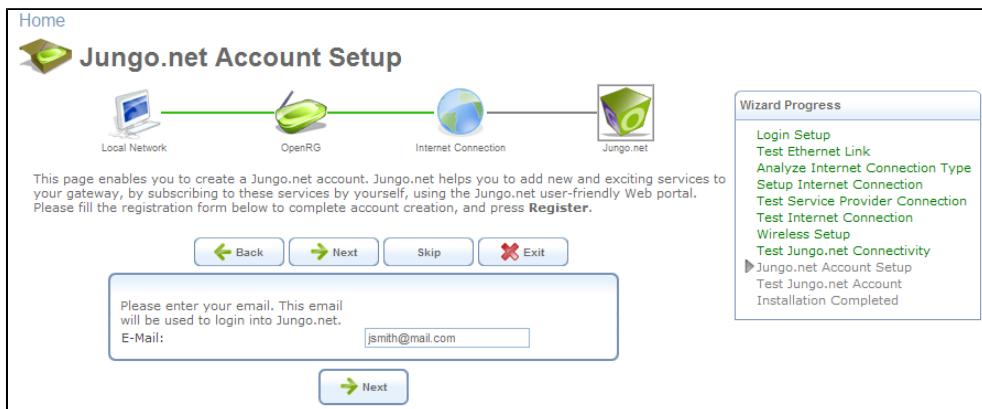
## 4.2.8 Step 8: Jungo.net Account Setup

This step tests the Jungo.net account supplied by your service provider, or enables you to create one.



**Figure 4.21 Jungo.net Account Setup**

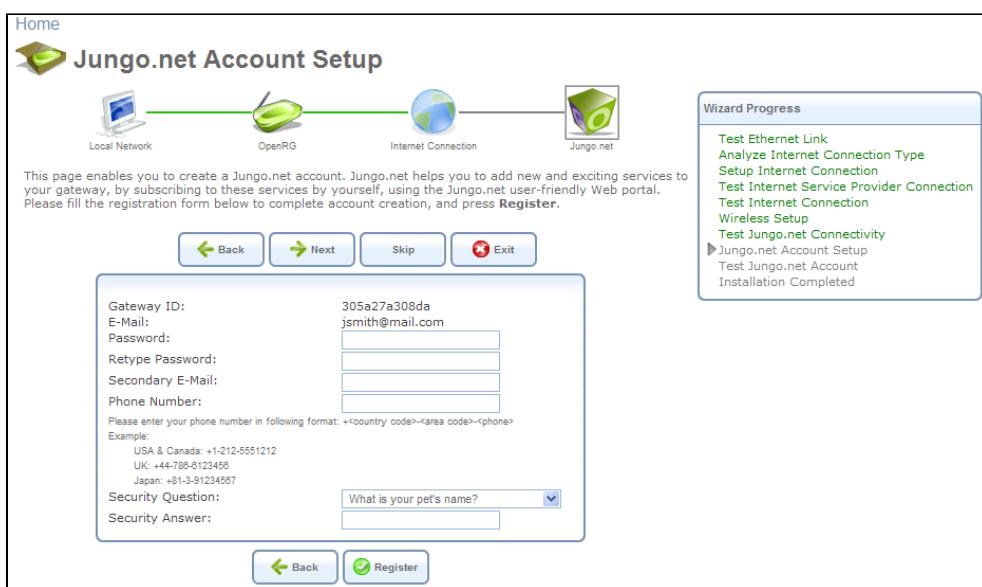
If the gateway has not been associated with your Jungo.net account yet, or the account does not exist, the following screen appears.



**Figure 4.22 Email Address Prompt**

This screen enables you to verify or change the email address you have entered while accessing the WBM for the first time. This email address will serve as part of your Jungo.net login details.

Click 'Next' to proceed. If you do not have a Jungo.net account yet, the registration form appears.



**Figure 4.23 Jungo.net Account Setup – Creating an Account**

Enter the following information:

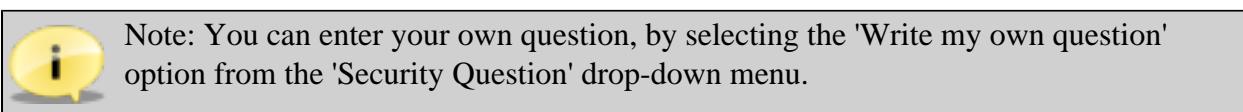
**Password** The password you will use for entering Jungo.net.

**Confirm Password** Retype the password for confirmation.

**Secondary E-Mail** If you have an additional email address, enter it in this field.

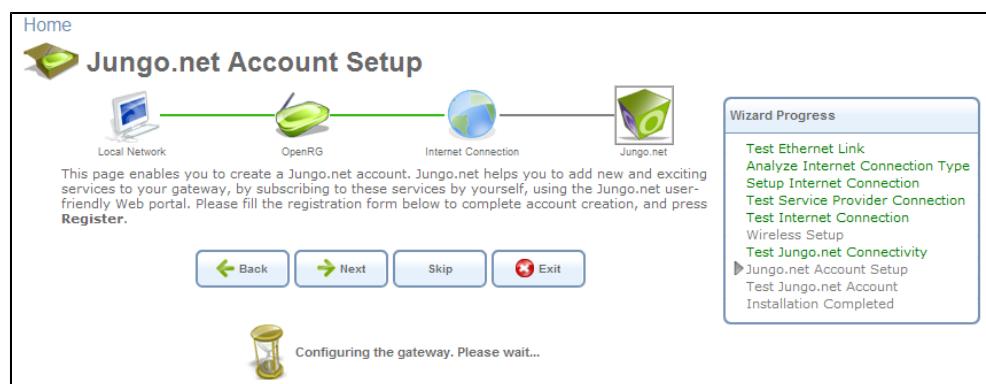
**Phone Number** Enter your cellphone number in the format shown in the example.

**Security Question** A question asked to verify your identity.



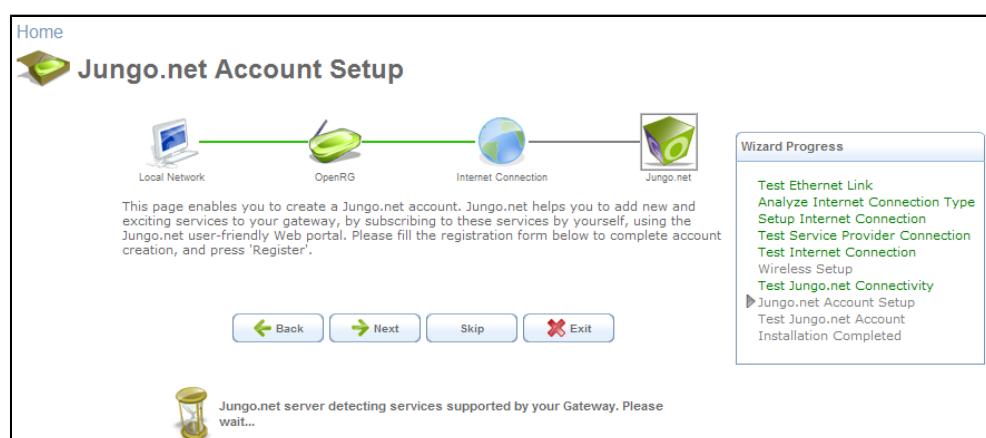
**Security Answer** An answer for the security question.

To create the account, click 'Register'. The gateway is configured with your Jungo.net account settings.



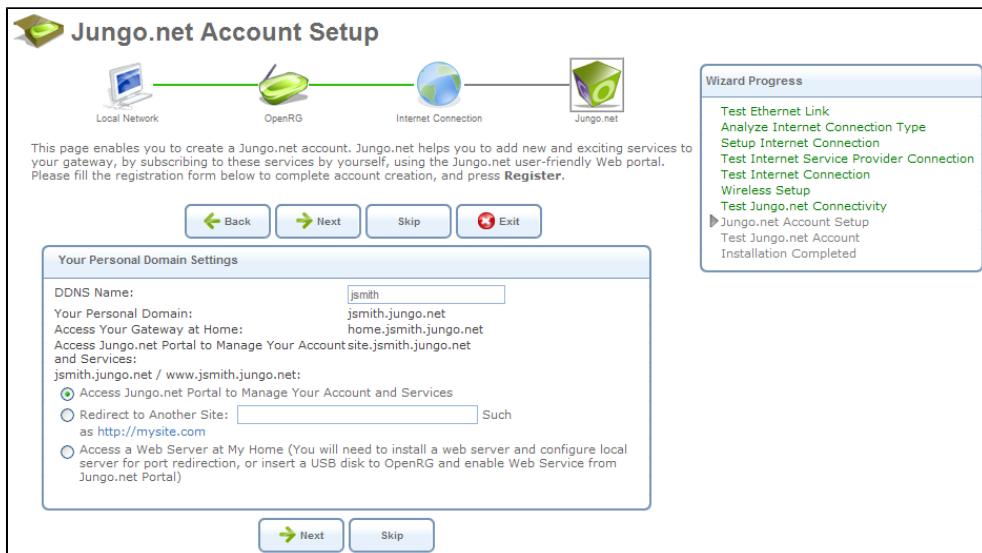
**Figure 4.24 Configuring OpenRG with the Jungo.net Account**

After configuring the gateway with your Jungo.net account, the wizard proceeds to detect Jungo.net services supported by the gateway, and displays the following screen.



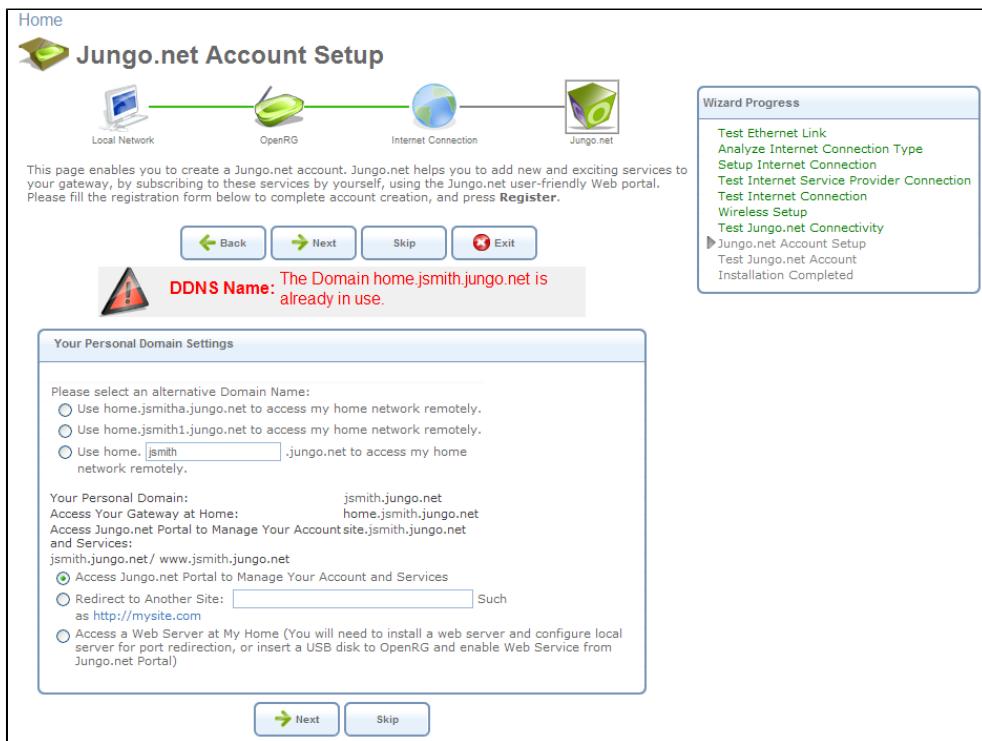
**Figure 4.25 Detecting Jungo.net Services**

While detecting the services, the wizard displays the following screen enabling you to configure the Personal Domain Name service.



**Figure 4.26 Personal Domain Settings**

The editable part of the domain name is by default filled with your OpenRG username. You can change it to another word, which may consist of letters and numbers. This domain name will also be used as part of your Jungo.net account. If the username you entered had been already occupied by another person, the following screen appears.



**Figure 4.27 Domain Name in Use**

This screen enables you to select another username by clicking its respective radio button. If none of the suggested name fits your needs, select the last radio button and change the domain name as you like.

In addition, the screen displays the following three URLs that you will obtain for personal use after registration:

**home.your\_username.jungo.net** Leads to your gateway's WBM.

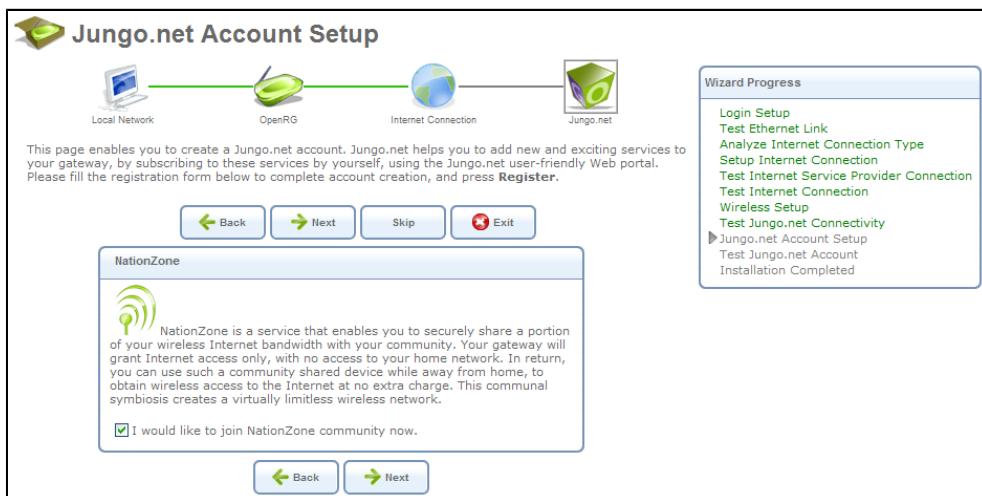
**site.your\_username.jungo.net** Leads to the Jungo.net portal.

**your\_username.jungo.net** Your personal domain name that can be used for the following purposes:

- Access your personal account in the Jungo.net portal to add and manage the broadband services on your gateway. To enable this option, select the first radio button located in the 'Service Settings' section.
- Redirect to another Web site. To enable this option, select the second radio button and specify the Web site's URL in the designated text field.
- Access your Web site. To enable this option, select the third radio button and perform **either** of the following:
  - ❖ Set up a Web server, and configure your local server for port redirection. This option is recommended for advanced users.
  - ❖ Connect a USB disk containing your Web site content to the gateway, and enable the Web service in the Jungo.net portal.

Click 'Next' to enable the 'Personal Domain Name' service on the gateway. Alternatively, click 'Skip' if you would like to enable and configure this service later. In both cases, the wizard proceeds to detect the rest of the Jungo.net services supported by the gateway.

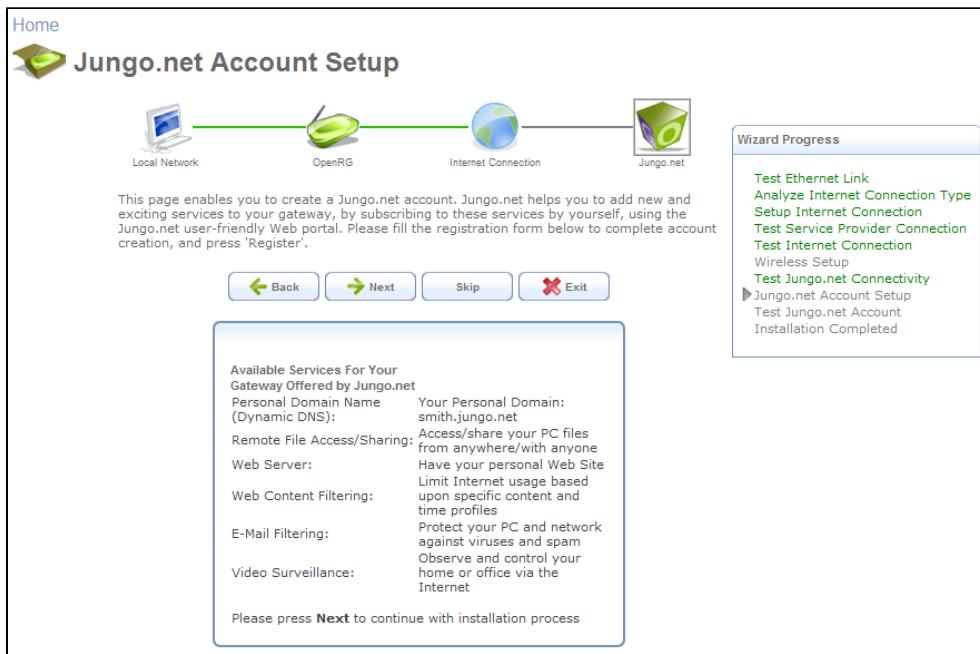
If your gateway supports the NationZone service, the following screen appears, offering you to enable the service on your gateway.



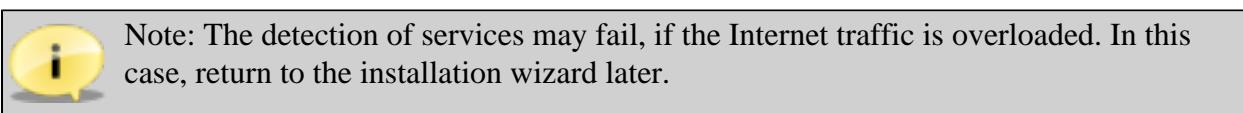
**Figure 4.28 Enable NationZone**

If you would like to enable this service, select the corresponding check box and click 'Next'.

When all supported services are detected, the gateway is automatically configured with the obtained service settings and the following screen appears.



**Figure 4.29 Available Jungo.net Services**



Click 'Next' to proceed to the Jungo.net account validation step.

## 4.2.9 Step 9: Test Jungo.net Account

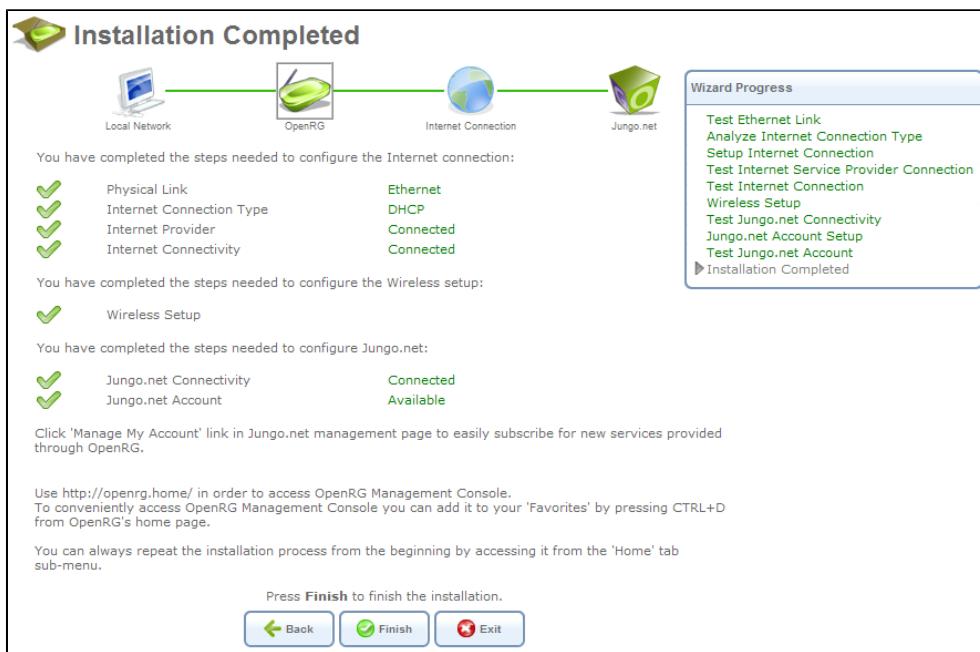
This step validates your account on the Jungo.net server.



**Figure 4.30 Test Jungo.net Account**

## 4.2.10 Step 10: Installation Completed

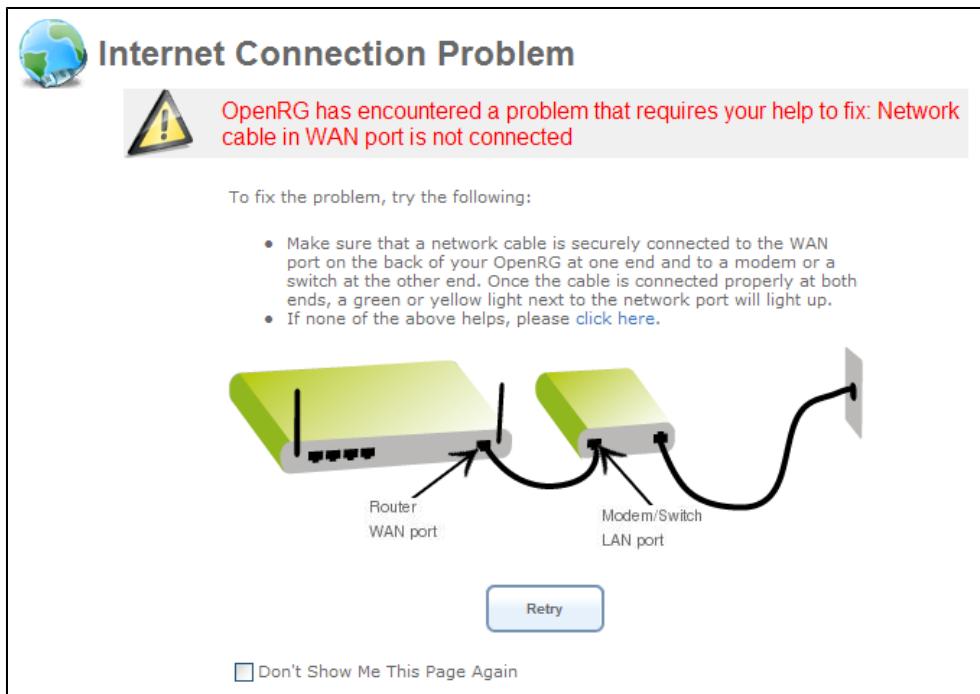
This screen provides a summary of all the above Internet connection configuration steps and their results. Click 'Finish' to complete the wizard procedure.

**Figure 4.31 Installation Completed**

## 4.3 Interception Pages

### 4.3.1 Connection Problem

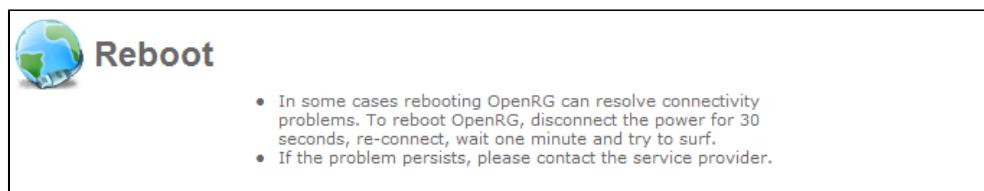
There may be cases where Internet connection problems will prevent you from using your gateway. In such cases, OpenRG will intercept the browsing attempt and display the following screen, instead of the browser's standard 'Error 404: The page cannot be displayed' page.

**Figure 4.32 Internet Connection Problem**



Note: Selecting the "Don't Show Me This Page Again" option will disable HTTP interception. To reinstate it, check the 'Intercept HTTP Traffic for Assisting with Internet Connectivity Problems' option under the 'Settings' menu item of the 'System' tab.

This page informs not only of the problem, but also of its possible reasons, and even provides troubleshooting options. In this example, the cause for the problem is that the WAN port network cable is not connected. If reconnecting the cable does not resolve the problem, this screen provides an additional link for further advice. Click the 'click here' link. The following screen appears.

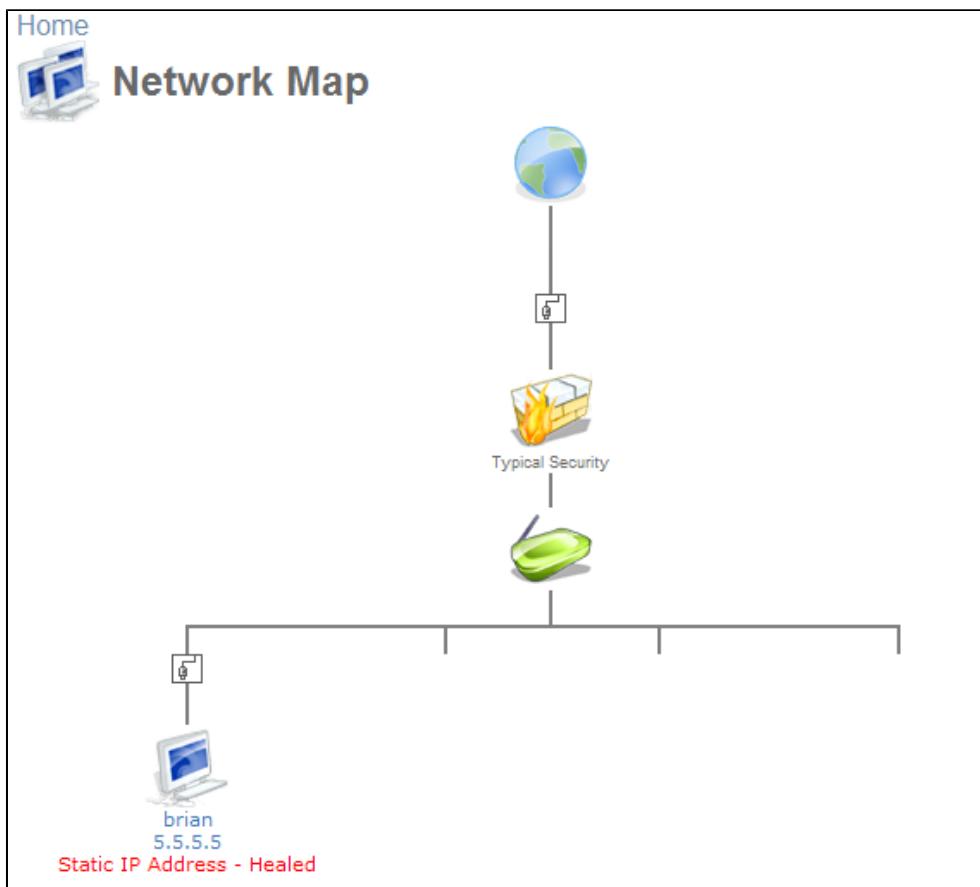


**Figure 4.33 Reboot OpenRG**

Rebooting OpenRG is another measure you can take in attempt to restore your Internet connection. As evident, this feature is more interactive and informative than the browser's standard 'Error 404' page.

### 4.3.2 Static IP Address

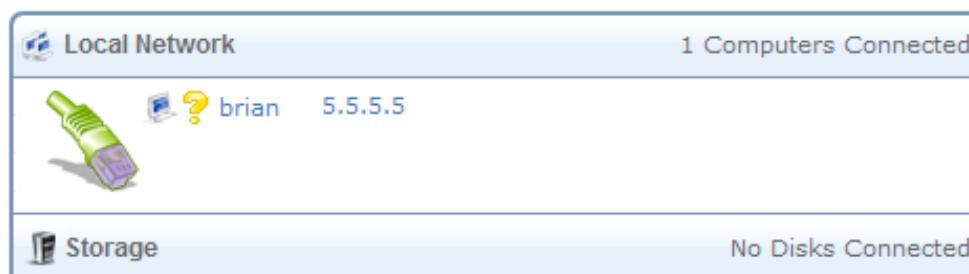
When a computer from another LAN, configured with a static IP in the subnet of that LAN (e.g. 5.5.5.5), is connected to your gateway, OpenRG's Zero Configuration system takes measures to accept it as a LAN computer. This ensures your constant work flow, saving you time and frustration.



**Figure 4.34 Network Map**

OpenRG does so by mimicking the computer's LAN settings, thus pretending to be the computer's gateway. Therefore, browsing from the computer to 5.5.5.1 (its LAN's default gateway address), will yield OpenRG's WBM.

However, OpenRG displays alerts to advise you of this unwanted situation. In the homepage, the 'Local Network' section displays the computer's details with a yellow question mark.



**Figure 4.35 Local Network**

Click this question mark. The following screen appears, warning about the computer's status.

The screenshot shows the 'Host Information' section of the OpenRG interface. At the top, a yellow warning icon with an exclamation mark is displayed next to the message: 'This computer uses a static IP address which is not in the LAN IP range and is blocked from the network.' Below this, there are two main sections: 'Services' and 'Host'. The 'Services' section lists various ports and their states: Shared Files (Enabled), HTTP (Disabled), FTP (Enabled), Telnet (Enabled), Remote Desktop (Enabled), and VNC (Disabled). The 'Host' section provides detailed network information: Host: brian, Active: No Information, MAC Address: 00:50:fc:ce:a1:cd, IP Address: 5.5.5.5, Subnet Mask: 255.255.255.0, Network Connection: Bridge, Lease Type: Detected. Buttons for 'Ping Test' and 'ARP Test' are shown, both labeled 'Test Connectivity'. A 'Statistics' section below shows 'No Information'. At the bottom, a 'Connection List' table header is visible with columns: Number, Protocol, LAN IP:Port, OpenRG IP:Port, WAN IP:Port, Direction, Action. Buttons for 'Close' and 'Refresh' are at the bottom right.

**Figure 4.36 Local Network**

More importantly, an attempt to browse the Internet is intercepted by OpenRG, which displays a message advising to switch from the static IP address to a DHCP assigned one.

The screenshot shows a 'Static IP Address Alert' dialog box. It features a yellow warning icon with an exclamation mark and the message: 'Your attempt to browse to http://www.google.com/webhp?hl... failed because your computer is using a static IP address.' Below this, a note reads: 'Your computer is misconfigured to use a static IP address instead of a DHCP assigned one. This may harm the quality of your internet connection. You may ignore it and continue to surf the internet using your current configuration, or fix it.' At the bottom are two buttons: 'Ignore' and 'Learn How to Fix'.

**Figure 4.37 Static IP Address Alert**

Select 'Ignore' to keep the unrecommended static IP settings and continue to the Internet. You will not be intercepted with this message again.

Note: The 'Ignore' option may be removed in order to disallow static IP address configuration, by changing the interception settings. For more information, refer to the 'Overviewing and Configuring System Settings' section of the OpenRG Administrator Manual.

Alternatively, select 'Learn How to Fix'. The following screen appears, offering a detailed set of instructions on how to change to a DHCP assigned IP address.

**Static IP Address Alert**

Your attempt to browse to www.google.com failed because your computer is using a static IP address.

Use the following steps to configure your Internet connection to use DHCP:

1. Click on the start menu, choose 'Settings' and then 'Control panel'.
2. Double click on 'Network Connections'.
3. On the network interface that is (usually) labeled as 'Local Area Connection' - right-click and choose 'Properties'.
4. Select TCP/IP (make sure you don't remove the check mark accidentally) and click the Properties button.
5. Make sure you have 'Obtain an IP address Automatically' and 'Obtain DNS server address automatically' selected.
6. Click Ok.
7. Click Ok.

Click [www.google.com](http://www.google.com) to continue browsing after configuring your computer.

**Figure 4.38 Static IP Address Alert**

After configuring your computer, browsing the Internet is enabled.

### 4.3.3 Incorrect Cable Connection

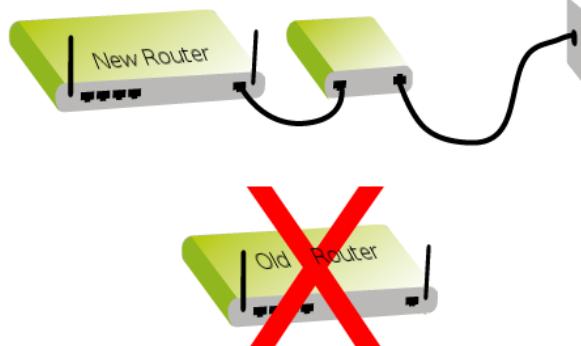


Note: This feature is only available when OpenRG is connected to Jungo.net.

If you have not connected your gateway directly to a modem (or a WAN wall outlet), but to another gateway instead, OpenRG will recognize this and display the following screen when attempting to browse.

**Cable Alert**

OpenRG has detected that it is connected through a 3rd party router and not directly to the cable modem. For best performance please connect OpenRG directly to the cable modem as shown below and then press Next.



Don't show me this page again

Next

**Figure 4.39 Cable Alert**

Although this setup would work, OpenRG would be a LAN client of the other gateway and therefore invisible and inaccessible from the Internet.

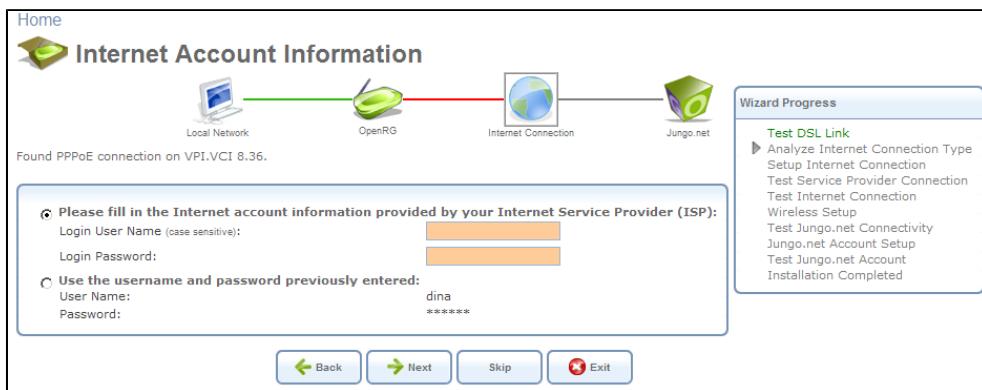


Note: If you wish to work in this manner, select the "Don't Show Me This Page Again" option, which will disable this interception.

After reconnecting the gateway as pictured, click 'Next' to navigate to your original browsing destination.

## 4.4 Saved Login Details

You may have forgotten your login details, issued by your ISP. OpenRG saves the username and password of the PPPoE or PPPoA connection to the ISP, even if it is restored to the factory default settings. When restoring the connection with the installation wizard, OpenRG will offer your old login details.



**Figure 4.40 Internet Account Information**

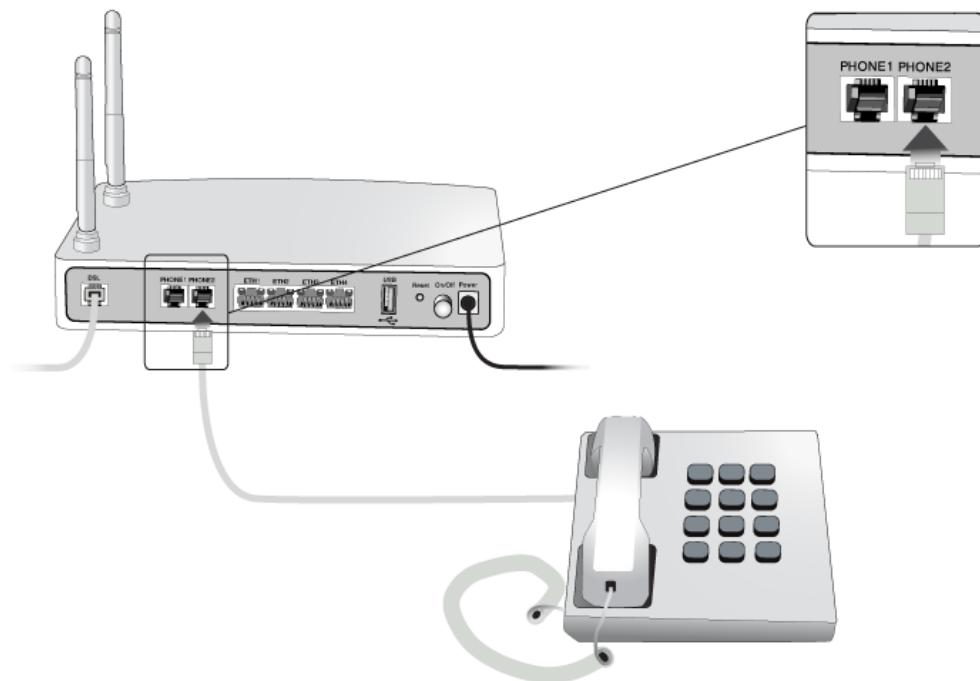
# 5

## Connecting Peripheral Equipment

At this stage, you are ready to connect peripheral equipment to your gateway, such as a telephone, printer, mass storage device, or a media client, according to your needs.

### 5.1 Connecting a Telephone

Connect a standard Plain Old Telephone Service (POTS) telephone to one of the available FXS telephone ports on your gateway.

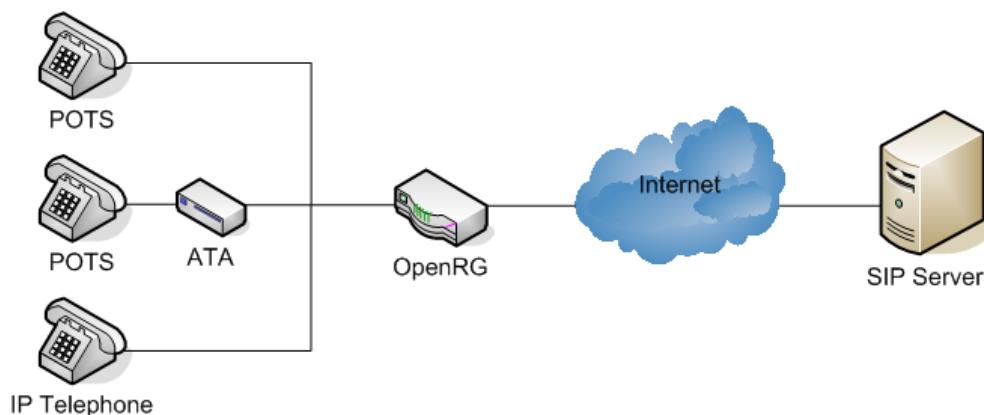


**Figure 5.1 Telephone Connection**

OpenRG's Analog Telephone Adapter (ATA) telephony system can connect to a remote Session Initiation Protocol (SIP) server in order to conduct world-wide phone calls. The following sections describe the configurations of both a SIP server and OpenRG, required for conducting such calls. Note that these instructions are valid when OpenRG is at its default settings.

In addition to SIP, OpenRG also supports the H.323 and MGCP signaling protocols. For more information, refer to the 'Changing the Signaling Protocol' section of the OpenRG Administrator Manual.

If you are already using a different ATA device with your POTS telephone, or if you are using an IP telephone, you may connect them directly to a LAN port on your gateway. In this case, you will not need to configure OpenRG, which will act merely as a router to the SIP server.



**Figure 5.2 Telephony Infrastructure**

### 5.1.1 Opening a SIP Account

Before you can connect to a SIP server, it is necessary that you obtain a SIP account. This section describes how to open a free world-wide dialing SIP account. You can also obtain a paid SIP account.



Note: Free accounts limit placing calls to 1-800 numbers and other free account holders only, while paid services offer access to any number.

To open a "Free World Dialup" ("FWD") SIP account:

1. Browse to <http://www.pulver.com/fwd>
2. Click the 'my.FWD' tab.
3. Click the 'Sign Up for Fwd' link, and open an account.

You should get instructions by e-mail containing your ID and password, and a SIP IP address.

## 5.1.2 Configuring a Telephone Line

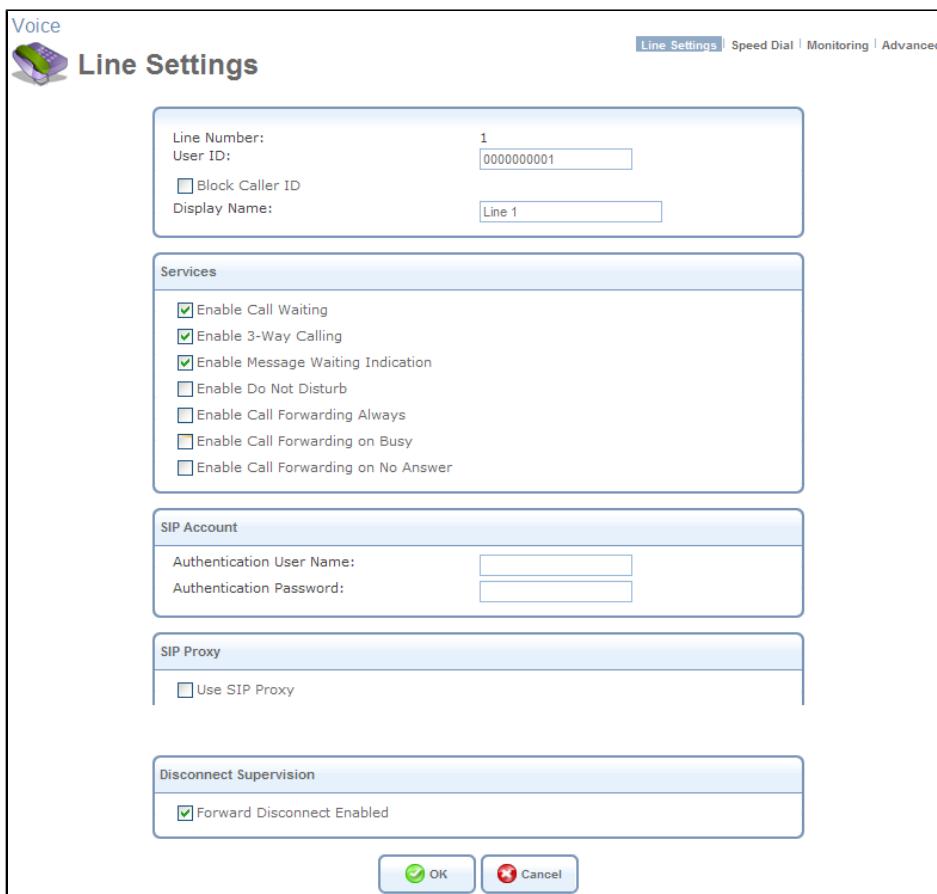
After creating a SIP account and obtaining the necessary details, configure OpenRG as follows:

1. Click the 'Voice' tab under the 'Services' screen. The 'Line Settings' screen appears.



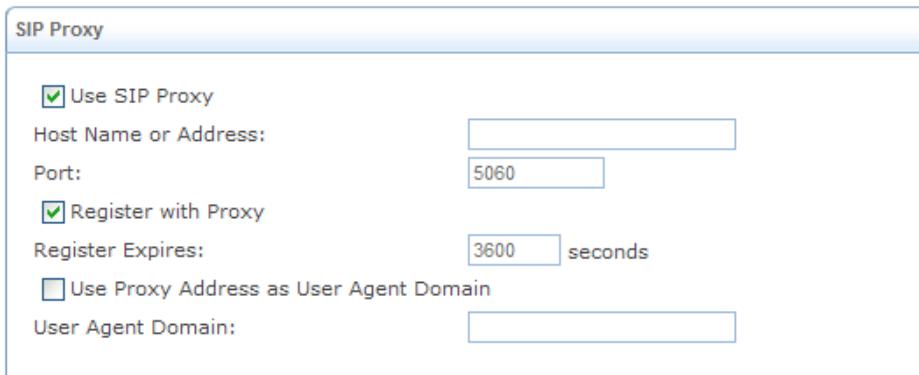
**Figure 5.3 Line Settings**

2. Click the action icon of an enabled line (whose check box is checked) to configure its parameters. The line's 'Line Settings' screen appears.



**Figure 5.4 SIP Line Settings**

3. Enter your newly obtained ID in the 'User ID' field, enter a display name, and select whether to block the caller ID from the remote party for this line.
4. Enter your newly obtained username and password in their respective fields of the 'SIP Account' section.
5. Check the 'Use SIP Proxy' check box. The following fields become visible.



**Figure 5.5 SIP Proxy**

- a. Enter the IP address or host name you received when registering your SIP account in the 'Host Name or Address' field. Your free account's host name should be fwd.pulver.com (this may vary; you should check your registration e-mail).
- b. Verify that the SIP Proxy's 'Port' field is set to 5060. This is the port on which the proxy is listening.
- c. Verify that the 'Register with Proxy' check box is checked.
- d. Verify that the 'Register Expires' field is set to 3600. This is the number of seconds between registration renewals.
- e. Verify that the 'Use Proxy Address as User Agent Domain' check box is selected. The set proxy or its IP address will be used as the domain name specified in outgoing SIP messages. When this option is unchecked, the 'User Agent Domain' field appears. Use this field for setting another proxy address as a user agent domain.
6. Check the 'Use Outbound Proxy' check box. The free world-wide dialing service is an example of a service provider that requires the use of an outbound proxy. This is an additional proxy, through which all outgoing calls are directed. In some cases, the outbound proxy is placed alongside the firewall and is the only way to let SIP traffic pass from the internal network to the Internet. Once checked, the following fields become visible.



**Figure 5.6 Outbound Proxy**

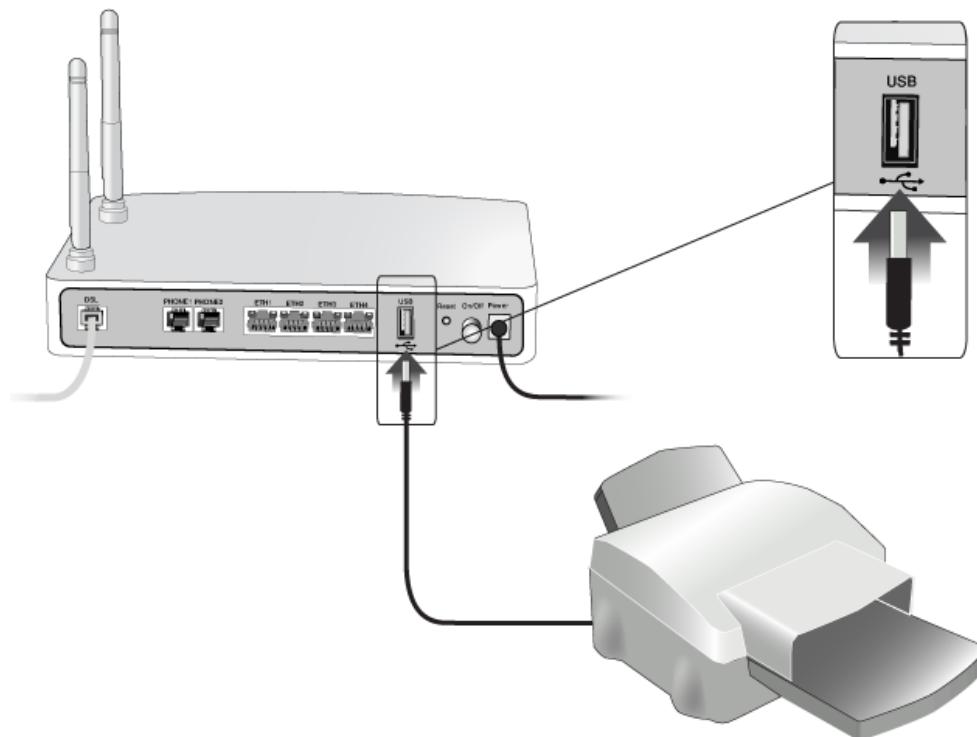
- a. Enter the outbound proxy's IP address or host name that you received when registering your SIP account in the 'Host Name or Address' field. Your free account's outbound proxy's name should be fwdnat.pulver.com (this may vary; you should check your registration e-mail).
  - b. Set the outbound proxy's 'Port' field to 5082 (this may also vary).
7. Click 'OK' to save the settings.

Back in the 'Line Settings' screen (see [Figure 5.3](#)), verify that the status of the line has changed to "Registered". After a few seconds you will get a ring tone on the telephone connected to this line on your gateway. You can now dial to any number that your SIP account allows.

For more on the voice functionality of your gateway, refer to the 'Voice' section of the OpenRG Administrator Manual.

## 5.2 Connecting a Printer

To set up a network printer that will be shared by all LAN computers, connect a printer to the USB port on your gateway.



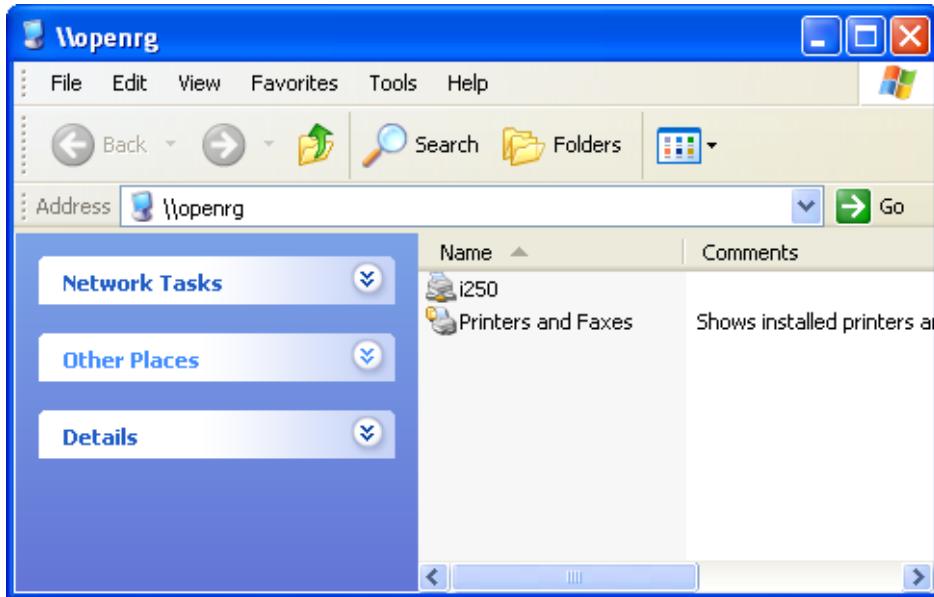
**Figure 5.7 Printer Connection**

The connected printer is managed by OpenRG's print server. For more information, refer to the 'Shared Printers' section of the OpenRG Administrator Manual.

## 5.2.1 Setting Up a Samba Printer on Windows

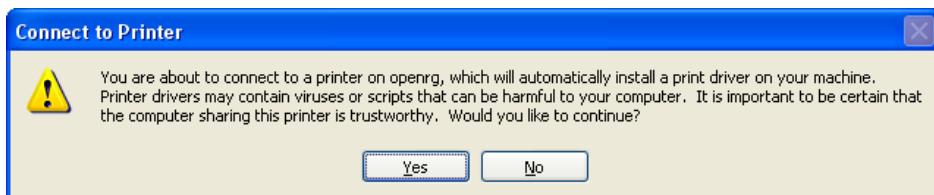
This section describes how to establish a network printer connection on a Windows host using the Microsoft File and Printer Sharing (Samba) protocol.

1. Once logged into OpenRG, browse to \\openrg (use a Windows Explorer window if you are using a browser other than Internet Explorer). Should a Windows login dialog box appear, enter your WBM username and password. The following window appears.



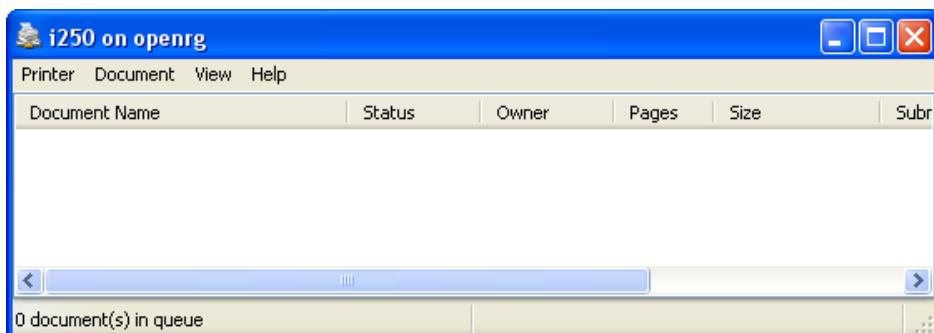
**Figure 5.8 OpenRG Shares**

- Click the icon of the printer you would like to designate as a LAN printer. The following warning appears.



**Figure 5.9 Connect to Printer Warning**

- Click 'Yes'. You will be prompted to select a printer driver from a list. If unavailable, you can either browse to a location on your computer where you have stored the driver, or click 'Have Disk' and insert the CD containing the driver (supplied with your printer). After a short upload and installation of the driver, the printer's print queue window appears, determining that the printer is ready for use.



**Figure 5.10 Printer Queue**

The new printer is added to your "Printers and Faxes" list as a network printer (to view this list press "Start", then "Settings" and then "Printers and Faxes"). As any printer, you can choose to make it your default printer, or specify its use when printing.

4. Print a test page by right-clicking the printer icon in the disk and printer shares window ([Figure 5.8](#)) and selecting 'Properties'. The 'Print Test Page' button is located at the bottom of the 'General' tab.

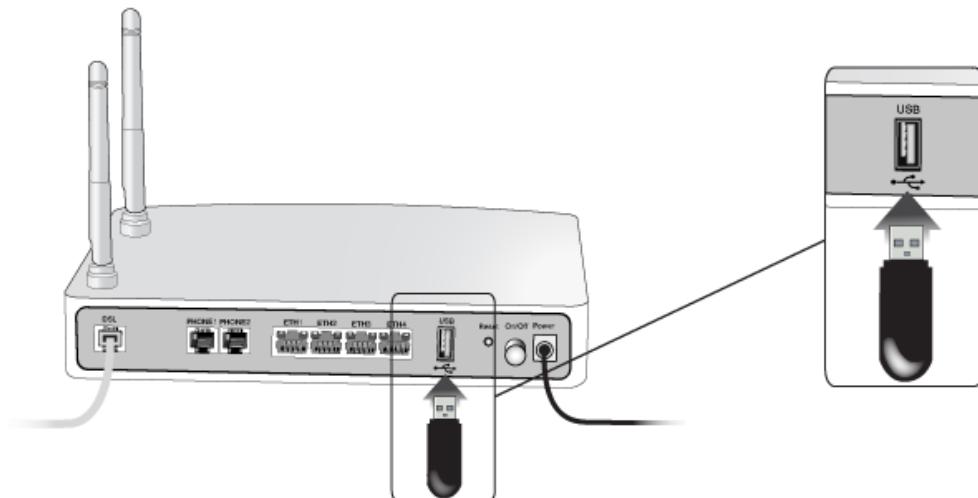


Note: The above configuration must be applied to each LAN PC individually in order to use the network printer.

To learn how to establish a network printer connection via other print protocols supported by OpenRG, refer to the 'Selecting a Print Protocol' section of the OpenRG Administrator Manual.

## 5.3 Connecting a Mass Storage Device

To set up a file server that will be shared by all LAN computers, connect a mass storage device (e.g. disk-on-key, hard drive) to the USB port on your gateway.



**Figure 5.11 Disk-on-key Connection**

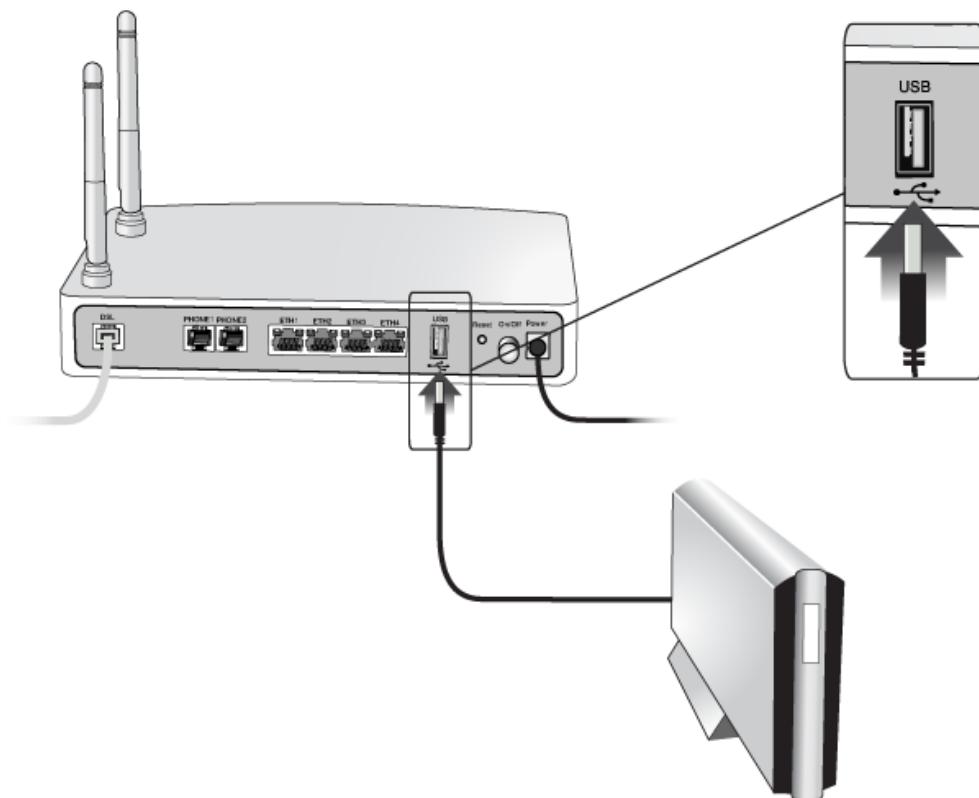


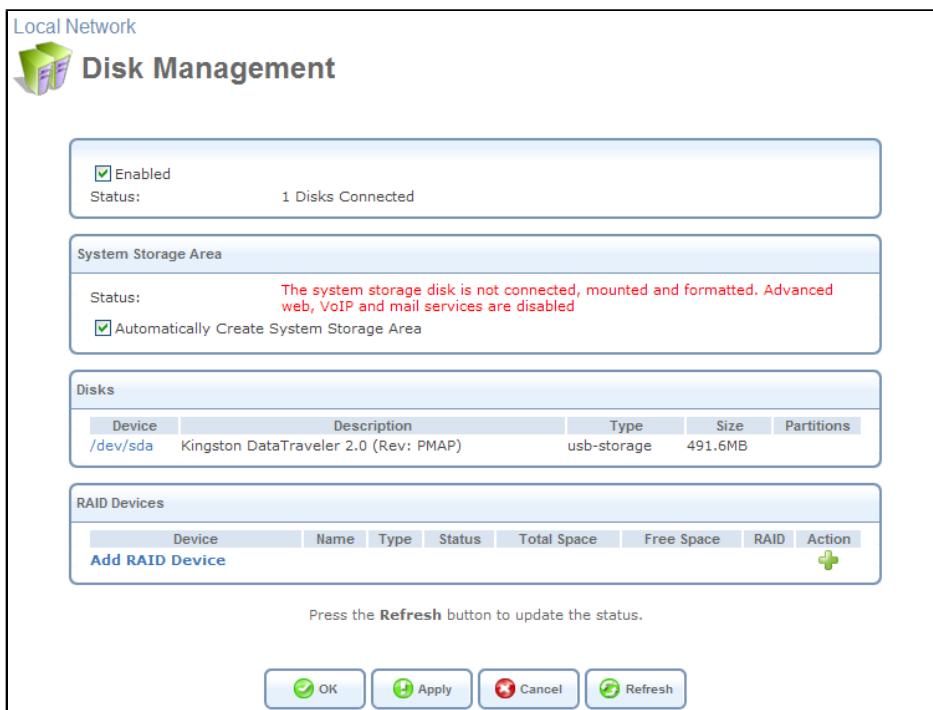
Figure 5.12 Hard Drive Connection

### 5.3.1 Adding and Formatting a Partition

In order to be used, a mass storage device must first be partitioned and formatted. However, partitioning can only be performed on unallocated disk space. If your device is already partitioned, you may not be able to add a partition, unless unallocated space is available.

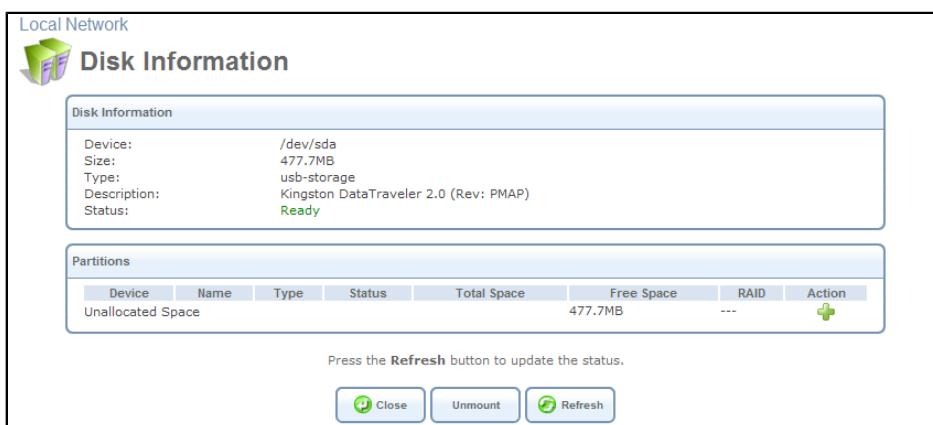
To add a Windows formatted partition, perform the following:

1. Click the 'Shared Storage' menu item under the 'Local Network' tab. The 'Disk Management' screen appears.



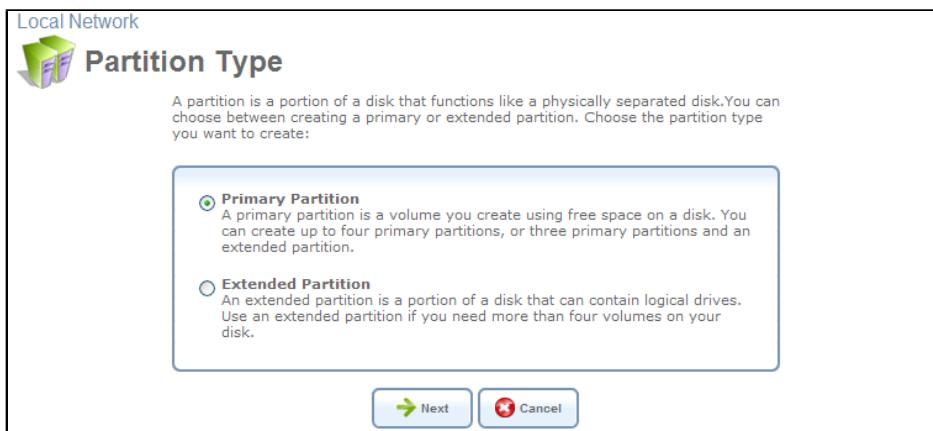
**Figure 5.13 Disk Management**

2. In the 'Disks' section, displaying your connected storage devices, click the disk's link. The 'Disk Information' screen appears.

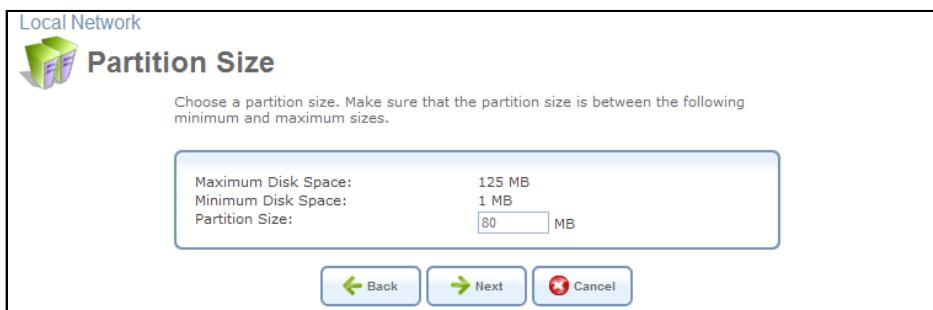


**Figure 5.14 Disk Information**

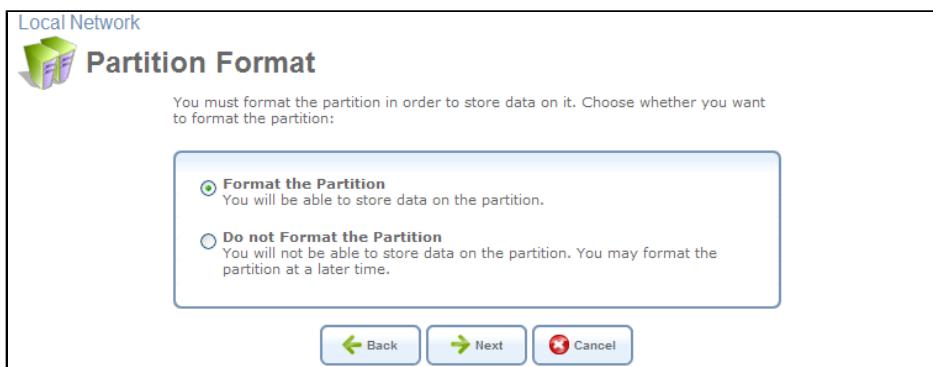
3. In the 'Partitions' section, click the action icon . The 'Partition Type' screen appears.

**Figure 5.15 Partition Type**

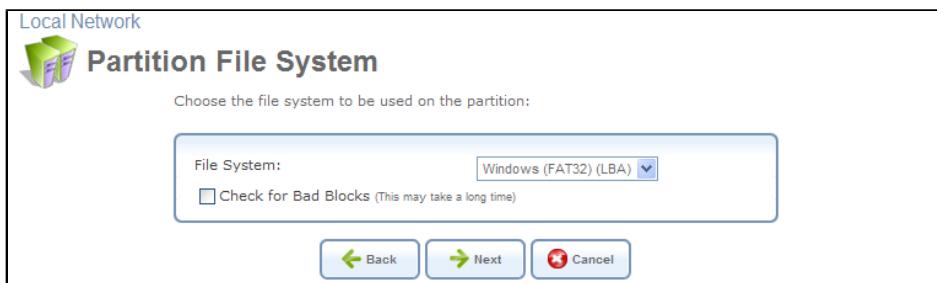
4. Select 'Primary Partition', and click 'Next'. The 'Partition Size' screen appears.

**Figure 5.16 Partition Size**

5. Enter a volume for the new partition (in mega bytes) and click 'Next'. The 'Partition Format' screen appears.

**Figure 5.17 Partition Format**

6. Select 'Format the Partition', and click 'Next'. The 'Partition File System' screen appears.

**Figure 5.18 Partition File System**

- Select 'Windows (FAT32) (LBA)' as the file system for the partition and click 'Next'. The 'Partition Summary' screen appears.

**Figure 5.19 Partition Summary**

- Click 'Finish' to create the new partition. The 'Disk Information' screen reappears, refreshing as the partition formatting progresses, until the status changes to 'Ready'.

Partitions							
Device	Name	Type	Status	Total Space	Free Space	RAID	Action
/dev/sda1	Partition operation in progress...	Windows FAT32 (LBA)	Formatting...	79.93MB	---		
	Unallocated Space			45.04MB	---		

**Figure 5.20 Partition Formatting in Progress**

The new partition path names are designated as "A", "B", etc.

Partitions							
Device	Name	Type	Status	Total Space	Free Space	RAID	Action
/dev/sda1	B	Windows FAT32 (LBA)	Ready	78.69MB	78.57MB		
	Unallocated Space			45.04MB	---		

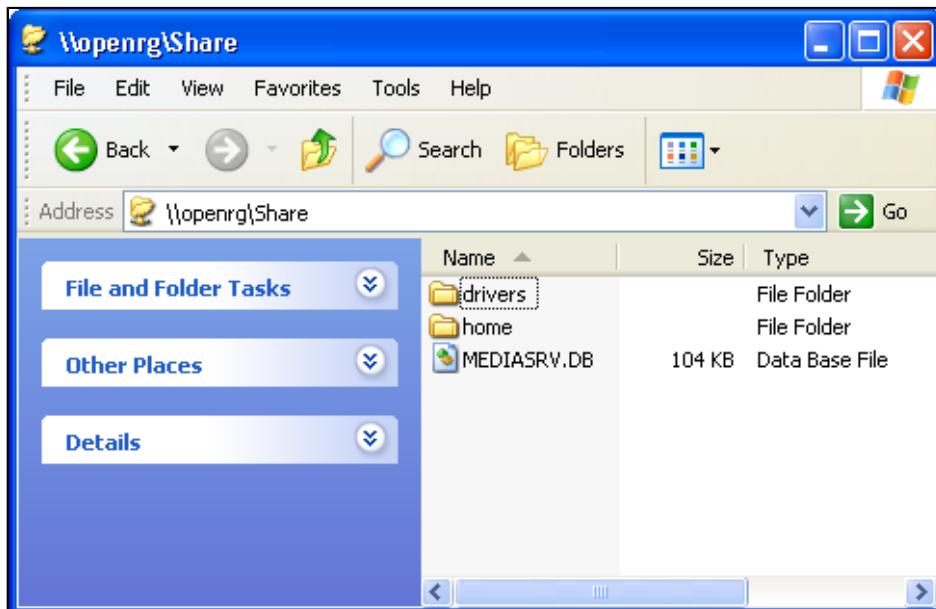
**Figure 5.21 Formatting Complete – Partition Ready**

To learn about additional operations you can perform on your storage device, refer to the 'Shared Storage' section of the OpenRG Administrator Manual.

### 5.3.2 Using a Disk Share

By default, all partitions are automatically shared and displayed. Any LAN computer can access the disk share to upload or download files. To do so, perform the following:

1. Browse to \\openrg (use a Windows Explorer window if you are using a browser other than Internet Explorer). Should a Windows login dialog box appear, enter your WBM username and password.
2. Open the 'Share' directory. The following window appears, displaying the folders available on the disk.



**Figure 5.22 Disk Share**

3. Copy a file to this location. You can create a new folder for it, or use an existing one.

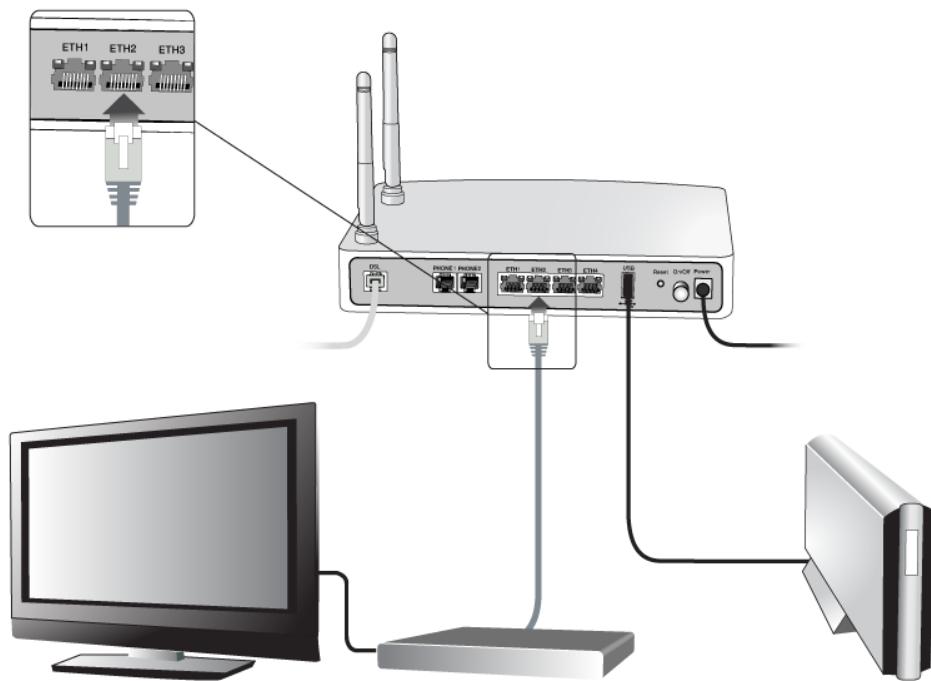
The disk share contains default system content. In addition, services such as File Server, FTP Server, Mail Server, and Web Server will utilize the disk share when activated. For more information, refer to the 'Storage' section of the OpenRG Administrator Manual. Nevertheless, you can create folders and organize your own content in the disk share according to your needs.

## 5.4 Connecting a Media Client

OpenRG enables you to share and stream media files (music, pictures, and video) from a storage device connected to OpenRG, to a media client. For example, you can view your media files on a television set. In this case, a media client device is required to connect the TV set to your home network. A media client device is a network-aware Consumer Electronic (CE) device with a Universal Plug and Play (UPnP) media renderer. This device will typically have an RCA or a coaxial connection to the TV set, and a LAN socket and/or wireless LAN to connect to the gateway.

1. Connect a mass storage device to the gateway, as described in the previous section. This device should contain your media content (at least one folder with a media file for testing at this point).
2. Connect your TV set to the media client device according to the instructions provided with the device. Make sure you select the correct AV input on the TV set.

3. Connect the media client device to an available Ethernet port on your gateway.



**Figure 5.23 Media Client Device and Television Connection**

If your media client device has a wireless capability, it can connect to OpenRG without cables. However, since media usage requires streaming high volumes of traffic, wireless use is recommended only if both OpenRG and the media client device support the 802.11n protocol.

### 5.4.1 Viewing and Streaming Media Files

Reception of OpenRG's media server broadcast by the media client device is automatic, requiring no further configuration.

1. Turn on the media client device. The following images represent D-Link's **MediaLounge™** media client device software, displayed on the TV set (connected to the device).



Figure 5.24 MediaLounge Main Screen

2. Use the device's remote control to select 'My Media'. The path letter of the OpenRG share containing your disk content appears.



Figure 5.25 Your Share on OpenRG

3. Select the share. The share's content is displayed.

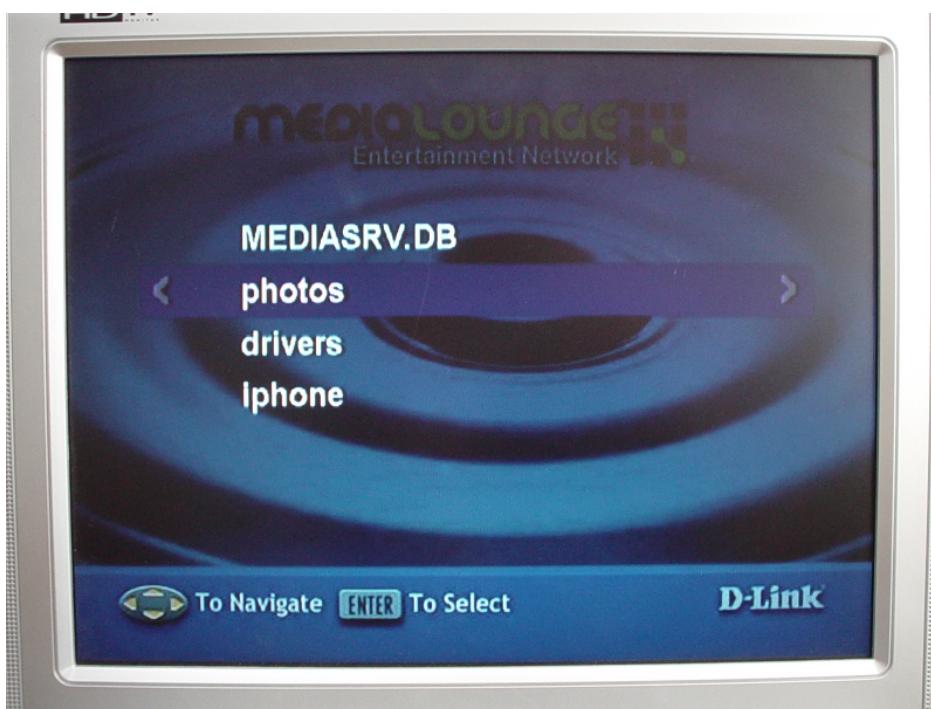


Figure 5.26 Media Folders on a Share



Note: MediaLounge displays the same directory hierarchies as on the storage device.

4. Select a folder, for example "photos". The folder's content is displayed.



Figure 5.27 Media Files in the Shared Folder

5. Select a photo to display.



**Figure 5.28 Displaying a Photograph**

In the same method, you can stream music and video files from your disk to your television. Additionally, you can access your shared media files from a LAN PC with an installed media rendering software. For more information, refer to the 'Accessing the Shared Media from a LAN Computer' section of the OpenRG Administrator Manual.

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## **Part II Managing Your Gateway**

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9. Configuring Your Network with the Installation Wizard .....	61
10. Troubleshooting Your Internet Connection .....	62

# 6

## Accessing the Management Console

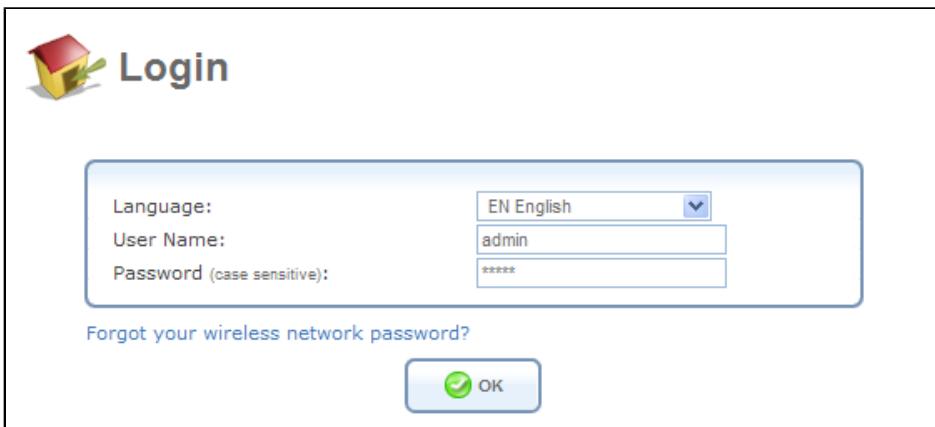
This chapter describes how to use OpenRG's management console, referred to as the **Web-based Management (WBM)**, which allows you to configure and control all of OpenRG's features and system parameters, using a user-friendly graphical interface. This user-friendly approach is also implemented in the WBM's documentation structure, which is based directly on the WBM's structure. You will find it easy to correspondingly navigate through both the WBM and its documentation.



Note: Some of the documented WBM features may appear slightly different or may not be available on certain platforms.

To access the Web-based management:

1. Launch a Web browser on a computer in the LAN.
2. In the address bar, type the gateway's name or IP address as provided with your gateway. The default name is 'http://openrg.home' and the default IP address is 192.168.1.1. The 'Login' screen appears.



**Figure 6.1 WBM Login**

3. Enter your username and password to log into the WBM.

By default, OpenRG's WBM is displayed in its basic mode, providing you the ability to view and perform basic configuration of your gateway. This mode prevents accessing and changing the gateway's advanced settings, misconfiguration of which may harm the gateway's performance.

The screenshot shows the WBM - Basic Mode interface. At the top, there's a navigation bar with language selection (EN English), user info (Welcome admin), and links for Advanced Configuration, Help, Reboot, and Logout.

**Network Devices:**

- Secured Wireless Network "OpenRG admin" 54 Mbps:** Shows "No Computers Connected".
- Local Network:** Shows "2 Computers Connected". One is listed as "arion (you) 192.168.1.2 Connected".

**Attached Devices:**

- Storage:** No Disks Connected.
- Printers:** No Printers Connected.
- Phones:** No VoIP Lines Configured.
- VoIP Lines:** Four entries labeled 100, 101, 102, and 103, all marked as "Idle".

**System Status:**

- Internet Connection:** Connection Type: Ethernet/DHCP, Jungo.net; Status: Connected.
- Top Bandwidth Consuming Applications:** Web (Unknown) at 1 Kbps Downstream / 0 Kbps Upstream.
- Top Bandwidth Consuming Computers:** Two entries for openrg (IP 10.71.86.185, 224.0.0.251) at 1 Kbps Downstream / 1 Kbps Upstream.
- System Information:** Gateway ID: 287d1bb7e09e, Software Version: 4.12.0, System Has Been Up For: 0 hours, 5 minutes.

**Figure 6.2 WBM – Basic Mode**

This mode enables you to view the status of your system, local network and peripherals, as well as run the installation wizard or Internet connection diagnostic tests by clicking their corresponding tabs.

If you are a technician or a system administrator that requires advanced control of the gateway, you can switch the WBM to its advanced mode by clicking the 'Advanced Configuration' link located on the top bar.

**Warning:** Switching back to basic mode is a complicated task involving changing the user's settings. In addition, this advanced configuration mode is not in the scope of this manual. Refer to the 'OpenRG Administrator Manual' instead.

A WBM session will automatically time-out after an extended period of inactivity. If you try to operate the WBM after the session has expired, the 'Login' screen will appear. This feature helps to prevent unauthorized users from accessing the WBM and changing the gateway's settings.

---

# 7

## Overviewing Your Gateway with the Home Tab

The 'Home' tab presents the status of OpenRG's various modules in one convenient location. You can quickly and efficiently view and configure your wireless and local networks, as well as view important system details such as the status of your hardware peripherals, Internet connection, and bandwidth utilization.

**Network Devices**

- Secured Wireless Network "OpenRG admin" 54 Mbps
  - No Computers Connected
- Local Network
  - arion (you) 192.168.1.2 Connected

**Attached Devices**

- Storage No Disks Connected
- Printers No Printers Connected
- Phones No VoIP Lines Configured
  - 100 Idle
  - 101 Idle
  - 102 Idle
  - 103 Idle

**System Status**

- Internet Connection
  - Connection Type: Ethernet/DHCP, 100.0 Mbps Full-Duplex
  - Jungo.net: Connected
- Top Bandwidth Consuming Applications
  - Web Unknown 1 Kbps Downstream / 0 Kbps Upstream
  - Unknown 1 Kbps Downstream / 0 Kbps Upstream
- Top Bandwidth Consuming Computers
  - openrg 10.71.86.185 1 Kbps Downstream / 1 Kbps Upstream
  - 224.0.0.251 224.0.0.251 1 Kbps Downstream / 0 Kbps Upstream
- System Information
  - Gateway ID: 287d1bb7e09e
  - Software Version: 4.12.0
  - System Has Been Up For: 0 hours, 5 minutes

**Figure 7.1** Home

## 7.1 Viewing and Connecting to Your Broadcasted Wireless Network

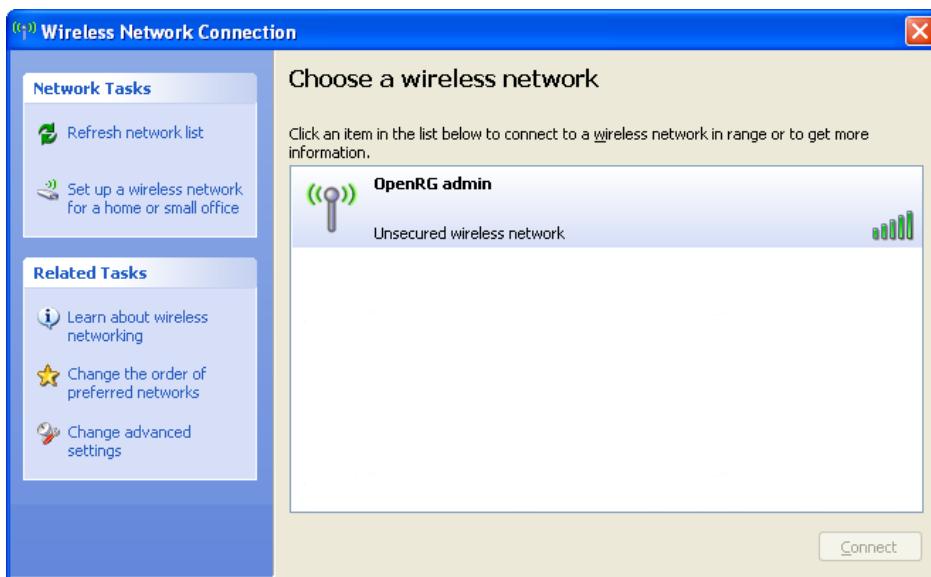
The 'Home' tab displays OpenRG's broadcasted wireless network. To connect from a wireless Windows computer, perform the following:

1. In the Windows system tray, click the wireless connection icon.

**Figure 7.2** Wireless Icon in the System Tray

The 'Wireless Network Connection' screen appears, displaying all available wireless networks (also known as Wi-Fi hotspots) in your vicinity. If your gateway is connected and active, you should see its wireless connection. The following figures depict the default

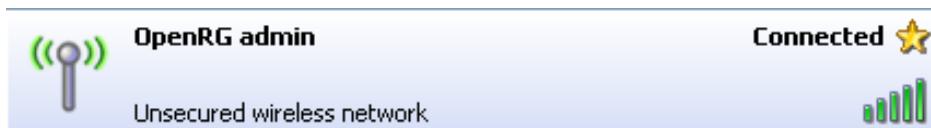
"Medium" security level connection, which appears in Windows as "Unsecured wireless network". If you had selected the "High" security level during the installation wizard, the connection appears as 'Security-enabled wireless network'.



**Figure 7.3 Available Wireless Connections**

If you do not see your network, refresh the list of detected networks using the 'Refresh network list' link. It is also recommended that you physically move the wireless PC closer to your gateway for better radio reception.

2. Select the connection and click the 'Connect' button at the bottom of the screen. After the connection is established, its status changes to 'Connected'.



**Figure 7.4 Connected Wireless Network**

A balloon appears in the notification area, announcing the successful initiation of the wireless connection.



**Figure 7.5 Wireless Connection Information**

3. If you had selected the default "Medium" security level during the installation wizard, any attempt to browse the Internet will require Web authentication. The following screen appears, requiring you to provide your username and password.



**Figure 7.6 Web Authentication**

Enter your username and password. You will be redirected to your requested Internet address.

In case you have forgotten your wireless password, click 'Forgot your password?' to display a screen that offers a number of password recovery methods. For more information, refer to the 'Recovering Your Wireless Network's Password' section of the OpenRG Administrator Manual.

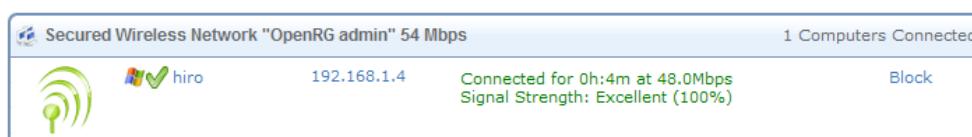
4. If you had selected the "High" security level during the installation wizard, any attempt to browse the Internet will require WPA authentication. The following screen appears, requiring you to provide the WPA password (network key).



**Figure 7.7 WPA Network Key Authentication**

Enter the WPA password. You will be redirected to your requested Internet address.

The 'Home' tab now displays the connected wireless computer.

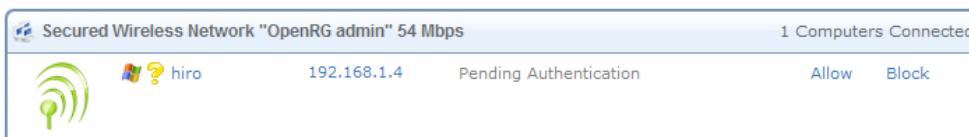


**Figure 7.8 Connected Wireless Computer**

## 7.2 Authenticating Wireless Network Devices

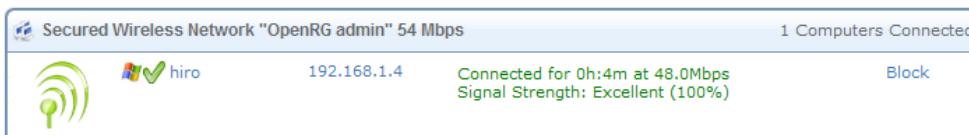
When attempting to connect to the gateway's network from a wireless computer, a login session is used for authentication and connection. However, you may wish connect other wireless devices to the gateway, such as gaming devices, cameras, etc., in which a login session is not possible due to the lack of an interface. In such a case, a simple authentication procedure is required in the 'Home' screen.

A preliminary step is to search for the gateway's wireless network from the device itself. Refer to the device's documentation to learn how to perform this search. When OpenRG detects a wireless request, the device is displayed under the relevant wireless connection.



**Figure 7.9 Wireless Authentication – Pending**

To allow this device to connect to your gateway, click 'Allow'. The screen refreshes, updating the status of the device.

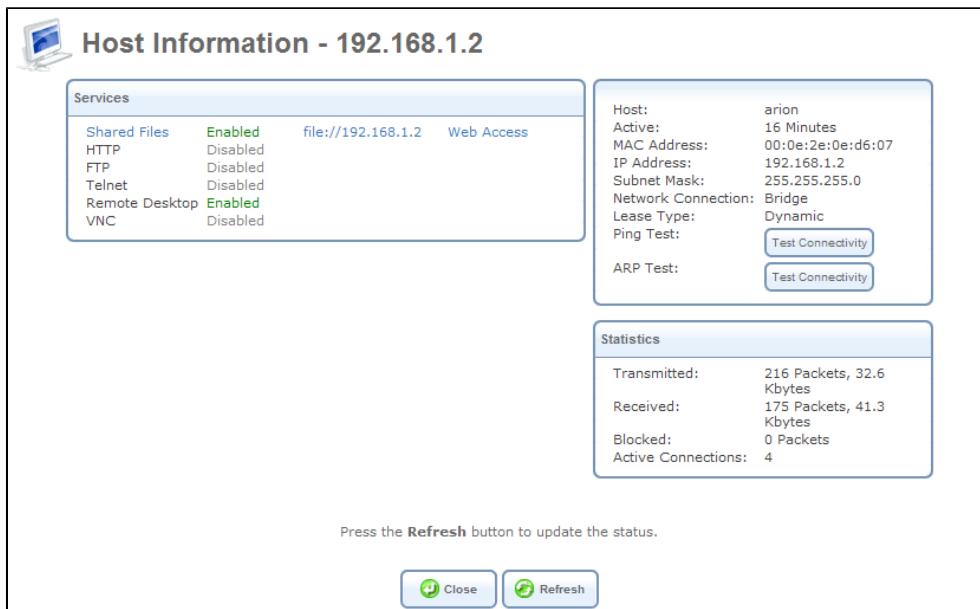


**Figure 7.10 Wireless Authentication – Authenticated**

The device is now connected. Similarly, you can use the 'Block' link in order to log the device out of your network.

## 7.3 Viewing the Local Network

The 'Local Network' section of the 'Home' tab (see [Figure 7.1](#)) lists all computers that have joined the gateway's network. To view more information on a specific computer, click its respective link. The 'Host Information' screen appears.



**Figure 7.11 Host Information**

This screen presents all of the information relevant to the connected computer, such as connection information, available services, and traffic statistics.

**Services** This section lists the services on the computer that are available to other computers from the LAN. When a service is accessible from the LAN, you can activate it by clicking its name. When a service is accessible via Web access, you can activate it by clicking the 'Web Access' link that appears.

**Connection Information** This section displays various details regarding the computer's connection settings.

**Statistics** This section displays the computer's traffic statistics, such as the number and size of transmitted and received packets.

## 7.4 Viewing Attached Devices

The 'Attached Devices' section of the 'Home' tab displays the peripheral devices connected to your gateway. These include storage devices, printers, and phones. For example, after connecting a printer, refresh the screen. The section displays the connected printer.

	Storage	No Disks Connected
	Printers	1 Printers Connected
	i250	Canon
		i250
		idle
	Phones	No VoIP Lines Configured
	100	Idle
	101	Idle
	102	Idle
	103	Idle

**Figure 7.12 Connected Printer**



Note: The 'Phones' section displays the phone extensions even when there are no connected telephones.

To view more details on the connected printer, click its name link. Note that clicking the larger printer icon redirects you to the 'Print Server' screen, which also contains the list of connected printers.

Similarly, this section displays other devices connected to the gateway. For more information on each device type, refer to its respective section of this manual.

## 7.5 Viewing the System Status

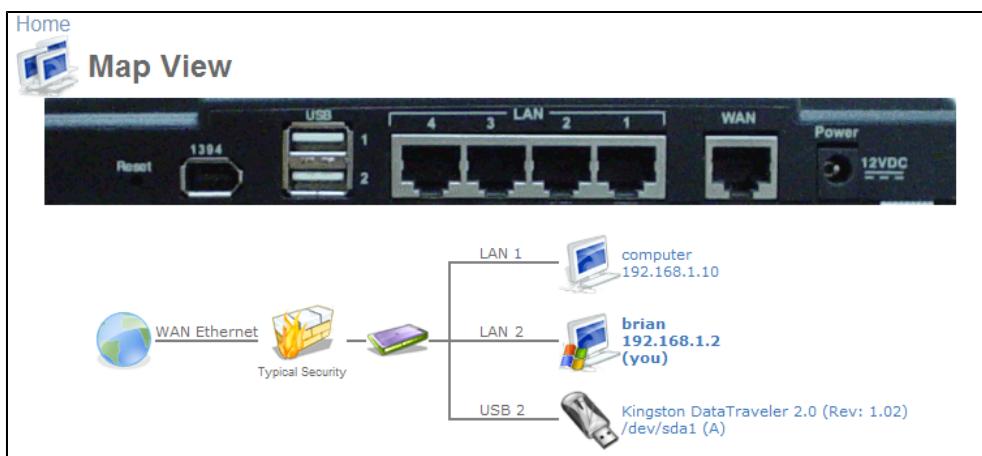
The 'System Status' section of the 'Home' tab (see [Figure 7.1](#)) displays the following details:

- The Internet connection's type, speed capability, and data transmission mode. Click the 'Internet Connection' link for more details.
- The top five bandwidth consuming applications and computers are displayed in their respective sections in descending order. The current downstream and upstream volumes are also displayed for every application and computer.
- System information, including the gateway's ID, version and uptime. Click the 'System Information' link for more details.

# 8

## Viewing Your Network with Map View

The 'Map View' screen displays the back panel of your gateway, as well as a graphical network map.



**Figure 8.1 Map View**

The network map depicts the various network elements, such as the Internet connection, firewall, gateway, and local network computers and peripherals.



Represents the Internet



Represents the gateway's Firewall. Click this icon to configure your security settings. For more information, refer to the 'Firewall' section of the OpenRG Administrator Manual.



Represents your gateway

The network map dynamically represents the network objects connected to your gateway. OpenRG recognizes commercial operating systems and game devices, which are represented by their respective icons.



Represents a wired/wireless computer (host) connected to the gateway. This host is either a DHCP client that has received an IP lease from OpenRG, or a host with a static IP address, auto-detected by OpenRG. Note that OpenRG will recognize a physically connected host and display it in the Network Map only after network activity from that host has been detected (e.g. trying to browse to the WBM or to surf the Internet). OpenRG will also display incoming connections of types PPTP, L2TP, and IPSec. Click this icon to view network information for the corresponding host.



Represents a host whose DHCP lease has expired and not renewed. The DHCP lease is renewed automatically, unless the host is no longer physically connected to OpenRG. The disconnected host's icon will disappear from the network map during the next scheduled IP lease query, performed by OpenRG's DHCP server.



Note: This icon also represents a static IP host that has no network activity.



Represents a Windows™ host connected to your gateway.



Represents a wireless host connected to your gateway. This icon includes a signal strength indicator.



Represents a printer connected to your gateway.



Represents a telephone connected to your gateway.



Represents a USB stick (disk-on-key) connected to your gateway.



Represents a USB hard drive connected to your gateway.

OpenRG's standard network map displays devices that OpenRG recognized and granted a DHCP lease.

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# 9

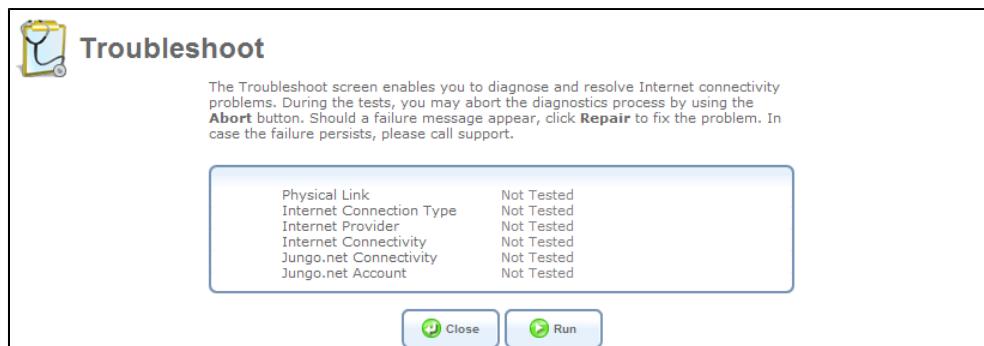
## Configuring Your Network with the Installation Wizard

OpenRG provides an Installation Wizard that automatically diagnoses your network environment and configures its components. For a step-by-step description of the wizard procedure, refer to [Section 4.2](#).

# 10

## Troubleshooting Your Internet Connection

The 'Troubleshoot' screen provides a series of tests aimed at validating your gateway's Internet connection.



**Figure 10.1 Internet Connection Troubleshooting**

Click 'Run' to begin the test routine. While testing is in progress, you may abort the troubleshooting process by clicking 'Abort'. Should a failure message appear, click 'Repair' to initiate the installation wizard procedure (refer to [Section 4.2](#)).

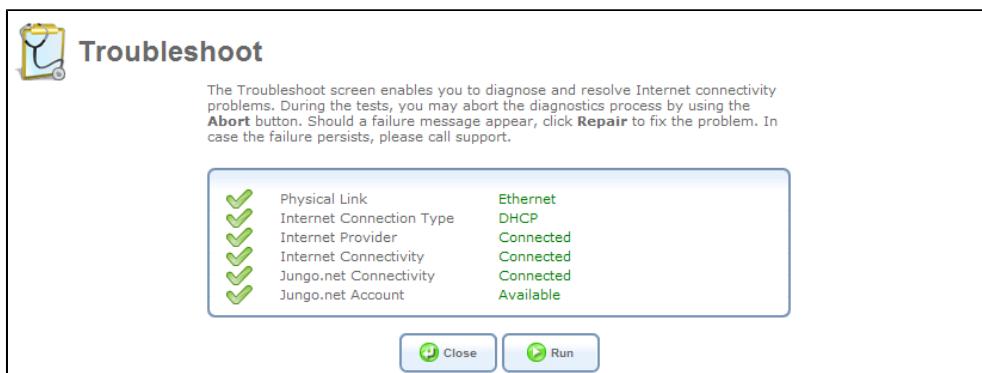


Figure 10.2 Troubleshooting Results

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## Part III Appendix

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# 11

## Configuring a Computer's Network Interface

In most cases, a computer's network interface is configured by default to automatically obtain an IP address. However, a computer with a statically defined IP address and DNS address, for example, may fail to connect to OpenRG. In this case, configure the computer's network interface to obtain its IP and DNS server IP settings automatically. The configuration principle is identical but performed differently on different operating systems. Following are TCP/IP configuration instructions for all supported operating systems.

- **Windows XP**

1. Access 'Network Connections' from the Control Panel.
2. Right-click the Ethernet connection icon, and select 'Properties'.
3. Under the 'General' tab, select the 'Internet Protocol (TCP/IP)' component, and press the 'Properties' button.
4. The 'Internet Protocol (TCP/IP)' properties window will be displayed.
  - a. Select the 'Obtain an IP address automatically' radio button.
  - b. Select the 'Obtain DNS server address automatically' radio button.
  - c. Click 'OK' to save the settings.

- **Windows 2000/98/Me**

1. Access 'Network and Dialing Connections' from the Control Panel.

2. Right-click the Ethernet connection icon, and select 'Properties' to display the connection's properties.
3. Select the 'Internet Protocol (TCP/IP)' component, and press the 'Properties' button. The 'Internet Protocol (TCP/IP)' properties will be displayed.
  - a. Select the 'Obtain an IP address automatically' radio button.
  - b. Select the 'Obtain DNS server address automatically' radio button.
  - c. Click 'OK' to save the settings.

- **Windows NT**

1. Access 'Network' from the Control Panel.
2. From the 'Protocol' tab, select the 'Internet Protocol (TCP/IP)' component, and press the 'Properties' button.
3. From the 'IP Address' tab select the 'Obtain an IP address automatically' radio button.
4. From the 'DNS' tab, verify that no DNS server is defined in the 'DNS Service Search Order' box and no suffix is defined in the 'Domain Suffix Search Order' box.

- **Linux**

1. Login into the system as a super-user, by entering "su" at the prompt.
2. Type "ifconfig" to display the network devices and allocated IP addresses.
3. Type "pump -i <dev>", where <dev> is the network device name.
4. Type "ifconfig" again to view the new allocated IP address.
5. Make sure no firewall is active on device <dev>.

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# 12

## Licensing Acknowledgement and Source Code Offering

The OpenRG/OpenSMB product may contain code that is subject to the GNU General Public License (GPL), GNU Lesser General Public License (LGPL), and BSD (BSDS) license. The [OpenRG/OpenSMB Open Source and GNU Public Licenses](#) page contains:

- With respect to GPL/LGPL: the code package names, license types and locations for the license files, and
- With respect to BSD (BSDS): the code package names with the license texts.

To receive the source code of the GPL/LGPL packages, refer to [http://www.jungo.com/  
openrg/download\\_gpl.html](http://www.jungo.com/openrg/download_gpl.html).

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# 13

## Contact Jungo

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