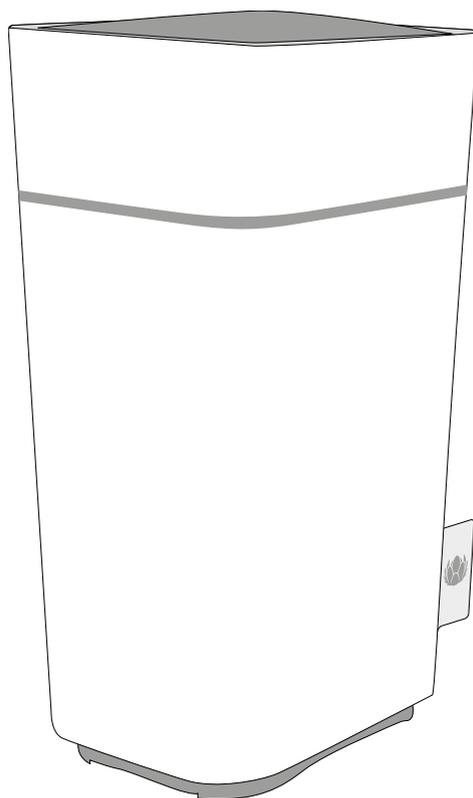




# GIGA CONNECT BOX

## Manual



upc

Sunrise UPC LLC  
P.O. Box  
8050 Zürich  
upc.ch  
0800 66 88 66

## OVERVIEW

### Introduction

Get ready to experience the Internet's express lane! Whether you're checking out streaming media, downloading new software, checking your email, or talking with friends on the phone, the Giga Connect Box brings it all to you faster and more reliably. All while providing toll quality Voice over IP telephone service and both wired and wireless connectivity.

The Giga Connect Box provides four Ethernet connections for use as the hub of your home/office Local Area Network (LAN). The Giga Connect Box also provides 802.11a/b/g/n/ac wireless connectivity for enhanced mobility and versatility. In addition, the Giga Connect Box provides for up to two separate lines of telephone service.

Installation is simple, and your service provider will help you with any special requirements.

### Get support

If you need assistance with your Giga Connect Box product please contact the UPC support: [upc.ch/support](http://upc.ch/support) | 0800 66 88 66

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## ① SAFETY REQUIREMENTS

The Giga Connect Box complies with the applicable requirements for performance, construction, labeling, and information when used as outlined below:

**CAUTION:**

**Potential equipment damage.**

**Potential loss of service.**

Connecting the Giga Connect Box to existing telephone wiring should only be performed by a professional installer. Physical connections to the previous telephone provider must be removed and the wiring must be checked; there must not be any voltages. Cancellation of telephone service is not adequate. Failure to do so may result in loss of service and/or permanent damage to the Giga Connect Box.

**CAUTION:**

**Risk of shock.**

Mains voltages inside this unit. No user serviceable parts inside. Refer service to qualified personnel only!

**CAUTION:**

This device is restricted to indoor use.

- The Giga Connect Box is designed to be connected directly to a telephone.
- Connecting the Giga Connect Box to the home's existing telephone wiring should only be performed by a professional installer.
- Do not use product near water (i.e. wet basement, bathtub, sink or near a swimming pool, etc.), to avoid risk of electrocution.
- Do not use the telephone to report a gas leak in the vicinity of the leak.
- The product shall be cleaned using only a damp, lint-free, cloth. No solvents or cleaning agents shall be used.
- Do not use spray cleaners or aerosols on the gateway.
- Avoid using and/or connecting the equipment during an electrical storm, to avoid risk of electrocution.
- Do not locate the equipment within 6 feet (1.9 m) of a flame or ignition source (i.e. heat registers, space heaters, fireplaces, etc.).
- Use only the external AC power adapter (if provided) and power cord included with the equipment.

- Equipment should be installed near the power outlet and should be easily accessible.
- The shield of the coaxial cable must be connected to earth (grounded) at the entrance to the building in accordance with applicable national electrical installation codes. In the U.S., this is required by NFPA 70 (National Electrical Code) Article 820. In the European Union and in certain other countries, CATV installation equipotential bonding requirements are specified in IEC 60728-11, Cable networks for television signals, sound signals and interactive services, Part 11: Safety. This equipment is intended to be installed in accordance with the requirements of IEC 60728-11 for safe operation.
- If the equipment is to be installed in an area serviced by an IT power line network, as is found in many areas of Norway, special attention should be given that the installation is in accordance with IEC 60728-11, in particular Annex B and Figure B.4.
- In areas of high surge events or poor grounding situations and areas prone to lightning strikes, additional surge protection may be required (i.e. PF11VNT3 from American Power Conversion) on the AC, RF, Ethernet and Phone lines.
- When the Giga Connect Box is connected to a local computer through Ethernet cables, the computer must be properly grounded to the building/residence AC ground network. All plug-in cards within the computer must be properly installed and grounded to the computer frame per the manufacturer's specifications.
- Ensure proper ventilation. Position the Giga Connect Box so that air flows freely around it and the ventilation holes on the unit are not blocked.
- Do not mount the Giga Connect Box on surfaces that are sensitive to heat and/or which may be damaged by the heat generated by the modem, its power supply, or other accessories.

## Manufacturer's Information

The Giga Connect Box is the Touchstone TG3492 Telephony Gateway manufactured by ARRIS International plc.

Corporate Headquarters  
ARRIS · Suwanee · Georgia · 30024 · USA  
Tel: +1-678-473-2000 Fax: +1-678-473-8470  
[www.arris.com](http://www.arris.com)

For additional technical information please visit the ARRIS Support website at <http://www.arris.com/consumers>.

### European compliance

The full text of the EU declaration of conformity is available at the following internet address: <http://www.arris.com/consumers/eudoc>.



As indicated by this symbol, disposal of this product or battery is governed by Directive 2012/19/EU of the European Parliament and of the Council on waste electrical and electronic equipment (WEEE). WEEE could potentially prove harmful to the environment; as such, upon disposal of the Giga Connect Box the Directive requires that this product must not be disposed as unsorted municipal waste, but rather collected separately and disposed of in accordance with local WEEE ordinances.

## Energy Consumption

In accordance with Ecodesign Directive 2009/125/EC, this device is equipped with a power switch. The following energy consumption figures apply (measured with a wattmeter at the outlet):

Switch State	Power Consumption
OFF	0,3 W
ON	12,0 W (idle) 15,3 W (operation)

**Note:** In most instances, ARRIS recommends that the power switch remain in the ON position at all times. Turning the switch OFF disables the device, including both data service (wireless and wired) and telephone service. Turning the switch OFF is recommended only during vacations or similar extended absences.

## 2 GET STARTED

### About your new Giga Connect Box

The Giga Connect Box is DOCSIS-compliant for European and North American plants with the following features:

- Speed: up to 32 times faster than DOCSIS 2.0 cable modems.
- Convenience: supports Ethernet and 802.11a/b/g/n/ac wireless connections; both can be used simultaneously.
- Flexibility: provides two independent lines of telephone service as well as high speed data.
- Compatibility:
  - DData services: DOCSIS 3.1 compliant and backward-compatible with DOCSIS 3.0 or 2.0; supports tiered data services (if offered by your service provider).
  - Telephony services: PacketCable™ and EuroPacketCable™ 1.5 and 2.0 compliant.

The Giga Connect Box provides:

- 2.4 GHz radio and 5 GHz radio for wireless 802.11a/b/g/n/ac connectivity.
- Four Ethernet ports for connections to non-wireless devices.
- Up to two lines of telephone service.
- DOCSIS 3.1 compliant.

### What's in the box

Make sure you have the following items before proceeding. Call your service provider for assistance if anything is missing.

- Giga Connect Box
- External AC Power Adapter and Power Cord
- Ethernet Cable
- End User License Agreement

## System requirements

Die Giga Connect Box funktioniert mit den meisten Computern. Nachfolgend werden The Giga Connect Box Giga Connect Box operates with most computers. The following describes requirements for each operating system; see the documentation for your system for details on enabling and configuring networking.

To use the Giga Connect Box, you need DOCSIS high-speed Internet service from your service provider. Telephone service requires that the service provider has PacketCable support.

### Recommended hardware

The following hardware configuration is recommended. Computers not meeting this configuration can still work with the Giga Connect Box, but may not be able to make maximum use of Giga Connect Box throughput.

- CPU: P4, 3GHz or faster
- RAM: 1GB or greater
- Hard drive: 7200 RPM or faster
- Ethernet: Gig-E (1000BaseT)

### Windows

Windows Vista, Windows 7, Windows 8, Windows 10, or Android OS (for mobile devices). A supported Ethernet or wireless LAN connection must be available.

### macOS

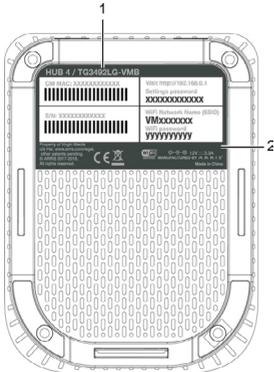
System 7.5 to Mac OS 9.2 (Open Transport recommended), macOS X, or iOS (for mobile devices). A supported Ethernet or wireless LAN connection must be available.

### Linux/Unix

Hardware drivers, TCP/IP, and DHCP must be enabled in the kernel. A supported Ethernet or wireless LAN connection must be available.

## About this manual

This manual covers the Giga Connect Box. The manufacturer's model number is on the label affixed to the Giga Connect Box.



1. Model Number
2. Security Label

## What about security?

Having a high-speed, always-on connection to the Internet requires a certain amount of responsibility to other Internet users – including the need to maintain a reasonably secure system. While no system is 100% secure, you can use the following tips to enhance your system's security:

- Keep the operating system of your computer updated with the latest security patches. Run the system update utility at least weekly.
- Keep your email program updated with the latest security patches. In addition, avoid opening email containing attachments, or opening files sent through chat rooms, whenever possible.
- Install a virus checker and keep it updated.
- Avoid providing web or file-sharing services over your Giga Connect Box. Besides certain vulnerability problems, most service providers prohibit running servers on consumer-level accounts and may suspend your account for violating your terms of service.
- Use the service provider's mail servers for sending email.

- Avoid using proxy software unless you are certain that it is not open for abuse by other Internet users (some are shipped open by default). Criminals can take advantage of open proxies to hide their identity when breaking into other computers or sending spam. If you have an open proxy, your service provider may suspend your account to protect the rest of the network.
- The Giga Connect Box ships with wireless LAN security set by default (for the same reasons that you should run only secured proxies). See the security label on your product for the factory security settings. If you need to modify the default wireless security settings, see *Configure your wireless connection (page 20)*

## Ethernet or wireless?

There are two ways to connect your computer (or other equipment) to the Giga Connect Box. The following will help you decide which is best for you:

### Ethernet

Ethernet is a standard method of connecting two or more computers into a Local Area Network (LAN). You can use the Ethernet connection if your computer has built-in Ethernet hardware.

**Note:** To connect more than four computers to the Giga Connect Box through the Ethernet ports, you need an Ethernet hub (available at computer retailers).

The Giga Connect Box package comes with one 4-foot (1.2m) Ethernet cable (the connectors look like wide telephone connectors); you can purchase more cables if necessary at a computer retailer.

## Wireless

Wireless access lets you connect additional (wireless-capable) devices to Giga Connect Box. The 802.11 wireless LAN standard allows one or more computers to access the Giga Connect Box using a wireless (radio) signal. These connections are in addition to the connections supported via Ethernet.

**Note:** You can use the wireless connection if your computer has a built-in or aftermarket plug-in wireless adapter. To learn more about which wireless hardware works best with your computer, see your computer dealer.

## Both

If you have two or more computers, you can use Ethernet for up to four devices and wireless for the others. To connect five or more computers to the Ethernet ports, you will need an Ethernet hub (available at computer retailers.)

### 3 INSTALL AND CONNECT YOUR GIGA CONNECT BOX

Before you start, make sure that:

- You have contacted your service provider and verified that they provide data and telephone service using standard DOCSIS technology.
- You have all the *Items you need* (page 10).
- Cable, phone, and power outlets are available near the computer. If a cable outlet is not conveniently located, your service provider can install a new one.

If you have ordered service, your service provider should configure the Giga Connect Box automatically. You need only follow the instructions in this section to install and connect the Giga Connect Box.

#### Front panel

The front of the Giga Connect Box has the following indicators.

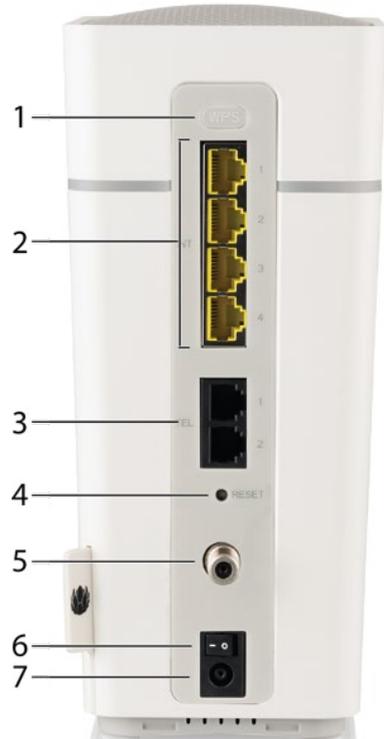
1. LED ring:  
Indicates device power and status.



## Rear panel

The rear of the Giga Connect Box has the following connectors and controls.

1. WPS button: Begins associating the Giga Connect Box with a wireless device.
2. Ethernet (1 - 4): Connectors for use with a computer LAN port.
3. Tel (1 - 2): Connectors for the phone lines.
4. Reset button: Resets the Giga Connect Box as if you power cycled the device. Use a pointed non-metallic object to press this button.
5. Cable: Connector for the coaxial cable.
6. Power switch: Power on/off switch.
7. Power: Connector for the power cord.



## Choose an installation location

There are a number of factors to consider when choosing a location to install your Giga Connect Box:

- Is an AC outlet available nearby? For best results, the outlet should not be switched and should be close enough to the Giga Connect Box that extension cords are not required.
- Is a cable jack available? For best performance, keep the number of splitters between the jack and cable drop to a minimum. Each splitter attenuates (reduces) the signal available to the Giga Connect Box. A large number of splitters can slow down the Internet connection and even affect your telephone service.
- Can you easily run cables between the Giga Connect Box's location and the phones?
- If you are connecting devices to the Ethernet ports, can you easily run cables between the Giga Connect Box's location and those devices?
- If you want to install the Giga Connect Box on a desktop, is there enough space on either side to keep the vents clear? Blocking the vents may cause overheating.
- How close are your wireless devices? The Giga Connect Box wireless connection range is typically 100–200 feet (30m–65m). A number of factors can affect connection range, as described below.

Position the Giga Connect Box so that:

- it stands vertically on its base (do not lay it flat on its side.)
- air flows freely around it.
- the back faces the nearest wall.
- it will not fall to the floor if bumped or moved.
- the ventilation holes on the sides of the unit are not blocked.

## Factors that affect wireless range

A number of factors can affect the usable range for wireless connections.

Increases range	Adding a wireless extender to the network
Decreases range	<ul style="list-style-type: none"><li>• Metal or concrete walls between the Giga Connect Box and other devices</li><li>• Large metal appliances, aquariums, or metal cabinets between the Giga Connect Box and other devices</li><li>• Interference and RF noise (2.4 GHz wireless phones, microwave ovens, or other wireless networks)</li></ul>

**Note:** Set the transmit power level to High to increase the range. Set it to Medium or Low to decrease the range proportionately.

**Note:** You may decide to decrease the range of your wireless network, as long as the decreased range is sufficient for your needs. By limiting your network's range, you reduce interference with other networks and make it harder for unwanted users to find and connect to your network.

## Connect the Giga Connect Box

### **Warning:**

Risk of injury or equipment damage.

Connecting the Giga Connect Box to the home's existing telephone wiring should only be performed by a professional installer. Physical connections to the previous telephone provider must be removed and the wiring must be checked; there must not be any voltage. Cancellation of telephone service is not adequate. Failure to do so may result in loss of service or permanent damage to the Giga Connect Box.

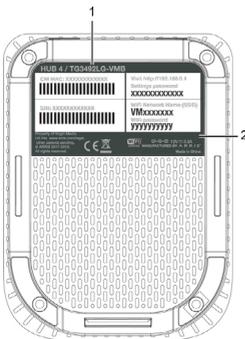
Follow these steps to connect and turn on your Giga Connect Box:

- 1 Connect one end of the coax cable to the cable outlet or splitter, and the other end to the Giga Connect Box's Cable connector. Tighten the connections by hand, then tighten an additional 1/8 turn with a wrench.  
**Note:** For best performance, use high-quality coax cable and minimize or eliminate splitters between the cable jack and the Giga Connect Box.
- 2 Insert the plug from the power cord into the Power connector on the back of the Giga Connect Box and insert the power cord into a convenient AC outlet.  
**Note:** Use only the external AC power adapter (if provided) and power cord included with the equipment.  
The LED ring on the Giga Connect Box lights up, then pulses white and green before appearing solid white. Refer to the LED tables shown in *LED patterns on the Giga Connect Box (page 24)*. See *Troubleshooting* if the LED ring does not light up.
- 3 Connect one end of the Ethernet cable to any Ethernet port on the back of the Giga Connect Box, and the other end to the Ethernet port on a computer, Ethernet hub, or broadband router.  
**Note:** If you are connecting to a computer, use the Ethernet cable included in the Giga Connect Box package.
- 4 Connect one end of the telephone cable to the telephone port on the back of the Giga Connect Box. Connect the other end to the telephone.
- 5 Move the power switch to the ON position.

## Configure your wireless connection

The Giga Connect Box ships with wireless LAN security enabled by default. See the security label on your product for the factory security settings.

**Note:** You must set up your computer and other client devices to work with the security settings on the Giga Connect Box. Refer to the documentation for your client device for instructions on setting security. On most computer systems you only need to select the network name (SSID) device and enter the encryption key. If your computer or client device supports WiFi Alliance WPS (Wireless Protected Setup), activate WPS on your computer or client device and the Giga Connect Box simultaneously to easily set up your system security.



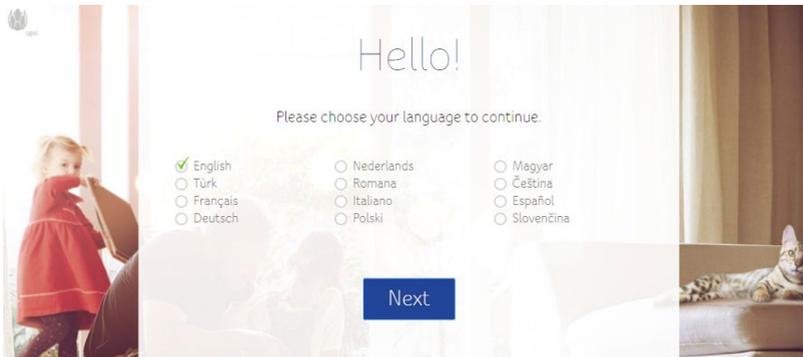
1. Model number
2. Security label

If you need to modify the Giga Connect Box's default wireless security settings, or if you want to configure any other wireless LAN settings, refer to the following instructions.

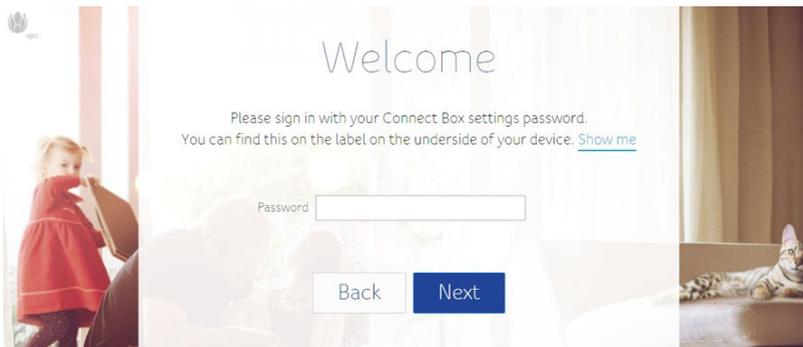
## 4 LOG IN TO THE CONFIGURATION INTERFACE FOR THE FIRST TIME

The first time you log into the configuration interface, the Giga Connect Box prompts you to perform some basic configuration tasks. Follow these steps to set up your Giga Connect Box for the first time.

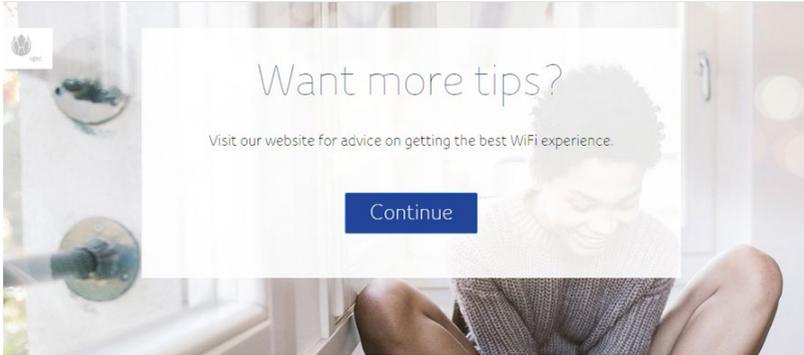
- 1 Connect a computer or tablet to the Giga Connect Box. Follow the steps in *Connect the Giga Connect Box (page 18)* to connect to your Giga Connect Box.
- 2 In your browser's address bar, type **http://192.168.0.1/** and press Enter. The screen prompts you to choose your language.



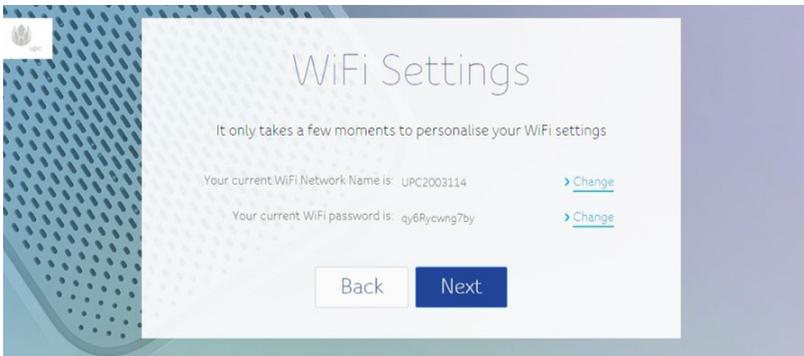
- 3 Choose your language from the list and click **Next**. The screen prompts you to enter your password. You can find this password on the label on the bottom of your Giga Connect Box.



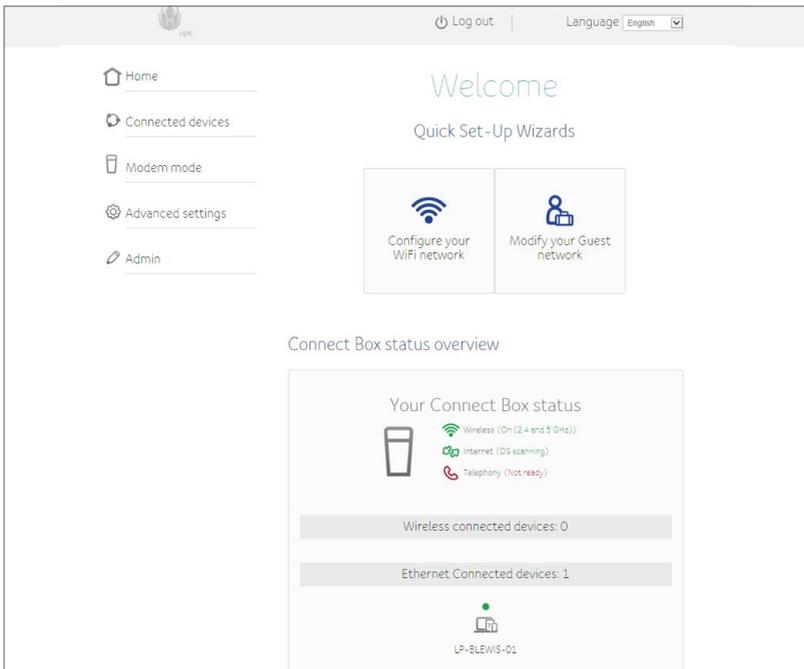
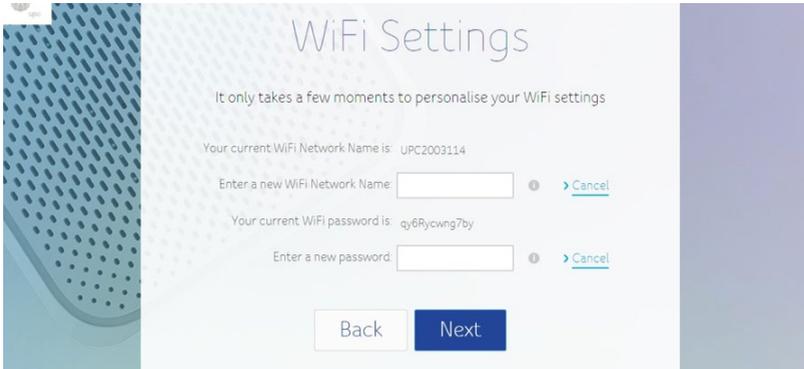
- 4 Type in your password and click Next.  
The screen shows a series of tips that will help you get the most from your WiFi connection. After the tips, the screen prompts you to click Continue to continue.



- 5 Click **Continue**.  
The screen prompts you to enter a new WiFi network name and password.
- 6 Click both **Change** links to change your WiFi network name and password. The screen prompts you to enter a new WiFi network name and password..



- 7 Type a new WiFi network name and a new WiFi password, and click **Next**.
- 8 The screen indicates that you have completed your initial setup. Click **Go to Dashboard**. The user interface dashboard appears.



## 5 OPERATE THE GIGA CONNECT BOX

This chapter describes the controls and features available on the Giga Connect Box, and covers basic troubleshooting procedures.

- Set up your computer to use the Giga Connect Box (*page 24*)
- Indicator lights for the Giga Connect Box (*page 24*)
- Use the Reset button (*page 25*)
- Reset the Giga Connect Box to factory defaults (*page 25*)

### Set up your computer to use the Giga Connect Box

Follow the instructions in the information packet supplied by your service provider. Contact your service provider if you need help setting up your computer.

### LED patterns on the Giga Connect Box

The following table explains the meaning of various LED patterns on the Giga Connect Box:

LED-Farbe	Bedeutung
LED color	Meaning
Solid white	Initial power, or bootup successful
Flashing white	Booting up
Flashing green	Upstream/downstream scanning and registration, or software update in progress
Solid red	CM registration failed (raining/physical reasons)
Flashing red	Network access denied, or other provisioning issues
Solid orange	Telephony error (cannot register phone)
Flashing orange	WiFi error (WiFi enabled but not working)

LED-Farbe	Bedeutung
Flashing orange, dimmed	Compromised operation
Flashing blue (slow flash, once every three seconds)	WPS in progress
Flashing blue (fast flash, twice per second)	WPS error, or WPS session overlap
Solid blue	WPS success. Changes to solid white after 20 seconds
Flashing purple	Hardware (thermal or fan error)
Off	WPS button pressed, but the WPS is disabled

## Use the Reset button

Use the **Reset** button on the back of the Giga Connect Box to reset and initialize the modem as if you had power cycled the unit. You may need to reset the Giga Connect Box if you are having problems connecting to the Internet. You will not use this button often. Use a pointed non-metallic object to press this button. The Reset button is recessed to prevent accidental resets.

**Note:** The rear panel power switch can also be used to power cycle the unit.

## Reset the Giga Connect Box to factory defaults

To reset the router to factory defaults, press and hold the Reset button (4) on the back of the Giga Connect Box for more than fifteen seconds. This restores the wireless setup configuration and router configuration parameters to the factory defaults. You may need to do this if a misconfiguration has locked out all access.

## 6 CONFIGURE YOUR GIGA CONNECT BOX AND WIFI SETTINGS

These pages describe the various configuration screens that are available for your Giga Connect Box.

### Access the configuration interface

- 1 If security has been properly set up on your computer to access the wireless LAN on the Giga Connect Box, use the connection utility for your operating system to connect to the wireless LAN using its network name (SSID), as shown on the security label.
- 2 If you cannot access the wireless LAN, you must first establish a wired Ethernet connection between your computer and the Giga Connect Box.
- 3 In your web browser, navigate to <http://192.168.0.1/> to access the wireless router setup. The Login screen appears.  
**Note:** The default user name is admin. The default password is password, in lower case letters.
- 4 Enter the user name and password, and click **Apply** to log in. The System Basic Setup screen appears.
- 5 Use the online help information to set configuration parameters as required.  
**Note:** Most configuration parameters that you may want to set can be accessed on the System Basic Setup screen, including the security mode and setting a system password.

## Configuration screens

The following pages contain descriptions of the Giga Connect Box configuration screens.

### Connected devices

The Connected devices screen shows all of the devices that are currently connected to your home network.

The screenshot shows the 'Connected devices' configuration page. The sidebar on the left contains navigation links: Home, Connected devices (highlighted), Modem mode, Advanced settings, and Admin. The main content area features the title 'Connected devices' and a subtitle 'All devices connected to your Connect Box are listed below:'. A 'Refresh' button is positioned to the right of the subtitle. Below this is a table with the following data:

Device name	MAC address	IP address	Speed (Mbps)	Connected to
LP-BLEWIS-01	28 D2 44 8A 98 C5	192.168.0.21	1000	Ethernet

**Device Name:** The host name of a client device connected to your network.

**MAC address:** The MAC address of the connected client device.

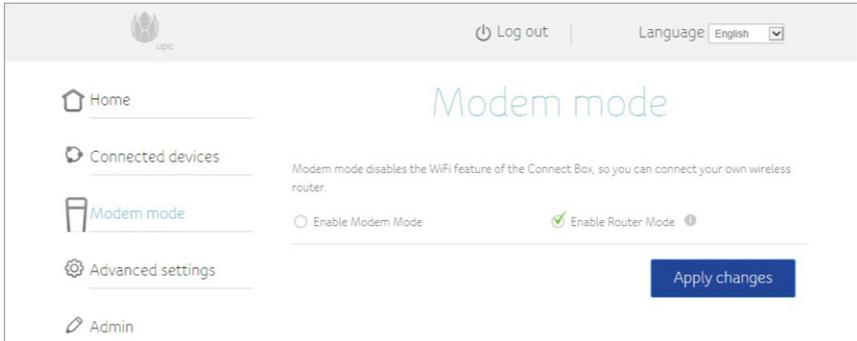
**IP address:** The IP address assigned to the client device.

**Speed (Mbps):** The speed of the connection, in megabytes per second.

**Connected to:** Identifies the type of connection for this client device.

## Modem mode

The Modem mode screen lets you choose if you want your Connect Box to operate as a wireless router or a modem.



**Enable Modem Mode:** Select this option if you want to use the Connect Box as a modem. You can connect a separate wireless router.

**Enable Router Mode:** Select this option if you want to use the Connect Box as a wireless router.

## Wireless signal

The Wireless signal screen lets you configure your wireless network.

The screenshot shows the 'Wireless signal' configuration page. On the left is a navigation menu with options: Home, Connected devices, Modem mode, Advanced settings, Wireless (selected), Security, Guest network, WPS, DHCP, UPnP, Tools, and Admin. The main content area is titled 'Wireless signal' and is divided into two sections: 'Wireless frequency 2.4 GHz' and 'Wireless frequency 5 GHz'.  
 In the 2.4 GHz section:  
 - 'Enable 2.4 GHz' is checked, and 'Disable 2.4 GHz' is unchecked.  
 - 'Wireless mode' is set to '802.11g/n mixed'.  
 - 'Channel' is set to 'Auto' (with 'Manual' also available).  
 - 'Channel width' is set to '20 MHz'.  
 In the 5 GHz section:  
 - 'Enable 5 GHz' is checked, and 'Disable 5 GHz' is unchecked.  
 - 'Wireless mode' is set to '802.11a/n/ac mixed'.  
 - 'Channel' is set to 'Auto' (with 'Manual' also available).  
 - 'Channel width' is set to '20/40/80 MHz'.  
 At the bottom right, there is a blue button labeled 'Apply changes'.

**Enable 2.4 GHz/Enable 5 GHz:** Select this option to enable wireless networking at 2.4 GHz or 5 GHz.

**Disable 2.4 GHz/Disable 5 GHz:** Select this option to disable wireless networking at 2.4 GHz or 5 GHz.

**Wireless mode:** Select the wireless mode that you want to use from the drop-down list.

**Channel:** Choose a communications channel for the router. The default setting is Auto, in which the router selects a channel with the least amount of interference to use.

**Channel width:** Choose the bandwidth that you want to reserve for this channel.

## Security

The Security screen lets you configure your network names and passwords.

The screenshot shows a web interface for configuring network security. On the left is a navigation menu with options: Home, Connected devices, Modem mode, Advanced settings, Wireless (with sub-options: Wireless signal, Security, Guest network, WPS), Security, DHCP, UPnP, Tools, and Admin. The main content area is titled 'Security' and is divided into three sections:

- 2.4 GHz Wireless Security Settings:** WiFi Network Name (SSID) is 'UPC2003114'. WiFi Network Name (SSID) broadcast is checked (Yes). Security is set to 'WPA2-Personal'. WiFi password (security key) is 'ay6Rycwng7by'.
- 5 GHz WiFi configuration:** WiFi Network Name (SSID) is 'UPC2003114'. WiFi Network Name (SSID) broadcast is checked (Yes). Security is set to 'WPA2-Personal'. WiFi password (security key) is 'ay6Rycwng7by'.
- Wireless MAC filtering:** This section allows configuration of MAC address filters. The 'Disabled' option is selected.

Below these sections is the 'Attached devices' section, which includes a 'Refresh' button and a table with columns for 'Device name', 'MAC address', and 'Connected to'. The table currently shows 'No attached device'. At the bottom is the 'Add device' section, which includes a 'Device name' input field, a 'MAC address' input field (displayed as 00 : 00 : 00 : 00 : 00 : 00), a 'Wireless radio' selection (with '2.4 GHz' selected), and an 'Add device' button.

**WiFi Network Name (SSID):** Enter a user-friendly name to identify the wireless network. This name is also referred to as the Service Set Identifier (SSID).

**WiFi Network Name (SSID) broadcast:** Choose whether you want to broadcast the network name (SSID). If you choose Yes, the WiFi network name (SSID) will be visible to all users in the area.

**Security:** Choose the security setting for the router.

**WiFi Password (security key):** Enter a password for your network.

**Wireless MAC filtering:** Use this setting if you want to allow or block devices based on their MAC addresses. Click Disable to disable filtering. Click Allow if you only want to permit the devices on the list to connect. Deny allows any device except those on the list to connect.

**Attached devices:** Shows a list of the device that are attached to the wireless network.

**Add device:** Use this section to add a new device to your wireless filter list. Enter the Device name and MAC address, and specify whether you want to add the device to the 2.4 GHz list, the 5 GHz list, or both lists. Click Add device when you are finished.

**Wireless filter list:** Shows a list of devices that have been marked for wireless MAC filtering. After you make changes to this screen, be sure to click **Apply changes**.

## Guest network

The Guest network screen lets you change your WiFi network name (SSID) and password. You can also choose the type of security that you want to use for your guest network.

The screenshot displays the 'Guest network' configuration interface. On the left, a sidebar contains navigation links: Home, Connected devices, Modem mode, and Advanced settings. Under 'Advanced settings', there are sub-links for Wireless, Security, Guest network (which is highlighted), WPS, and Security. The main content area is titled 'Guest network' and includes the following settings:

- Enable guest network:**  (checked),  Disable guest network
- WiFi Network Name (SSID):** UPC-guest2003114
- WiFi Network Name (SSID) Broadcast:**  Yes,  No
- Security:** WPA2-Personal
- WiFi password (security key):** cy6Rycwng7by

An 'Apply changes' button is located at the bottom right of the configuration area.

Choose **Enable guest network** if you want to set up a guest network.

**WiFi Network Name (SSID):** Enter a user-friendly name to identify your guest network.

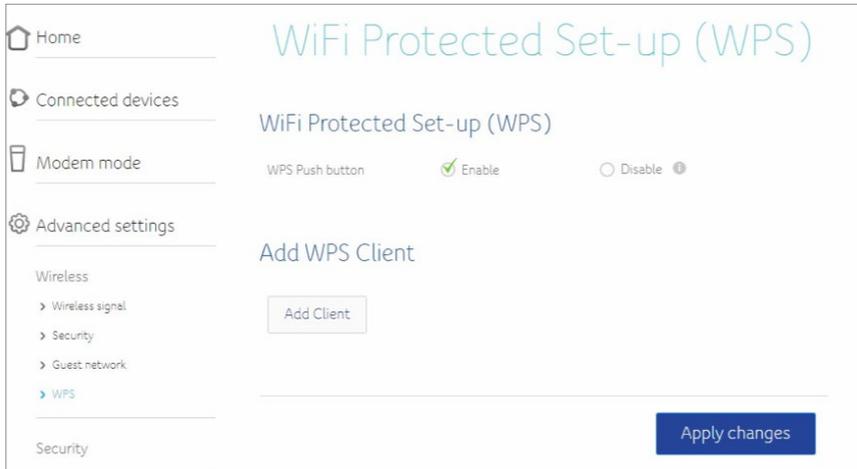
**WiFi Network Name (SSID) Broadcast:** Choose whether you want to broadcast your guest network name. If you choose No, then the network name will not appear when guests search for available networks.

**Security:** Choose the type of security that you want to use on your guest network.

**WiFi password (security key):** Enter the access password that you want to assign to your guest network.

## WiFi Protected Set-up (WPS)

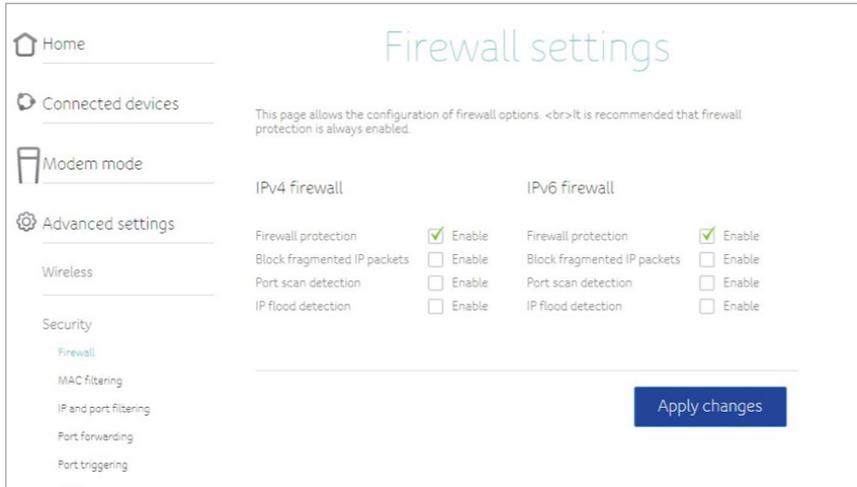
The WiFi Protected Set-up (WPS) screen lets you enable WPS to simplify the process of connecting a device to your network.



- 1 Choose **Enable** if you want to be able to connect a device to your network using the WPS button on the back of your Giga Connect Box.
- 2 Click **Add Client** if you want to start the WPS process to connect a client device to your network now.
- 3 When you are finished, click **Apply changes** to save your changes.

## Firewall settings

The Firewall settings screen lets you configure the firewall for your wireless network.



Select the options that you want to enable for your IPv4 firewall or your IPv6 firewall. Click **Apply changes** when you finish making changes to this screen.

**Firewall protection:** Select this option to enable basic firewall protection.

**Block fragmented IP packets:** Select this option to prevent all fragmented IP packets from passing through the firewall.

**Aufdeckung von Port-Scan-Aktivitäten:** Select this option if you want to enable port scan detection.

**IP flood detection:** Select this option if you want to enable IP flood detection.

## MAC filtering

The MAC filtering screen lets you configure MAC address filters so that you can block Internet access to specific devices on your network.

Home

Connected devices

Modem mode

Advanced settings

Wireless

Security

- Firewall
- MAC filtering
- IP and port filtering
- Port forwarding
- Port triggering
- DMZ

DHCP

UPnP

Tools

Admin

## MAC filtering

This page allows configuration of MAC address filters in order to block internet traffic to specific devices in your home network.

Attached devices Refresh

	Device name	MAC address	Connected to
<input type="radio"/>	LP-BLEWIS-01	28:D2:44:8A:98:C5	Ethernet

Add filter rule

Device name

MAC address  :  :  :  :  :  (example: 01:23:45:67:89:AB)

Add rule

MAC filter list

Device name	MAC address	Enable	Delete
No MAC filtering rule applied!			

Apply changes

Click **Apply changes** when you finish making changes to this screen.

**Attached devices:** Shows a list of devices that are currently connected to your network.

**Add filter rule:** Enter the device name and MAC address of any device for which you want to block Internet access; then click Add rule.

**MAC filter list:** Shows a list of devices that are blocked from accessing the Internet on your network.

## IP and port filtering

The IP and port filtering screen lets you configure the traffic policy for your Internet service.

Home

Connected devices

Modem mode

Advanced settings

Wireless

Security

- Firewall
- MAC filtering
- IP and port filtering
- Port forwarding
- Port triggering
- DMZ

DHCP

UPnP

Tools

Admin

### IP and port filtering

#### IPv4 port filtering

This section allows you to specify packet filtering rules to limit the internet access for local hosts.

Create a new rule

Source IP address	Destination IP address	Protocol	Source port	Destination port	Enabled	Delete
No filtering rule applied!						

#### IPv6 port filtering

This section allows you to configure the traffic policy for your internet service.

Inbound  Outbound

Create a new rule

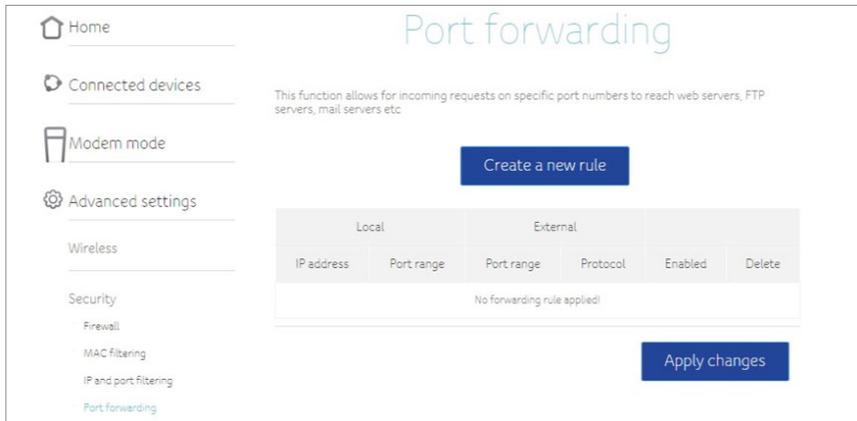
Source IP address	Destination IP address	Protocol	Source port	Destination port	Allow	Enabled	Delete
No filtering rule applied!							

Apply changes

Click **Apply changes** when you finish making changes to this screen.

## Port forwarding

The Port forwarding screen lets you forward inbound traffic from the Internet to a specified device on the network.



Click **Create a new rule** to set up a new port forwarding rule. The interface prompts you to set up a new rule. Complete the following fields:

- **Local IP:** Enter the IP address of the device on the network where you want the connections to go.
- **Local start port:** Enter the port at the lower end of the local port range that you want to forward.
- **Local end port:** Enter the port at the upper end of the local port range that you want to forward.
- **External start port:** Enter the port at the lower end of the external port range that you want to forward.
- **External end port:** Enter the port at the upper end of the external port range that you want to forward.
- **Protocol:** Specify the protocol that you want to use.
- **Enabled:** Specify that you want to enable this rule.

When you finish entering this information, click **Add rule** to return to the Port forwarding screen.

Once you have finished making changes to the Port forwarding screen, click **Apply changes** to save your changes.

## Port triggering

The Port triggering screen lets you enable dynamic port forwarding for certain services and applications such as online chat and gaming.

Click **Create a new rule** to set up a new port triggering rule. The interface prompts you to set up a new rule. Complete the following fields:

- **Trigger start port:** Enter the first port number in the range of ports for inbound packets that you want to forward.
- **Trigger end port:** Enter the last port number in the range of ports for inbound packets that you want to forward.
- **Target start port:** Enter the first port number in the range of ports where you want to forward your packets.
- **Target end port:** Enter the last port number in the range of ports where you want to forward your packets.
- **Protocol:** Specify the protocol that you want to use.
- **Enabled:** Specify that you want to enable this rule.

When you finish entering this information, click **Add rule** to return to the Port triggering screen.

Once you have finished making changes to the Port triggering screen, click **Apply changes** to save your changes.

## DMZ

The DMZ screen lets you set up a DMZ host on your Giga Connect Box.

The screenshot displays the DMZ configuration interface. On the left, a sidebar contains navigation links: Home, Connected devices, Modem mode, Advanced settings, Wireless, and Security. The main area is titled "DMZ" and includes two radio buttons: "Enabled" (unselected) and "Disabled" (selected). Below these is a "DMZ address" field showing "192.168.0." followed by a small input box containing "0". A blue "Apply changes" button is positioned at the bottom right of the main content area.

Click **Enabled** if you want to set up a DMZ, or click Disabled if you do not want to set up a DMZ.

In the DMZ address field, enter the IP address of the host device. Once you have finished, click **Apply changes** to save your changes.

## DHCP Settings

The DHCP Settings screen lets you configure how the Giga Connect Box assigns IP addresses.

- [Home](#)
- [Connected devices](#)
- [Modem mode](#)
- [Advanced settings](#)
  - [Wireless](#)
  - [Security](#)
  - [DHCP](#)
  - [UPnP](#)
  - [Tools](#)
- [Admin](#)

# DHCP settings

### DHCPv4 server

This section allows you to configure how the Connect Box assigns IPv4 addresses. It is configured to be a DHCP (Dynamic Host Configuration Protocol) server by default. This provides the TCP/IP configuration for all connected devices.

Enabled
  Disabled

Starting local address 192 . 168 .  .

Number of CPEs

Lease time  seconds

Apply changes

### DHCPv6 server

This section allows you to configure how the Connect Box assigns IPv6 addresses.

Auto configuration type  Stateful  Stateless

Start address

Number of addresses

DHCPv6 valid lifetime  seconds

Router advertisement lifetime  seconds

Router advertisement interval  seconds

Apply changes

### Reserved IP addresses

Attached devices Refresh

	Device name	MAC address	IP address	Lease time	Connected to
○	LP-BLEW IS-01	28:d2:44:8e:99:c5	192.168.0.211	Thu, 12 Jul 2013 14:47:30 GMT	Device Ethernet Interface 1

Add reserved rule

MAC address  :  :  :  :  :  (example: 01:23:45:67:89:AB)

IP address 192 . 168 .  .

Add rule

This screen is divided into three sections:

- **DHCPv4 server:** Use this section to configure how the Giga Connect Box assigns IPv4 addresses.
  - **Enabled:** Choose this option if you want to enable DHCP configuration.
  - **Starting local address:** Enter the IP address that you want to be the first address in the DHCP range.
  - **Number of CPEs:** Enter the number of IP addresses that should be used in the IP range.
  - **Lease time:** Enter the time (in seconds) that the device should keep the IP address.
  - Click **Apply changes** to save your changes.
- **DHCPv6 server:** Use this section to configure how the Giga Connect Box assigns IPv6 addresses.
  - **Auto configuration type:** Choose Stateless if you want the Giga Connect Box to generate its own IP address but receive DNS server information from a DHCPv6 server. Choose stateful if you want the Giga Connect Box to obtain its IP address and other parameters from a DHCPv6 server.
  - **Start address:** Enter the IP address that you want to be the first address in the DHCP range.
  - **Number of addresses:** Enter the number of IP addresses that should be used in the IP range.
  - **DHCPv6 valid lifetime:** Enter the number of seconds that the DHCPv6 should remain in the valid state.
  - **Router advertisement lifetime:** Enter the number of seconds that the host should consider the advertised address to be valid.
  - **Router advertisement interval:** Enter the number of seconds that the host should wait before sending advertisement packets.
  - Click **Apply changes** to save your changes.
- **Reserved addresses:** Use this section to reserve a specific IP addresses for a device in your home network.
  - **Attached devices:** This section shows a list of devices attached to your home network.
  - **Add reserved rule:** Enter the **MAC address** for a device in your network and the **IP address** that you want to reserve for that device.
  - **Reserved list:** This section shows the reserved IP addresses in your home network.
  - Click **Apply changes** to save your changes.

## UPnP

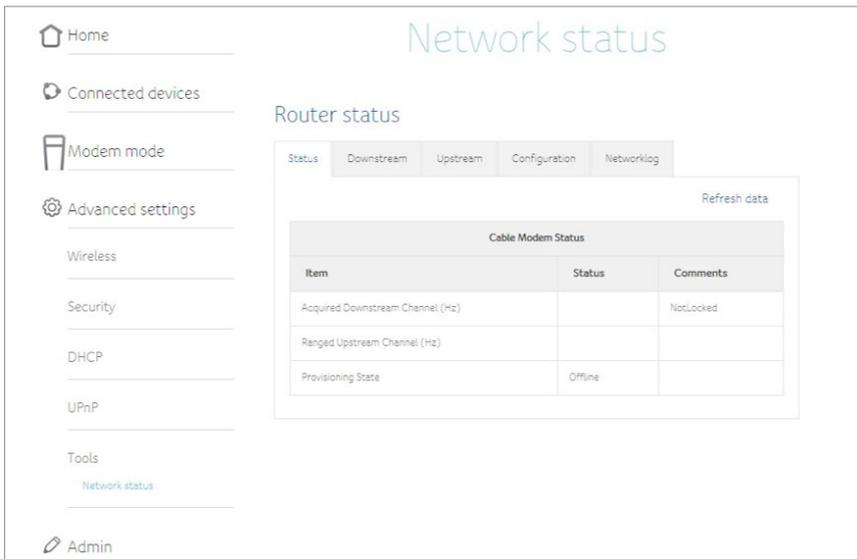
UPnP allows client devices that support Universal Plug and Play (UPnP) to automatically configure themselves in the network.

Click **Enabled** if you enable this feature.



## Network status

The Network status screen shows the connection and configuration status of the home network.

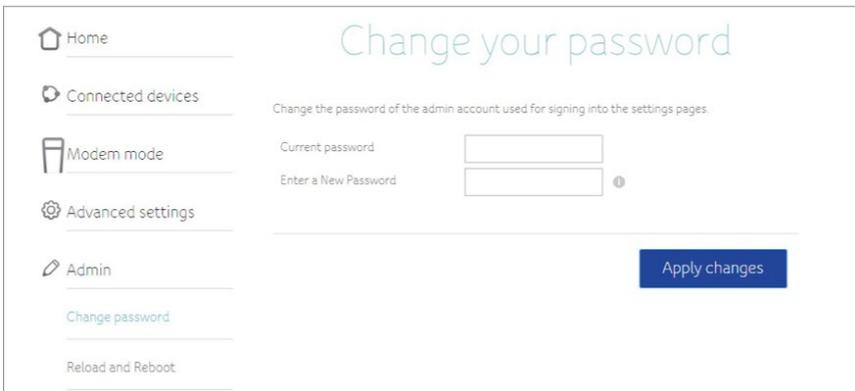


This screen contains a series of tabs that show various types of data:

- Status
- Downstream
- Upstream
- Configuration
- Networking

## Change your password

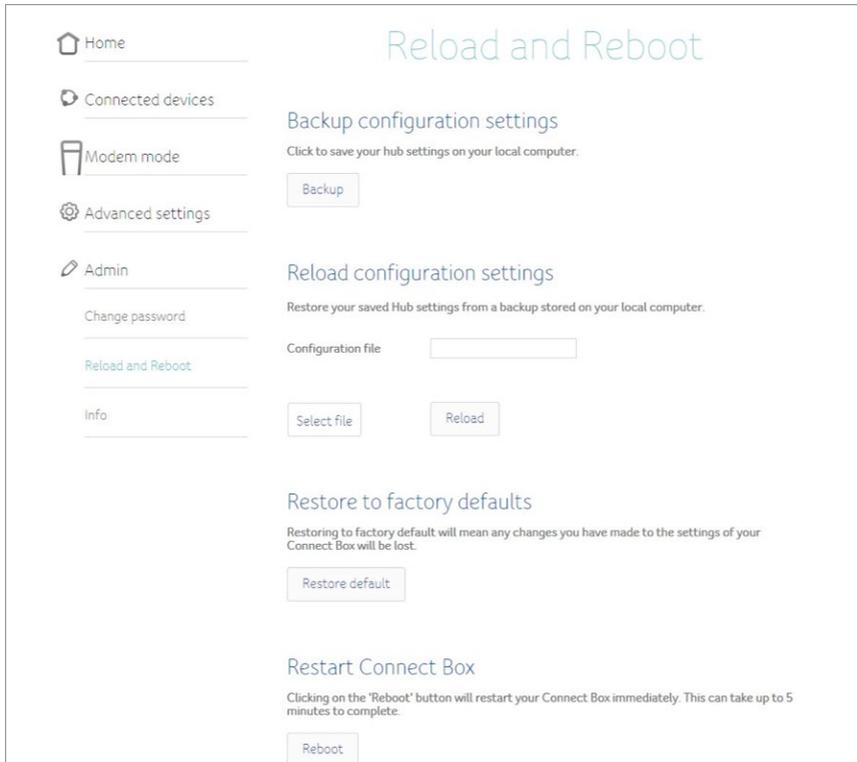
Use the Change your password screen to change the password used to access these screens. Type a new password in each of the fields provided and then click **Apply changes**.



The screenshot shows the 'Change your password' screen. On the left is a navigation menu with the following items: Home, Connected devices, Modem mode, Advanced settings, Admin, Change password, and Reload and Reboot. The 'Admin' item is selected. The main content area has the title 'Change your password' and a subtitle 'Change the password of the admin account used for signing into the settings pages.' Below this are two input fields: 'Current password' and 'Enter a New Password'. A blue 'Apply changes' button is located at the bottom right of the form area.

## Reload and Reboot

The Reload and Reboot screen lets you back up and restore your configuration settings. You can also use this screen to reboot the Giga Connect Box or restore the Giga Connect Box to its factory default settings.



- Click **Backup** to create a backup file of your current configuration settings.
- If you need to reload an early configuration backup file, click **Select file** to find the file that you want to reload; then click **Reload** to revert to the settings in that file.
- Click **Restore to factory defaults** if you would like to return the Giga Connect Box configuration to its original settings.
- Click **Restart Connect Box** if you would like to shut down your Giga Connect Box and then restart it.

## Info

The Info screen shows a summary of the Giga Connect Box's current status and its Internet settings.

The screenshot shows the 'Info' screen of a Giga Connect Box. The left sidebar contains the following navigation options: Home, Connected devices, Modem mode, Advanced settings, Admin, Change password, Reload and Reboot, and Info (which is currently selected). The main content area is titled 'Info' and contains two sections:

### Connect Box device information

The information below shows current status of this Connect Box.

Standard specification compliant	: DOCSIS 3.1
Hardware version	: 6
Software version	: 01.01.105.EURO
Cable MAC address	: E4:57:40:03:3B:80
Cable modem serial number	: E45740033B82
System up time	: 0 days 0h:13m:43s
Network access	: Allowed

### WAN IP settings

Your current Connect Box internet settings are displayed below

MAC address	: E4:57:40:03:3B:82
IPv6 address	:
IPv6 default gateway	:::
IPv6 lease time	: 0 days 0h:0m:0s
IPv6 lease expire	: 2018-04-17 21:16:13
IPv6 DNS servers	:::,:,::
IPv4 address	: 0.0.0.0
Default gateway	:
IPv4 lease time	: 0 days 0h:0m:0s
IPv4 lease expire	: 2018-04-17 21:16:13
IPv4 DNS servers	:
IPv6 DS-Lite status	: false
DS-Lite-FQDN	: aftr.ga14lab.net
DS-Lite-address	:::

## 7 CONFIGURE YOUR ETHERNET CONNECTION

If your computer has a LAN card that provides an Ethernet connection, you may have to configure your computer's TCP/IP settings. The following steps will guide you through setting your computer's TCP/IP settings to work with the Giga Connect Box.

### Requirements

Make sure you have the following before attempting to configure your Ethernet connection:

- Computer with Ethernet interface.
- Ethernet cable (supplied).
- IP address, subnet, gateway, and DNS information for installations not using DHCP.

### How to use this section

The following list shows the procedures for modifying the TCP/IP settings on the computer. The procedure is slightly different depending on the operating system that you are using. Please ensure you are using the correct steps for the operating system on your computer. Follow the links below for instructions to configure your Ethernet connection on your operating system.

- [Configure TCP/IP for Windows Vista \(page 47\)](#)
- [Configure TCP/IP for Windows 7, 8 oder 10 \(page 48\)](#)
- [Configure TCP/IP for macOS \(page 49\)](#)

## Configure TCP/IP for Windows Vista

- 1 Open the Vista Control Panel.
- 2 Double-click **Network and Sharing Center** to display the Network and Sharing Center Window.
- 3 Click **Manage network connections**. If prompted for a connection, choose **Local Area Connection**.  
The Network Connections window appears.
- 4 Double-click the **Local Area Connection** to open the Properties window:  
*Note:* If Windows requests permission to continue, click **Continue**.
- 5 Double-click **Internet Protocol Version 4 (TCP/IPv4)** to configure TCP/IPv4.  
*Note:* If your service provider requires TCP/IP version 6, double-click **Internet Protocol Version 6 (TCP/IPv6)** to configure TCP/IPv6.  
The TCP/IP properties window for the version you selected appears.
- 6 For either TCP/IPv4 or TCP/IPv6, select **Obtain an IP address automatically** and **Obtain DNS server address automatically**, unless instructed otherwise by your service provider.
- 7 Click **OK** to accept the new settings and close the Properties window.

## Configure TCP/IP for Windows 7, 8 or 10

- 1 Click the **Start** menu and type **network and sharing** into the Search box.
- 2 Select **Network and Sharing Center** when it appears.
- 3 Click **Change adapter settings** from the left-side menu.
- 4 Right-click on your local area connection icon and select **Properties** to open the Properties window.
- 5 Select **Internet Protocol Version 4 (TCP/IPv4)** and click **Properties** to configure TCP/IPv4.  
*Note:* If your service provider requires TCP/IP version 6, select **Internet Protocol Version 6 (TCP/IPv6)** and click **Properties** to configure TCP/IPv6.  
The TCP/IP properties window for the version you selected appears.
- 6 For either TCP/IPv4 or TCP/IPv6, select **Obtain an IP address automatically** and **Obtain DNS server address automatically**, unless instructed otherwise by your service provider.
- 7 Click **OK** to accept the new settings and close the Properties window. Then click **Close** to back out of the remaining setup screens.

## Configure TCP/IP for macOS

- 1 Open System Preferences, either by choosing **System Preferences** from the Apple menu or by clicking the System Preferences icon in the dock.
- 2 Click the **Network** icon.
- 3 Choose **Automatic** from the Location drop-down menu, and **Built-in Ethernet** from the Show menu.
- 4 Choose the **TCP/IP** tab, if necessary.  
If you are using **TCP/IPv4**, go to step 5. If your service provider requires **TCP/IPv6**, go to step 8.
- 5 Choose **Using DHCP** from the Configure IPv4 menu.
- 6 If necessary, click the **Renew DHCP Lease** button.
- 7 Close the System Properties application.  
TCP/IPv4 configuration is completed.
- 8 If you are using TCP/IPv6, click **Configure IPv6** near the bottom of the previous window.
- 9 Choose **Automatically** from the Configure IPv6 drop-down menu and click **OK**.
- 10 Close the System Properties application.

## 8 TROUBLESHOOTING

### The Giga Connect Box is plugged in, but the power light is off

Check all power connections.

Is the power cord plugged in firmly at both ends?

**Note:** Use only the power adapter and power cord included with the equipment.

If you plugged the power cord into a power strip, make sure the strip is switched on.

Make sure that the rear panel power switch is set to the ON position.

Avoid using an outlet controlled by a wall switch, if possible.

Finally, check the fuse or circuit breaker panel.

### I'm not getting on the Internet (all connections)

It may take over 30 minutes to establish a connection the first time you power up your Giga Connect Box, especially when many people are online. Always leave your Giga Connect Box plugged into AC power and connected to the cable system.

Check the LED ring. The light should be white and steady. If the light is blinking or a different color, refer to *LED patterns on the Giga Connect Box (page 24)* for more information. If the light blinks for more than 30 minutes, call your service provider for assistance.

Check your cable connections. Connectors should be tight. The coax cable should not be pinched, kinked, or bent sharply—any of these can cause a break or short in the cable (you may have to replace the cable). If you have one or more splitters between the Giga Connect Box and CATV outlet, remove the splitters and connect the Giga Connect Box directly to the outlet.

Proceed to the Ethernet or wireless solutions if necessary.

## I'm not getting on the Internet (Ethernet)

If you are using an Ethernet hub, is it turned on?

Are you using the right type of Ethernet cable? Use the supplied cable for direct connection to a computer; use a cross-over cable for connection to an Ethernet hub.

Press the **reset** button on the back of the Giga Connect Box.

## I'm not getting on the Internet (wireless)

Check the indicator lights, see *Operate the Giga Connect Box (page 24)* – the WiFi light should be on.

Does your connection utility discover your wireless LAN? If you turned off «Broadcast SSID» you need to manually enter the name of your wireless LAN in the connection utility.

Change your security mode to «disabled». Enable one of the other security modes as soon as you find the problem.

A misconfiguration could lock out all access to the Giga Connect Box. If you think this has happened, see *Reset the Giga Connect Box to factory defaults (page 25)*.

## My wireless Internet connection stops working sometimes

This is usually caused by interference. Two common sources are 2.4GHz «remote» telephones and microwave ovens. If you cannot remove the interfering product, try using a different channel or setting Protected Mode.

## I can get on the Internet, but everything is slow

If the website you are visiting is very popular, that site may be having trouble servicing all the requests. If other sites download quickly, wait for a few minutes and try again. Usage during peak hours may also affect the connection speed. Other communications on the LAN, or interference with wireless connections, may slow down the connection.

## I don't have a dial tone when I pick up the phone

In order for telephone service to be functional on the Giga Connect Box, telephone service must have been purchased from the service provider and configured on your Giga Connect Box. The following steps should help in identifying the source of the problem.

- 1 Check to make sure the Giga Connect Box is plugged in and the outlet has power. Use only the external AC power adapter (if provided) and power cord included with the equipment.
- 2 Check the coax connection at the Giga Connect Box and the wall. Ensure they are connected and tight. If they are and you do not have dial tone, contact your service provider.
- 3 Is the phone plugged directly into the Giga Connect Box?  
Make sure the phone is plugged into the port on the back of the Giga Connect Box labeled «Tel 1» for line 1, and «Tel 2» for line 2.
  - If so, try a different phone. Make sure the new phone is a working phone.
  - If a known good phone is used and you still don't have dial tone, try a different phone cable. If a new phone and cable do not restore dial tone, call your service provider.

- 4 Is the Giga Connect Box plugged into a wall outlet?
  - If so, unplug the phone connector at the back of the Giga Connect Box and plug in a known working phone. If you now have dial tone, the problem is with the house wiring. Contact your cable company or a qualified wiring technician to correct the house wiring. If you still do not have dial tone, contact your service provider.

## GLOSSARY

Category 5e (Cat5e)	A high-quality type of cable, used for gigabit Ethernet (1000BaseT) connections. When purchasing Ethernet cables, always look for Category 5e cable or higher.
Coaxial cable (coax)	A thin wire, used to connect your television and Giga Connect Box to the cable TV system. You can buy coax from any electronics retailer and many discount stores.
CPE	Customer Premise Equipment. This is the equipment that is plugged in to the Giga Connect Box; typically a computer or hub.
Cross-over	An Ethernet cable used to connect two hubs (or a hub and a cable modem) together. Also, some Ethernet hubs may have built-in cross-over on one or more ports (which eliminates the need for a cross-over cable).
DHCP	Dynamic Host Configuration Protocol. An IP protocol used to provide an IP address and location of services (such as DNS and TFTP) needed by a device connecting to the network. DHCP allows the service provider to configure your computer's networking software for you.
DNS	Domain Name Service (Server). An IP service that associates a domain name (such as <a href="http://www.example.com">www.example.com</a> ) with an IP address.
DOCSIS	Data Over Cable System Interface Specification. The interoperability standards used for data communications equipment on an HFC network.
Downstream	In an HFC network, the direction from the head-end to the subscriber. Some older cable documentation may refer to this as the forward path.
EMTA	Embedded Multimedia Terminal Adapter. An MTA device that is integrated with a cable modem.

Ethernet	A standard method of connecting two or more computers into a Local Area Network (LAN).
EuroDOCSIS	The European version of DOCSIS.
Event	An informational message used for monitoring network status.
F-connector	The type of connector used on coax cable. There are two common types of F-connector, slip-on and screw-on. Use coax with screw-on connectors for connecting your Giga Connect Box.
Firewall	A hardware or software device that prevents unauthorized access to a private network from the Internet. The Giga Connect Box provides a built-in firewall.
Gateway	The device, usually a router, that connects devices on a given IP subnet to other IP subnets.
Headend	The «central office» in an HFC network. The headend houses both video and data equipment. In larger cable networks, a «master» headend often feeds several «remote» headends to provide distributed services.
HTTP	HyperText Transfer Protocol.
Hub	A box with several Ethernet connectors. Ethernet hubs provide a common point of contact for all connected devices.
IP address	A number assigned to your computer by your service provider, used to identify your computer to other systems on the Internet.

ISDN	Integrated Services Digital Network. A digital telephony standard that provides communication speeds about twice as fast as standard dialup.
LAN	Local Area Network. A network that allows computers in a single location (such as a building) to communicate with one another.
LED	Light Emitting Diode. A semi-conductor diode that emits light when current is passed through it.
MAC address	A number that uniquely identifies any device connected to a network. Your service provider uses your Giga Connect Box's MAC address to authorize access to the Internet. The MAC address is printed on a label affixed to your Giga Connect Box.
Protocol	A set of rules and formats that determines the communication behavior of network entities at a given layer.
Proxy	A device or program that stands in between a server (for example, a web site) and a client (your browser), providing a way to relieve some of the burden from the server. For example, your service provider may have a web proxy that keeps copies of popular web pages; the proxy can send you those pages instead of fetching them directly from the web site, resulting in faster page loading and less network congestion.
RF	Abbreviation for Radio Frequency. Some literature refers to coax as «RF cable» and the connectors as «RF connectors.»
RJ-11	A standard 2-conductor modular connector, commonly used in North America for connecting telephones. wide RJ-11 (telephone) connector.

RJ-45	A standard 8-conductor modular connector, commonly used on Ethernet cable. An RJ-45 connector looks like a wide RJ-11 (telephone) connector.
Splitter	A small box with three cable connectors: one input and two outputs. You may need a splitter if you have a TV already connected to the cable outlet that you want to use for your Giga Connect Box. You can buy a splitter from any electronics retailer and most discount stores.
SSID	Service Set Identifier. A string of text (up to 32 characters long) that uniquely identifies a wireless LAN.
Switched outlet	A power outlet that may be turned on and off using a wall switch. Usually intended for lamps. Avoid plugging your computer or Giga Connect Box into a switched outlet to avoid disruptions.
TCP/IP	Transmission Control Protocol/Internet Protocol. The protocols used to facilitate communications across one or more connected networks.
TDMA	Time Division Multiple Access. A method used by DOCSIS-compliant cable modems for sending upstream data with minimal interference.
Upstream	The path from a subscriber device to the headend. Some older cable documentation may refer to this as the return path or reverse path.
WEP	Wired Equivalent Privacy. A common standard for encrypting data sent over a wireless LAN.
WPA	WiFi Protected Access. A standard for encrypting data sent over a wireless LAN. WPA offers improved security over WEP.