

# **BASIC INSTRUCTIONS TO CONFIGURE ZYXEL 660HW-D1 CPE USING THE WEB INTERFACE**

Version 1.0

12/11/2008



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# 1 INTRODUCTION

This document provides some indications about how to configure the VDSL2 router ZyXEL P870HW-51Av2, supplied as Telefonica's *Router Inalámbrico*, using the web configurator built-in this device.

To configure the broadband service provided by Telefonica, it is recommended to follow the instructions covered in the User's Guide included in the package. This document is a complementary element to that user's guide explaining how to configure the router using the VDSL2 router web configurator instead of the configuration wizard included in the router package valid for the Windows OS. It is recommended to use with higher preference this configuration wizard.

<p><b>NOTE:</b> Before starting to use the configuration tools provided directly by the CPE vendor, the ones which Telefonica de España mentions just for reference purposes, we must remind you that Telefonica de España doesn't provide any kind of technical support for them.</p>
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This configuration process is based in the **access to the router** using the **PC network adaptor**, which will allow using it independently of the operating system. Refer to the help information in your operating system to see how to have a network adaptor properly installed.

This document is oriented to **advanced users** with enough knowledge about networks, routers, operating systems, etc...



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## 2 FACTORY DEFAULT SETTINGS

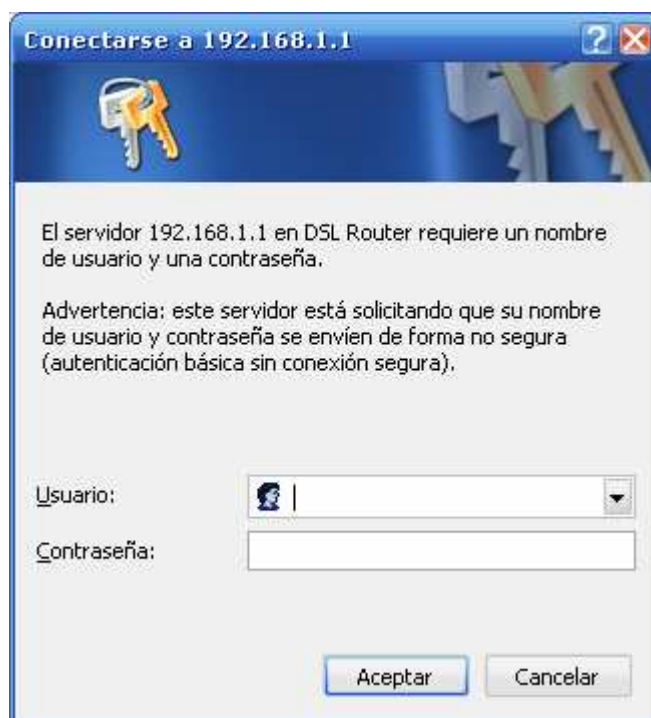
The VDSL2 router supplied within the Router Inalámbrico package is pre-configured by factory default settings in a dynamic multiuser mode, with the DHCP server enabled (this is, it will assign an IP address to those PCs in the internal network configured to obtain the IP settings dynamically) and the wireless LAN interface disabled. To gain the access to the router, it is necessary to have a network adapter installed on the PC, configured to receive an IP address automatically from the DHCP server and with a web explorer configured accordingly with the dynamic multiuser settings.

NOTE: The VDSL2 router must be switched on and properly connected to the PC.
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If you are using a Windows operating system, you can refer to the *Ethernet Card and TCP/IP protocol installation guide* document and the annex 1 of the *Installation Guide* for more detailed information. If you are using a Linux or MAC operating system, please refer to the help information in your OS.

In case these initial settings could not be useful for your particular case or you find some problems in the broad band service start-up process, you can update or review the configuration using the router web configurator. As the VDSL2 router will be initiated with the LAN IP address 192.168.1.1 and network mask 255.255.255.0, you can check your connectivity with the router (i.e., using a ping command). Once the IP connectivity was successfully checked, you just need to access the <http://192.168.1.1> address from your web explorer.

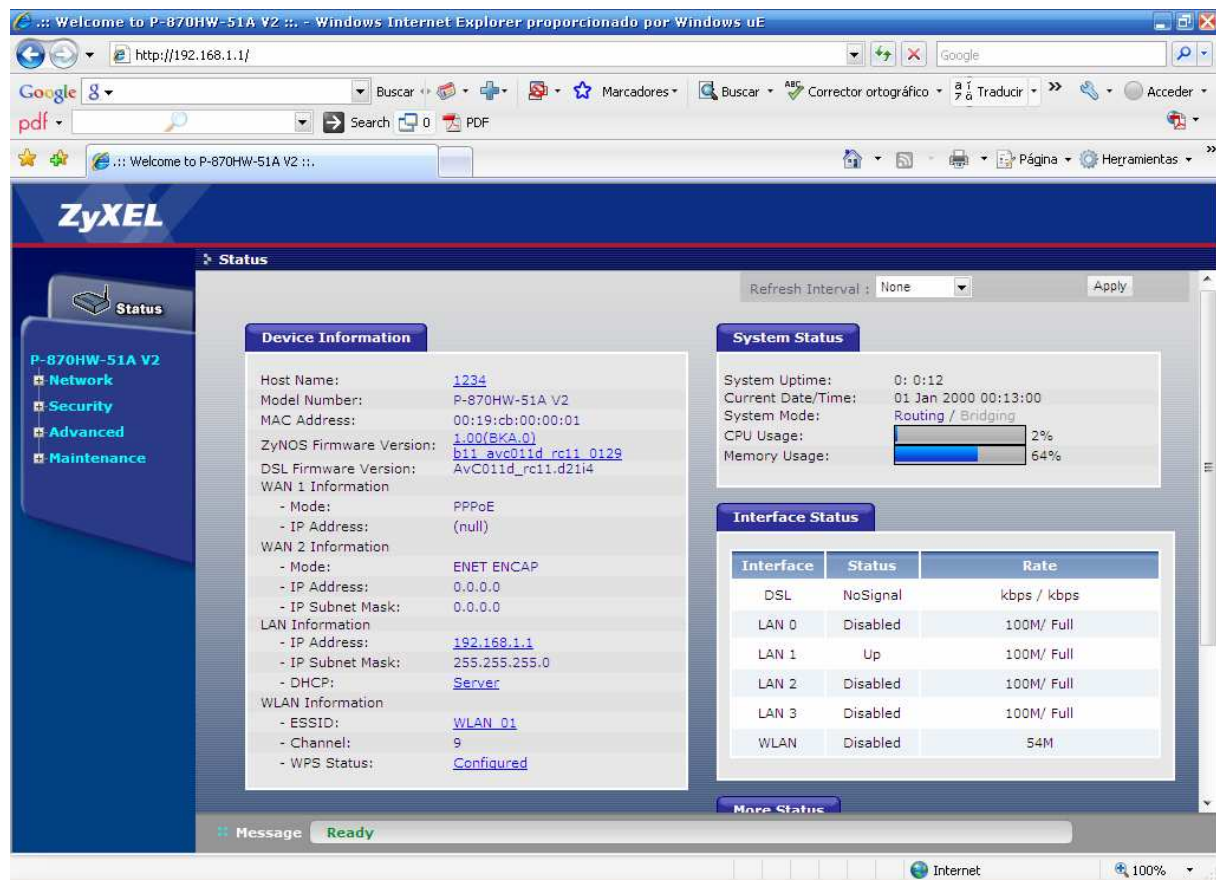
NOTE: The screenshots in this document may change in function of the web explorer and the operating system used.
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**Figure 2-1: Router access**

The factory default values for the CPE *Username* and *Password* parameters are *1234* and *1234* respectively. **Telefónica highly recommends to modify the default access password to the router.** Refer to section 3.1 .





**Figure 2-2: Web configurator main page**

In next section you will find how to make some basic operations using the web configurator embedded in this ADSL router. It will be necessary to use the options *Network*, *Security*, *Advanced* and *Maintenance* that appear on the left side of the menu to complete operations such as:

- PASSWORD MODIFICATION
- CONFIGURING THE ROUTER
- PORT FORWARDING
- CONFIGURING THE WIRELESS LAN

It is not recommended to make any other different operation from these ones defined above using the web configuration.

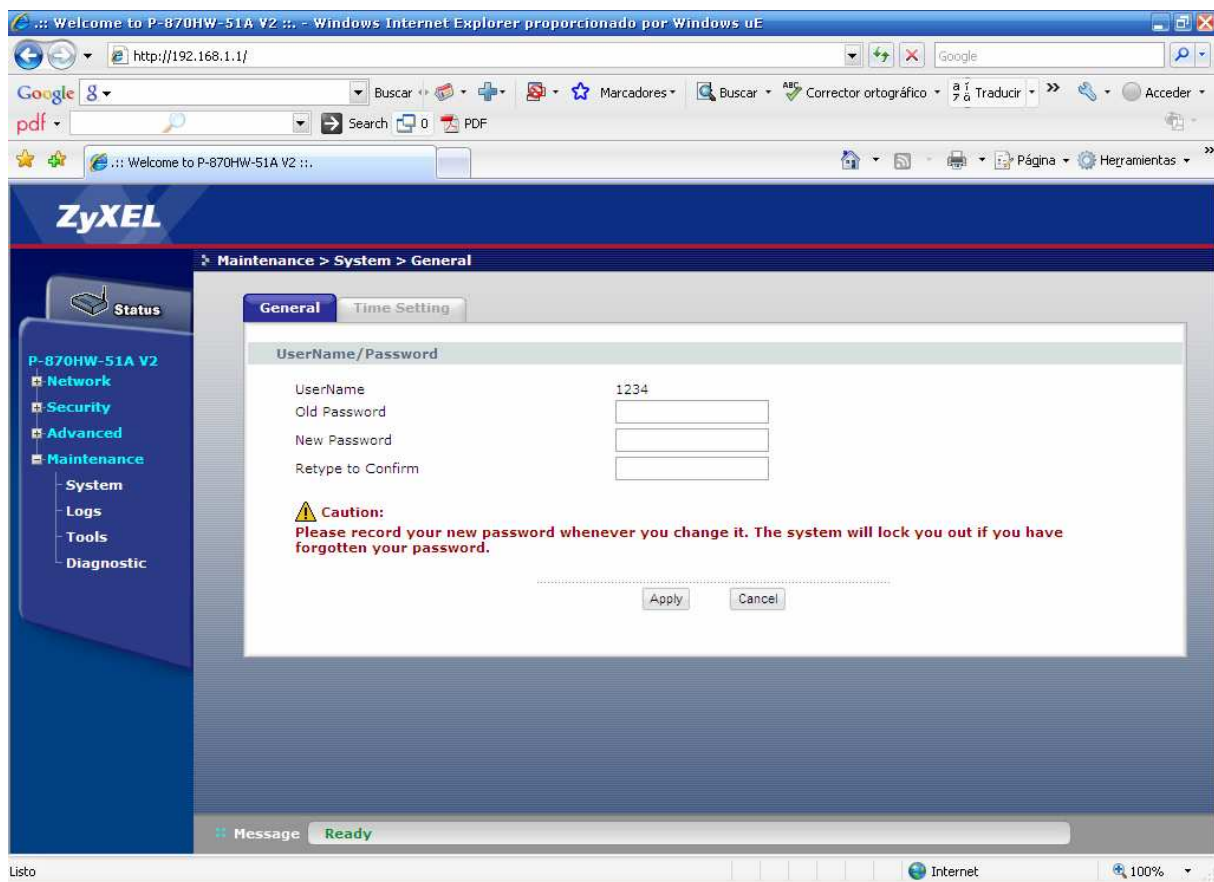


## 3 BASIC OPERATIONS ON THE ROUTER

### 3.1 PASSWORD MODIFICATION

This is the first operation recommended to be made. Select:

*Maintenance -> System -> General* and you will see next screen:



**Figure 3-1: Password modification menu**

Fill in the fields accordingly and keep in mind the key is sensitive to capital and non-capital letters:

- *Old Password:* The current password
- *New Password:* The new password
- *Retype to confirm:* Retype the new password

Once filled these boxes, press *Apply* button. If the operation is completed successfully, the web explorer will be disconnected and it will be necessary to introduce the new password to

gain the access back to the router. In case you forget this new password, please refer to the User's Guide about how to restore factory default settings in your router.

## 3.2 CONFIGURING THE ROUTER

If you are going to connect only one PC to your router, a **monouser** configuration would be enough. In that case, it is recommended to install a firewall and an antivirus software updated and enabled in your PC due to it will be directly connected to the internet. On the other side, if you expected to connect different devices to your router, you must select the **multiuser** configuration. It is recommended to use a **multiuser** configuration even though when you're going to connect only one PC to the internet, due to the fact that it provides higher security and makes it possible to enjoy all the advanced features supported by the router.

Additionally to the **monouser** or **multiuser** configuration, you must also configure the IP address assignment mode for the VDSL2 router. There are two possibilities about this IP address assignment configuration for a broad band line.

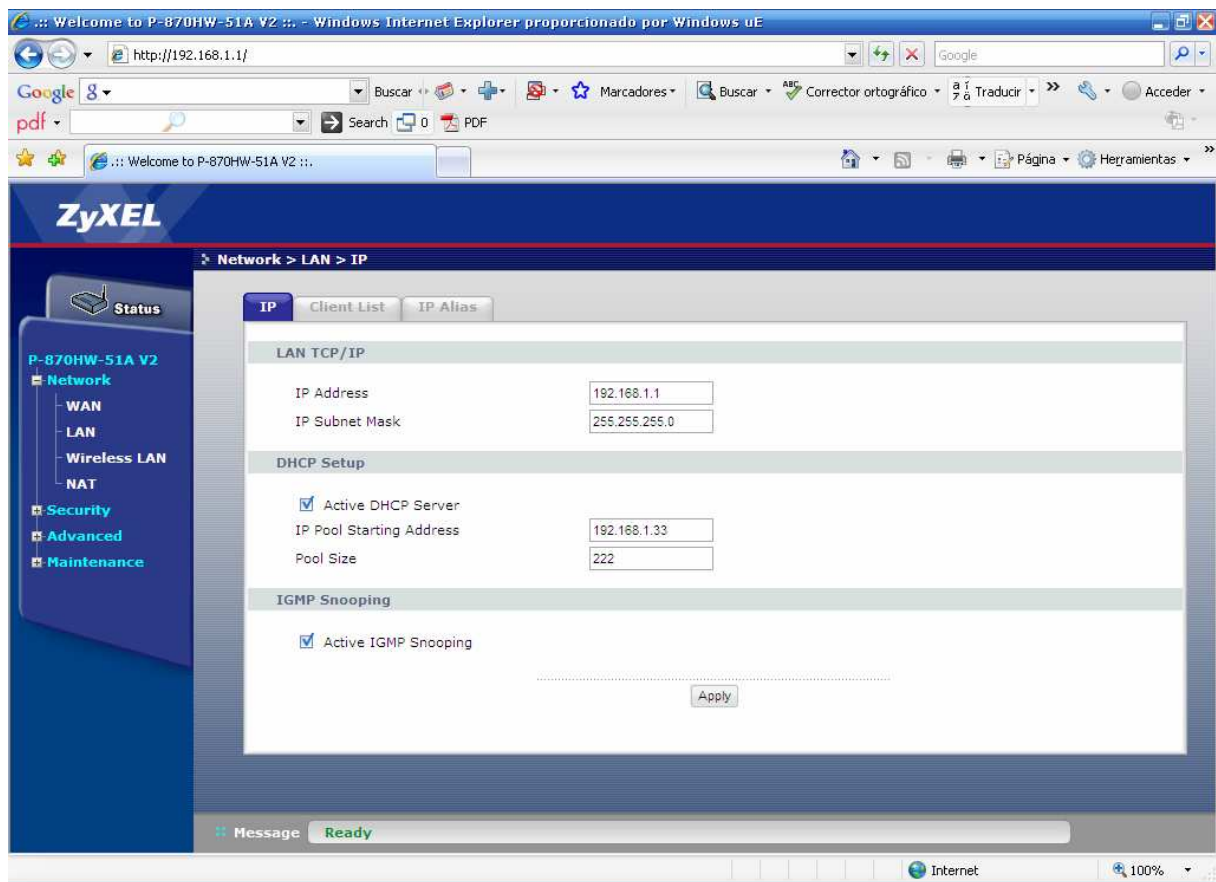
- **Static** address assignment: a fixed IP address is assigned to the router for all connections.
- **Dynamic** address assignment: the IP address assigned is not always the same, the values provided are the PPPoE session username and password to be used to get the connection.

This information appears in the welcome note received by the user at home. They can also be obtained dialing to the phone number 900502010 from the phone line where the broad band line is installed .

NOTE: In all next explanations it is considered that the starting point is the factory default settings. If it were necessary, please refer to the CPE User's Guide to check how to restore factory default settings.
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### 3.2.1 MULTIUSER CONFIGURATIONS

In both network address assignments, *dynamic* (factory default value in the router) and *static*, some configuration options are common. Initially, it is necessary to configure the router private network (LAN). Select: **Network ->LAN** to display next screen where you will need to fill in the according values:

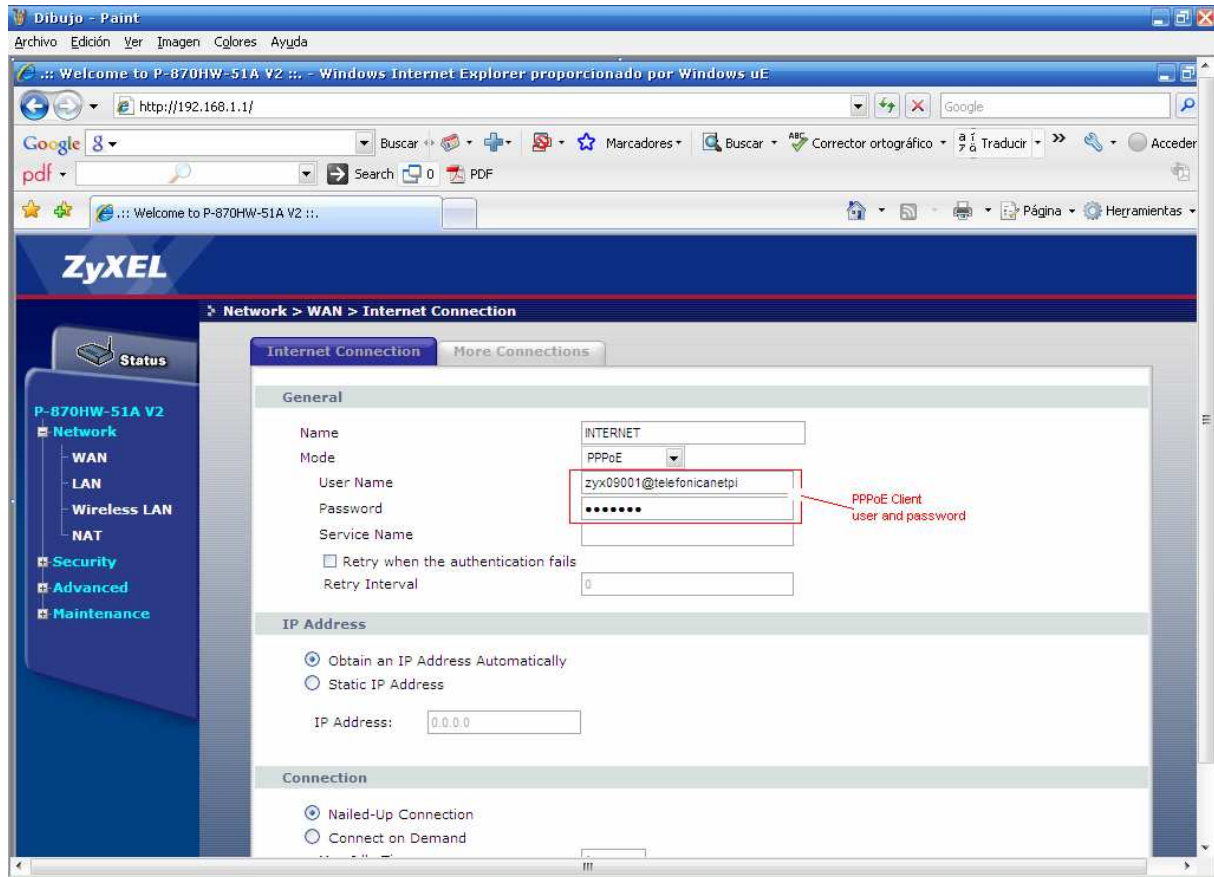


**Figure 3-2: Private network address options configuration in multiuser mode**

If you want, you can change the router IP address (*TCP/IP* -> *IP Address* and *IP Subnet Mask*) and the DHCP server settings (*DHCP* -> *Client IP Pool Starting Address* and *Size of Client IP Pool*) according with the private network desired values. It is not recommended to modify any other parameters.

Once introduced previous values, press *Apply* button and the router will be updated properly.

The WAN configuration options are the features required for the VDSL2 interface. Select: **Network -> WAN** to display next screen:



**Figure 3-3: WAN options configuration in multiuser dynamic mode**

### MULTIUSER DYNAMIC (FACTORY DEFAULT OPTION)

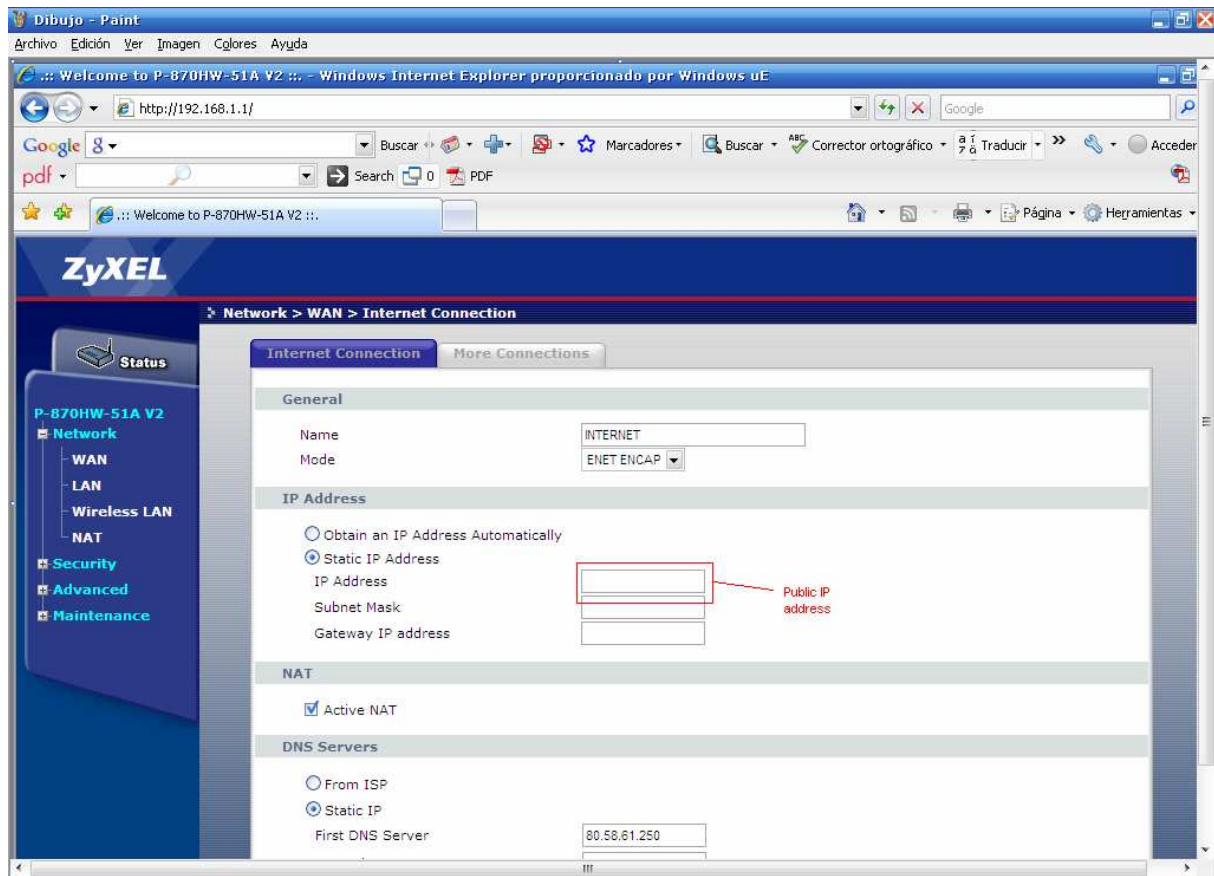
You must change the PPPoE session username and password with the proper values for your broad band line in the previous screen. In this figure you can also see the rest of parameters already configured with the right values. It is recommended not to modify them.

Once completed these fields, press *Apply* button and the router will be updated as expected.

In the multiuser configurations, the NAT feature must be enabled. Verify in this screen that the NAT option is selected. If not, select the *Active NAT* option and press *Apply*.

## MULTIUSER STATIC

Go to **Network -> WAN -> Internet Connection** to display next screen where it is shown a configuration example for this case. In the *Internet Connection-General* menu, select the option Mode: **ENT ENCAP**, and select the *Static IP Address* option in the IP Address field. You must change the public IP address for the broad band line. Use as Gateway IP Address: 192.168.1.1. In the figure you can also see the rest of parameters already configured with the proper values. It is recommended not to modify them.



**Figure 3-4: WAN options configuration in multiuser static mode**

Once introduced these values, press *Apply* and the router will be updated as expected.

In the multiuser configurations, the NAT feature must be enable. Check it in this screen that the NAT option is selected (*Active NAT* option checked)

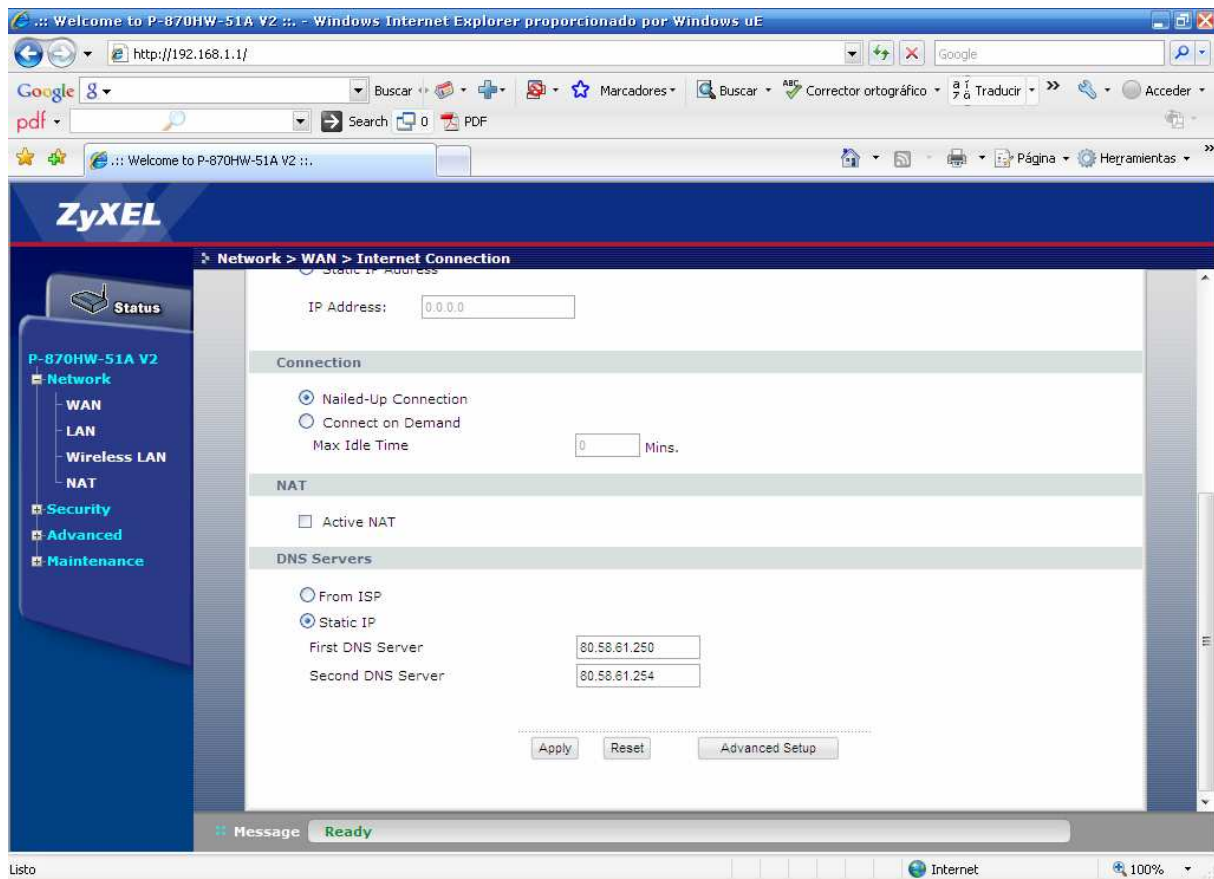
### 3.2.2 MONOUSER CONFIGURATIONS

These are not highly recommended settings for this router due to the advanced features supported by this device can not be used. In this case, the PC is the device directly connected



to the internet, cause the NAT feature in the router is disable. It is recommended to adopt some safety applications to avoid undesired threats or intrusions in the PC.

The NAT feature must be disabled, for both static and dynamic monouser environments. To do that go to: *Network -> WAN -> Internet Connection -> NAT* and disable the *Active NAT* option.



**Figure 3-5: NAT disabled**

Once selected this option, press *Apply* button and the router will be configured as expected.

## MONOUSER DYNAMIC

In this case, you **will need to install a PPPoE client in the PC**. If you are using Windows OS, you can use the client provided in the package or the one supported by the OS in Windows XP. If you are using a different operating system, please refer to the help information in your OS to see how to install and use a PPPoE client. If you can not have this PPPoE client in your operating system, you won't be able to work under this mode.

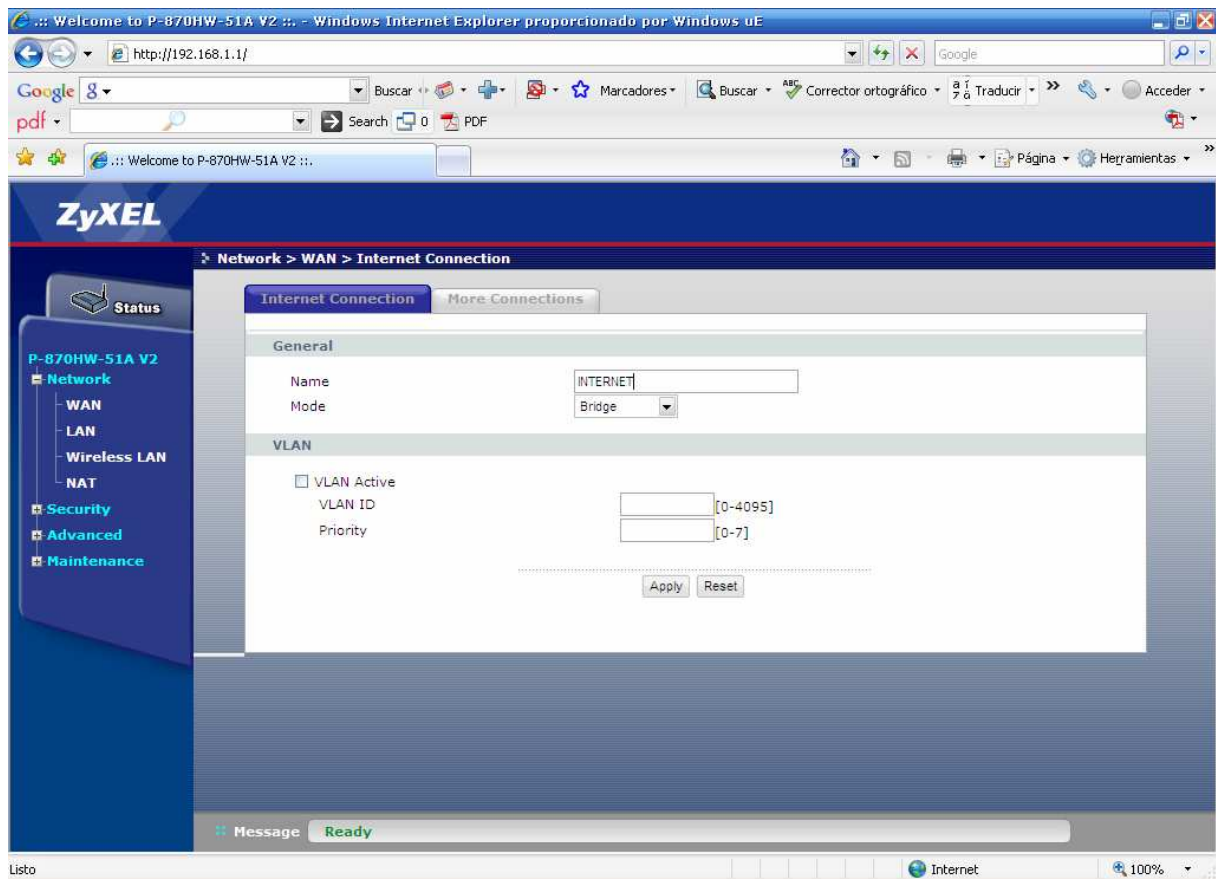
In the configuration process of the PPPoE client installed on the PC you will need to introduce username and password to establish the connection. Additionally it will be required



both PC and router to have IP visibility. To do that, both devices must be configured in the same IP private network range. As we take factory default settings as starting point, then the router will have the IP address 192.168.1.1 with network mask 255.255.255.0 and the PC will receive the IP settings through DHCP. If it were necessary, refer to the *CPE User's Guide* to see how to restore factory default settings in your router.

It is not mandatory, but you can configure the DHCP server settings with the values referred in the **Figure 3-2: Private network address configuration options in multiuser mode**

Go to: **Network -> WAN -> Internet connection**. In the screen displayed, select the option "Bridge" in the *General-Mode* field (see figure 3.6).



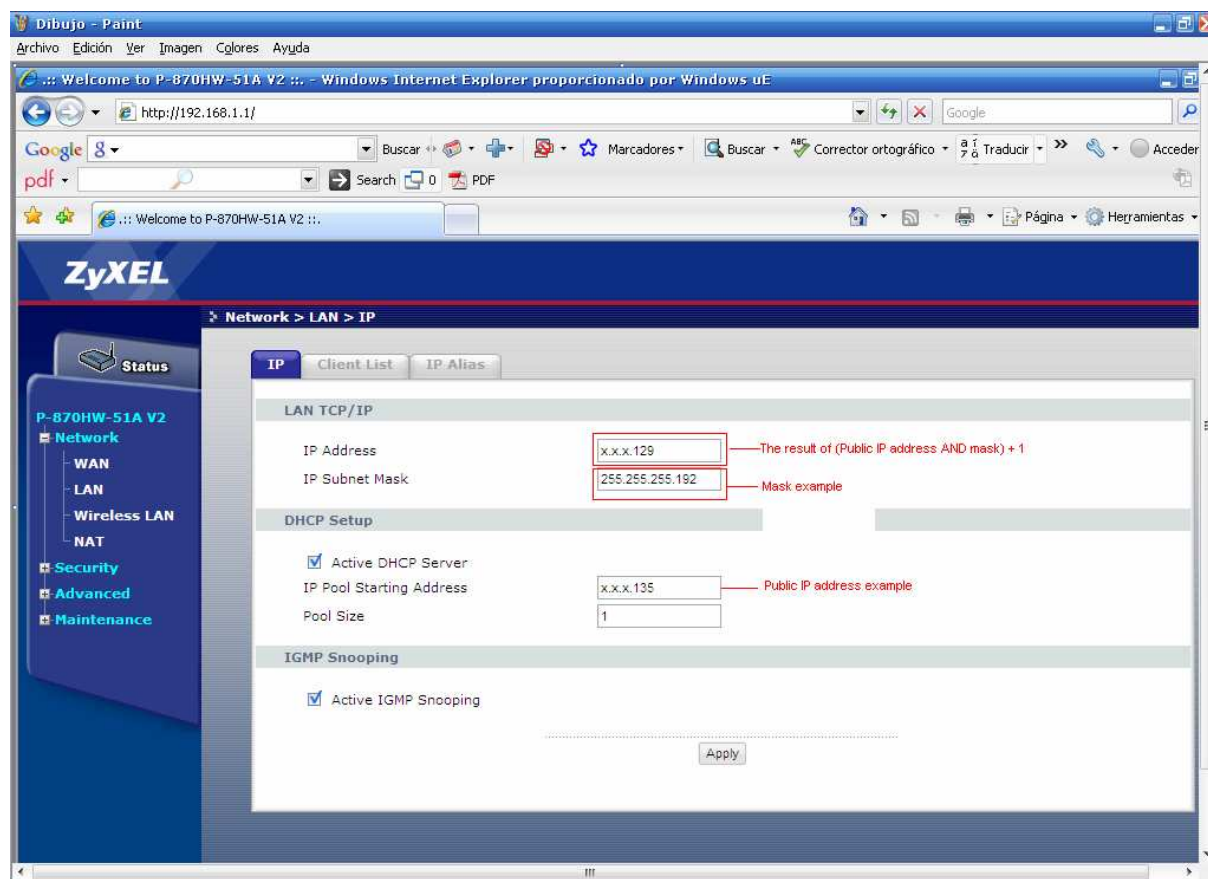
**Figure 3-6: WAN options configuration in monouser dynamic mode**

Once introduced these values, press *Apply* button and the router will be configured as expected.

## MONOUSER STATIC

For the monouser static mode, it will be necessary to make some changes in the network settings. First of all, it will be required to assign an IP address to the router. To obtain this

address it is necessary to perform a logical AND operation between the public IP address and the network mask (these values appear in the information received from Telefonica) and add 1. For example, let's suppose your public IP address is X.X.X.135 and the network mask is 255.255.255.192. Go to: **Network** -> **LAN** -> **IP** to display next screen, in this one you can see one example showing how to fill in these fields. The rest of parameters must be configured with the proper values as shown in the figure. It is recommended not to modify them.



**Figure 3-7: Network options configuration in monouser static mode**

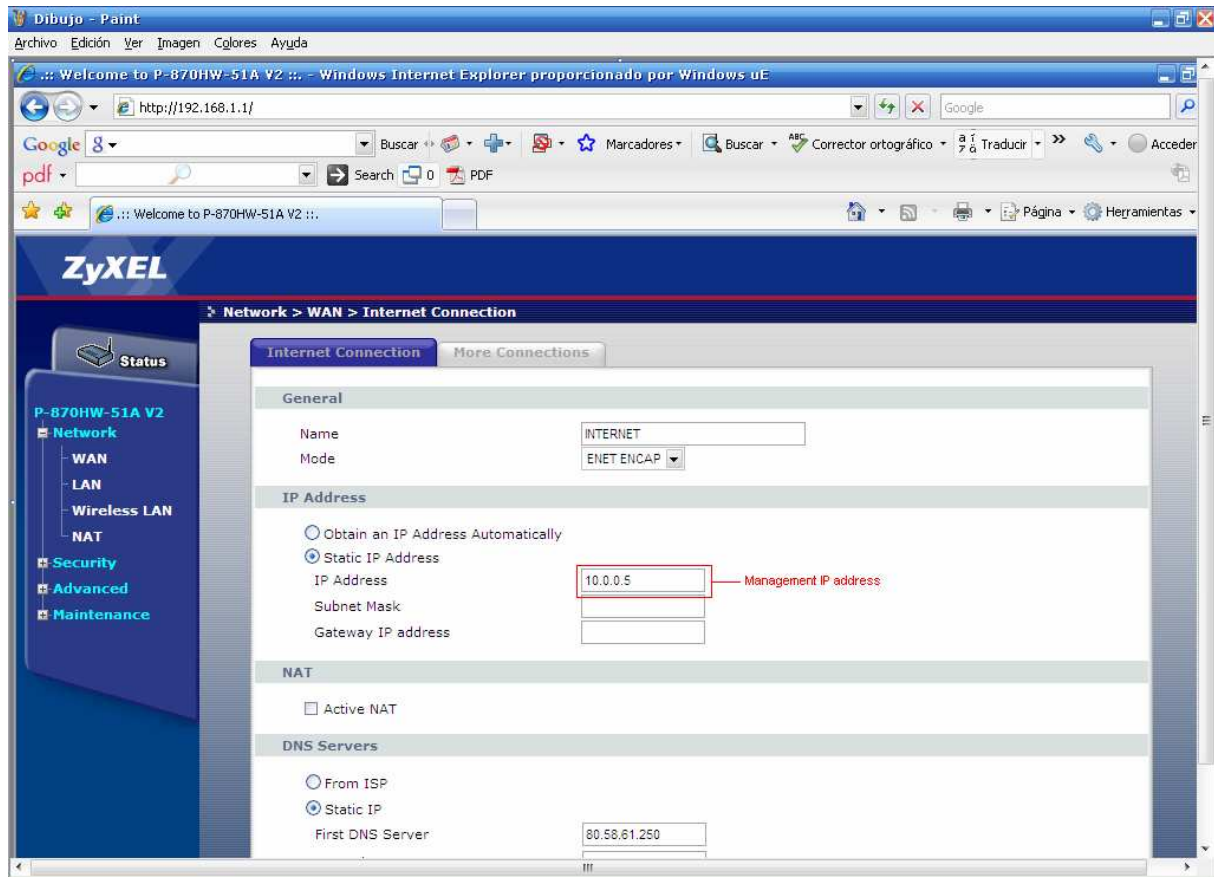
Once completed these previous fields, press *Apply* and the router will be configured as expected.

The router is configured to make the PC when asking for the IP address via DHCP, it will receive the public IP address. At this moment, you will lose the IP connectivity between your PC and the router and it will not be recovered till the PC can renew the IP address. Refer the help information in your operating system to check how to do it. In this moment you will recover the connectivity back with the router to continue the configuration process.

Now go to: **Network** -> **WAN** -> **Internet connection** and do the following actions in the screen displayed:

- In the *General-Mode* field: Select the option “ENET ENCAP”
- In the *IP Address* field: Select the option “Static IP Address”
- In the *NAT* field: Disable the option “Active NAT”

It is only required a management IP address (shown in the information received from Telefonica). In this example, it will be used the 10.0.0.5. (See figure 3.8)



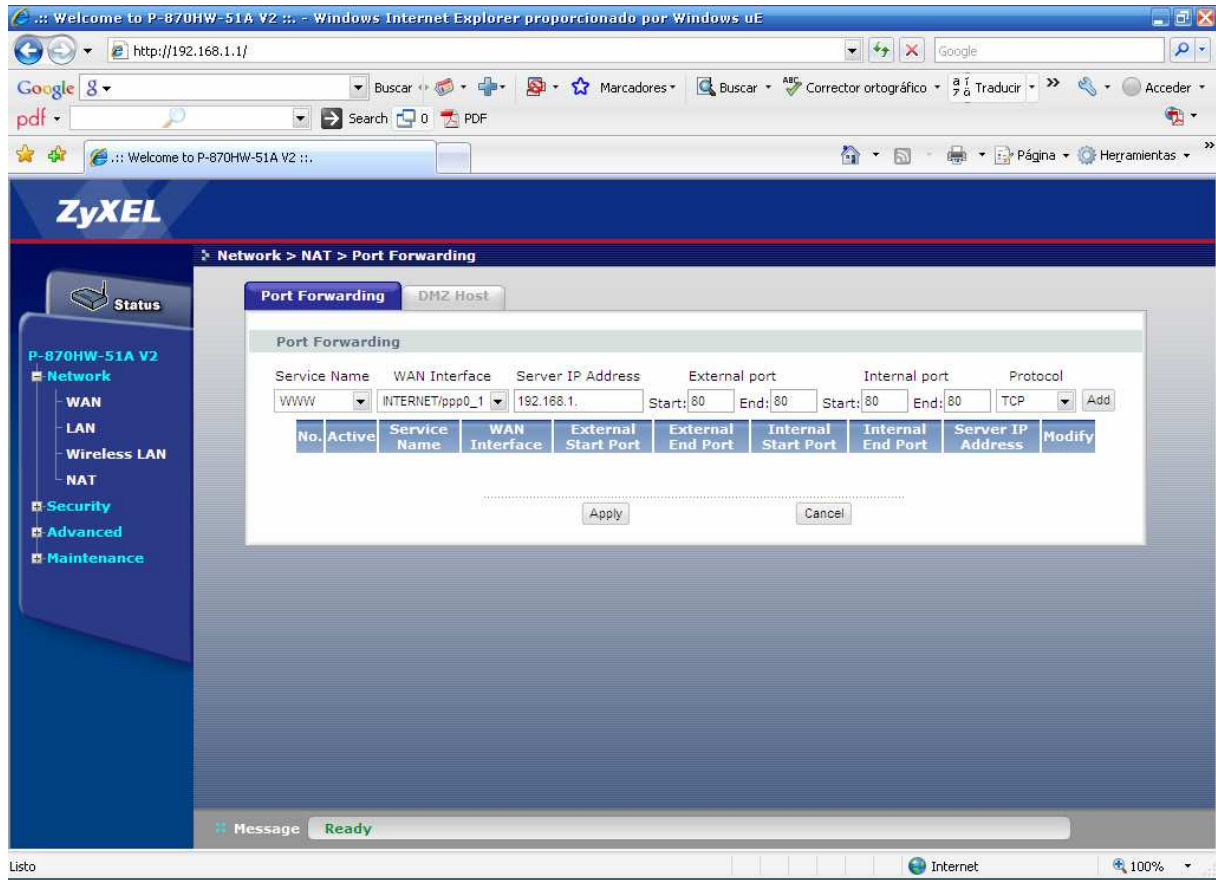
**Figure 3-8: WAN options configuration in monouser static mode**

Once completed these previous fields, press *Apply* and the router will be configured as expected.

### 3.3 PORT FORWARDING

If your router is configured in **multiuser** mode, the NAT feature will be enabled. This feature implies that you could need to forward some ports to use some applications (online gaming, videoconference, etc.).

Go to: **Network -> NAT -> Port Forwarding** to display next screen:



**Figure 3-9: Port Forwarding-1**

By deploying the “*Service Name*” option you’ll be able to see the most common ports. For these ones, you’ll only need to complete the IP addresses to what you want to forward the port.

Inside this option, select the “*User Define*” option and the following screen will be displayed:

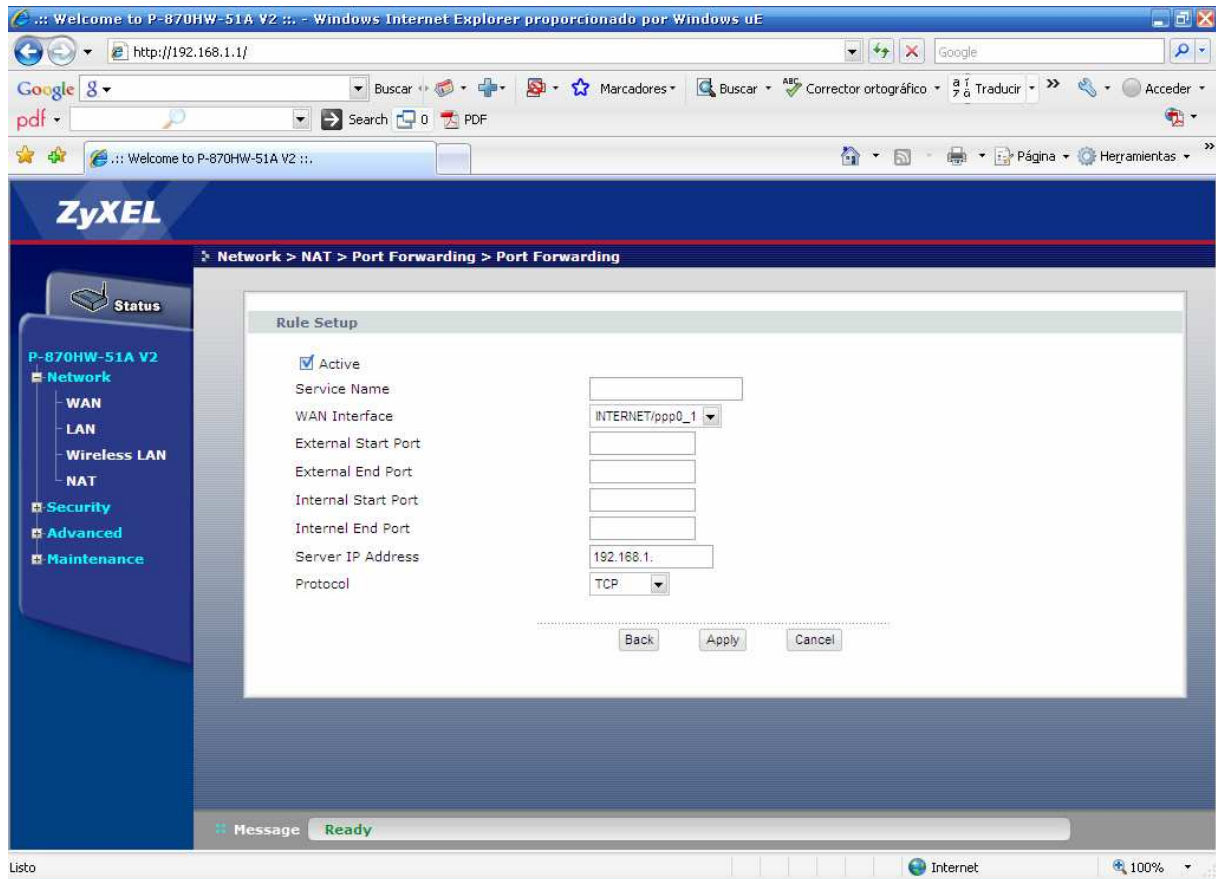


Figure 3-10: Port Forwarding-2

You can add in this screen the port you could require for the internal applications. Add as many ports as you wish. Press *Apply* and the option will be stored in the router. For safety reasons it is recommended to close all ports not in use, this is, removing them from the above table.

### 3.4 CONFIGURING THE WIRELESS LAN

If you want to configure the ADSL router Wireless LAN interface, keep in mind to use similar settings in the wireless LAN clients to be associated to the router.

If you need further information about wireless networks, please refer to the “Tutorial sobre redes WiFi” located in the [www.telefonicaonline.com/zonawifi](http://www.telefonicaonline.com/zonawifi) section.

Basically it will be necessary to configure following parameters:

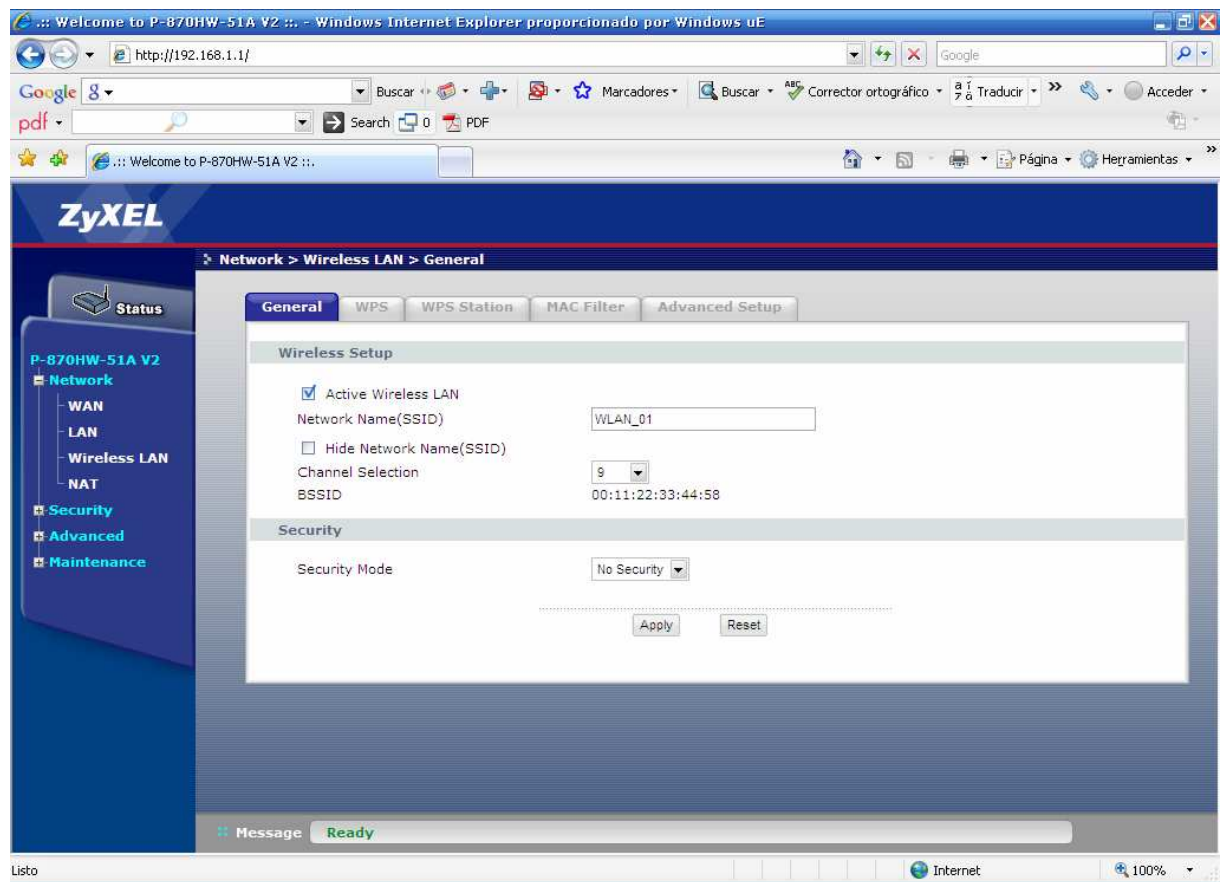
- Radio channel to be used by the access point.
- The network identifier (ESSID), it will be the name for identifying the wireless lan network.

- The encryption type. Basically there are two main encryption types to provide some privacy to the communications through the wireless interface:
  - WEP (Wired Equivalent Privacy) for Wi-Fi IEEE 802.11b and 802.11g networks.
  - WPA-PSK (Wi-Fi Protected Access / Phase Shift Keying). This is a new encryption mechanism supported in IEEE 802.11g network and only working with WLAN clients based on this standard. It is recommended to use it everytime all clients connected to the access point are 802.11g.

**Telefónica recommends, for safety reasons, to enable always some encryption in the wireless network. If the network is only based on 802.11g clients, it is suggested to use WPA encryption. But in the case some 802.11b client could be associated to the router, then it is recommended to use WEP 128-bits encryption.**

NOTE: The VDSL2 router IP address will depend on the configuration mode (multiuser/monouser , static/dynamic). In this case, we will take, as reference, the 192.168.1.1.
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To access the wireless LAN settings, go to: ***Network -> Wireless LAN -> General:***



**Figure 3-11: Wireless LAN options configuration**

In the previous screen, a generic case of wireless network without security is displayed. To enable any of the security modalities shown before, deploy the “*Security Mode*” option in the field “*Security*”:



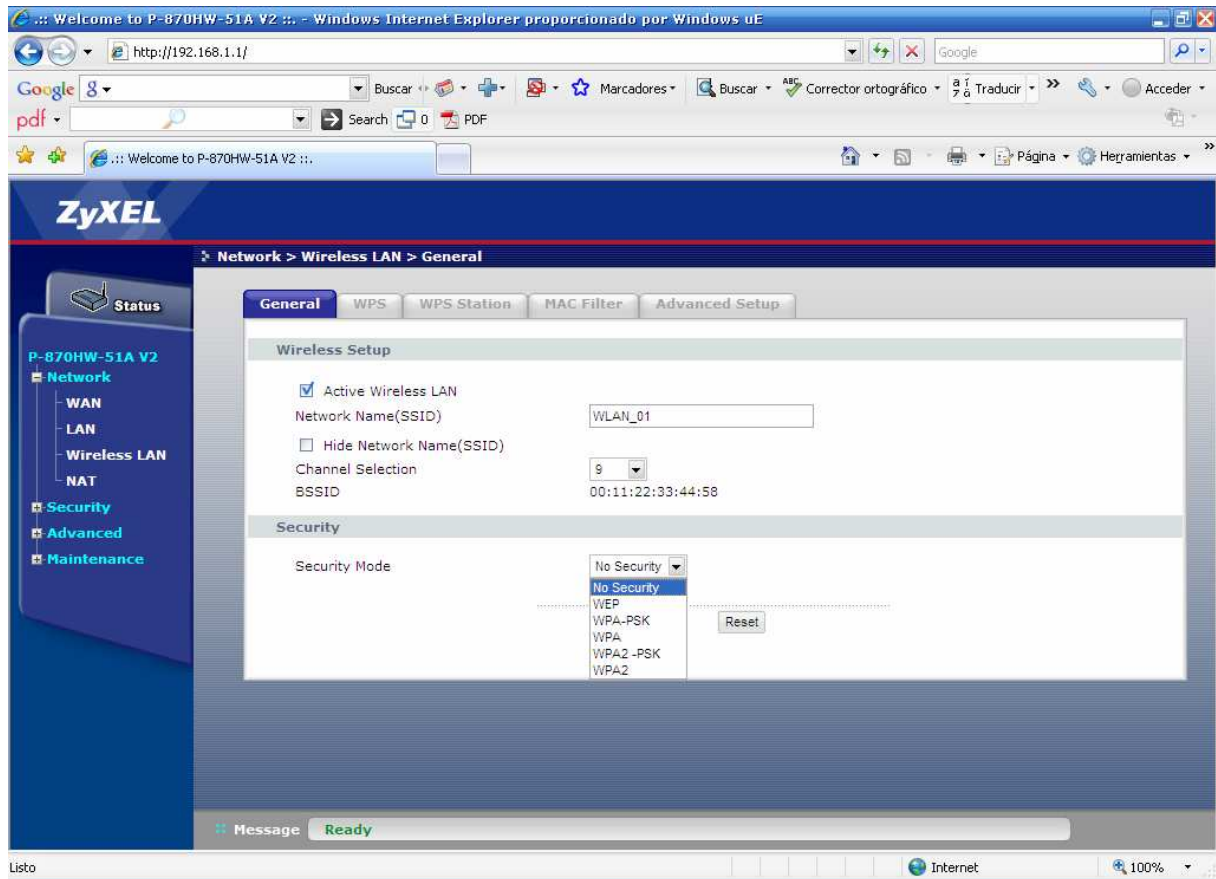


Figure 3-12: Security modalities

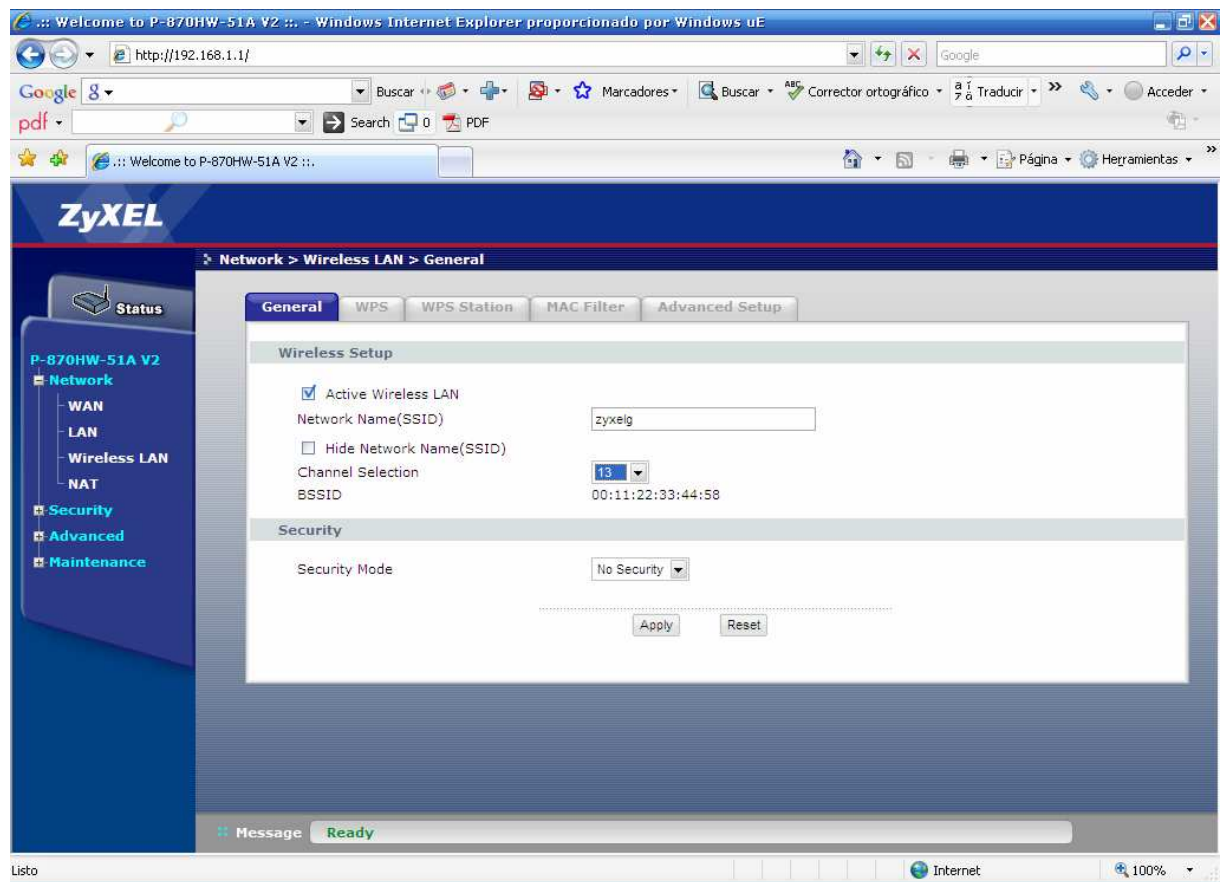
## WEP ENCRYPTION

In *Network -> Wireless LAN -> General* option you can define the required parameters (channel, ESSID, etc) and at this point decide if you want to configure the interface without WEP encryption (figure 3-13) or with the WEP encryption enabled (figure 3-14), by deploying the “*Security Mode*” option and selecting “*No Security*” or “*WEP*”.

**We strongly recommend you to avoid the No Security option.**

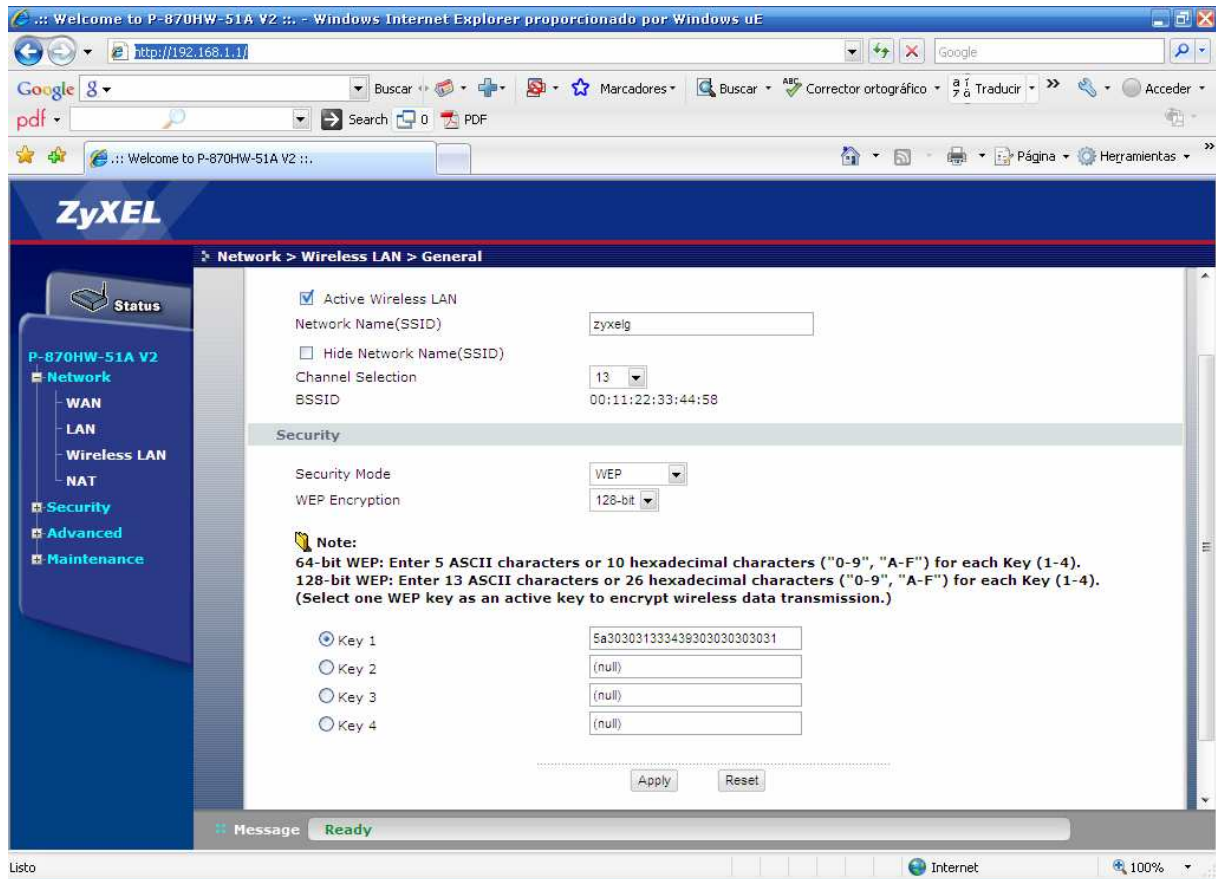
As a reference, it has been selected the channel 13, ESSID = “zyxelg” and WEP encryption with 128-bits in hexadecimal mode and encryption key 5a303031333439303030303031. Keep on mind the ESSID field will differentiate between capital and non-capital letters, and the WEP key length must be of 26 hexadecimal digits.





**Figure 3-13: Wireless LAN enabled without encryption**

Once completed previous fields, press *Apply* and the router will be configured as expected.



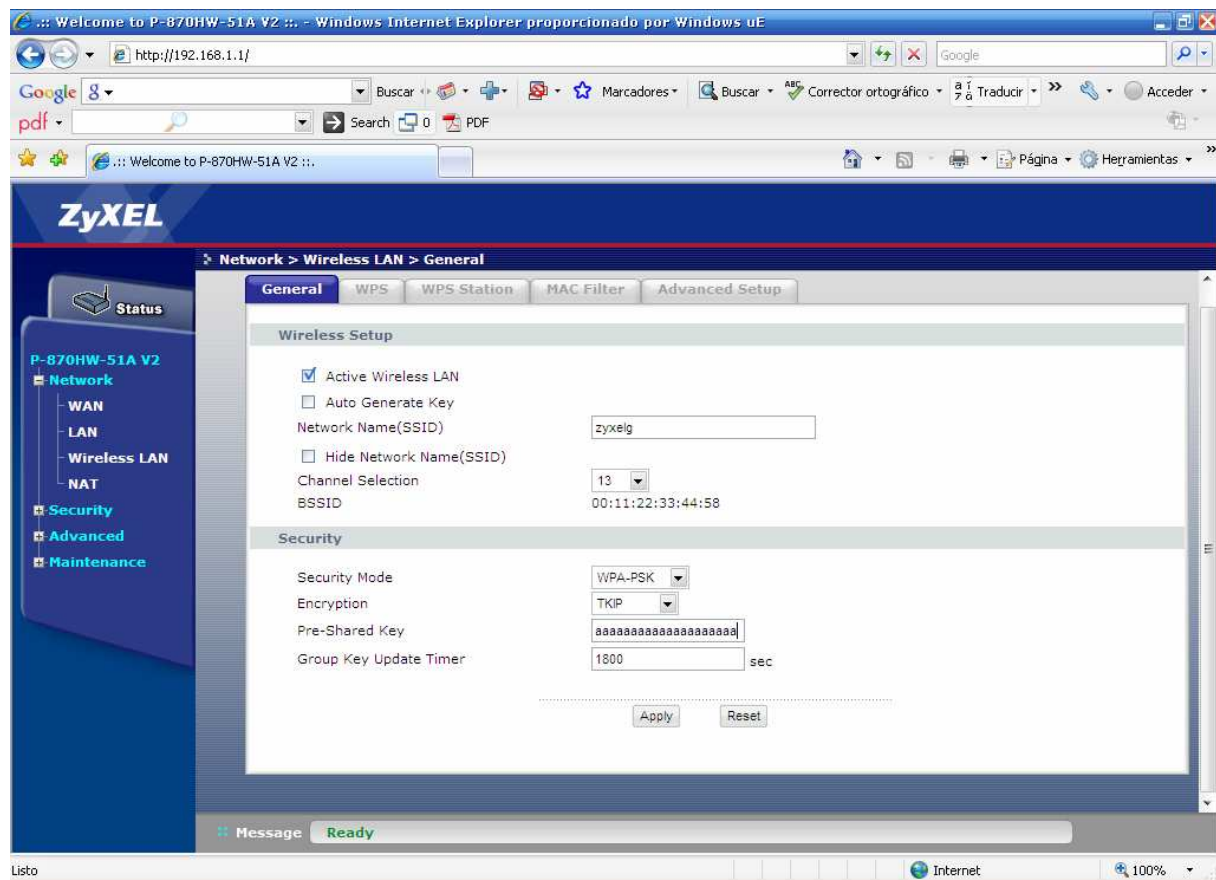
**Figure 3-14: Wireless LAN enabled with WEP encryption**

Once completed previous fields, press *Apply* and the router will be configured as expected.

## WPA ENCRYPTION

In *Network -> Wireless LAN -> General* select the WPA-PSK modality in the “Security Mode” option (see figure 3.12) and define channel and ESSID parameters. It is necessary to disable the WEP encryption (figure 3-14) before enabling WPA encryption.

In the figure 3-15 it appears an example based on this WPA encryption with channel 13, ESSID zyxelg and the key "aaaaaaaaaaaaaaaaaaaaaaaa". The WPA key must have a minimum length of 8 characters, although for safety reasons it is recommended to have at least 20 characters. This key will differentiate between capital and non-capital letters.



**Figure 3-45: WPA encryption settings**

Once introduced previous parameters, press *Apply* and the router will be configured as expected.

## 3.5 OTHER OPERATIONS

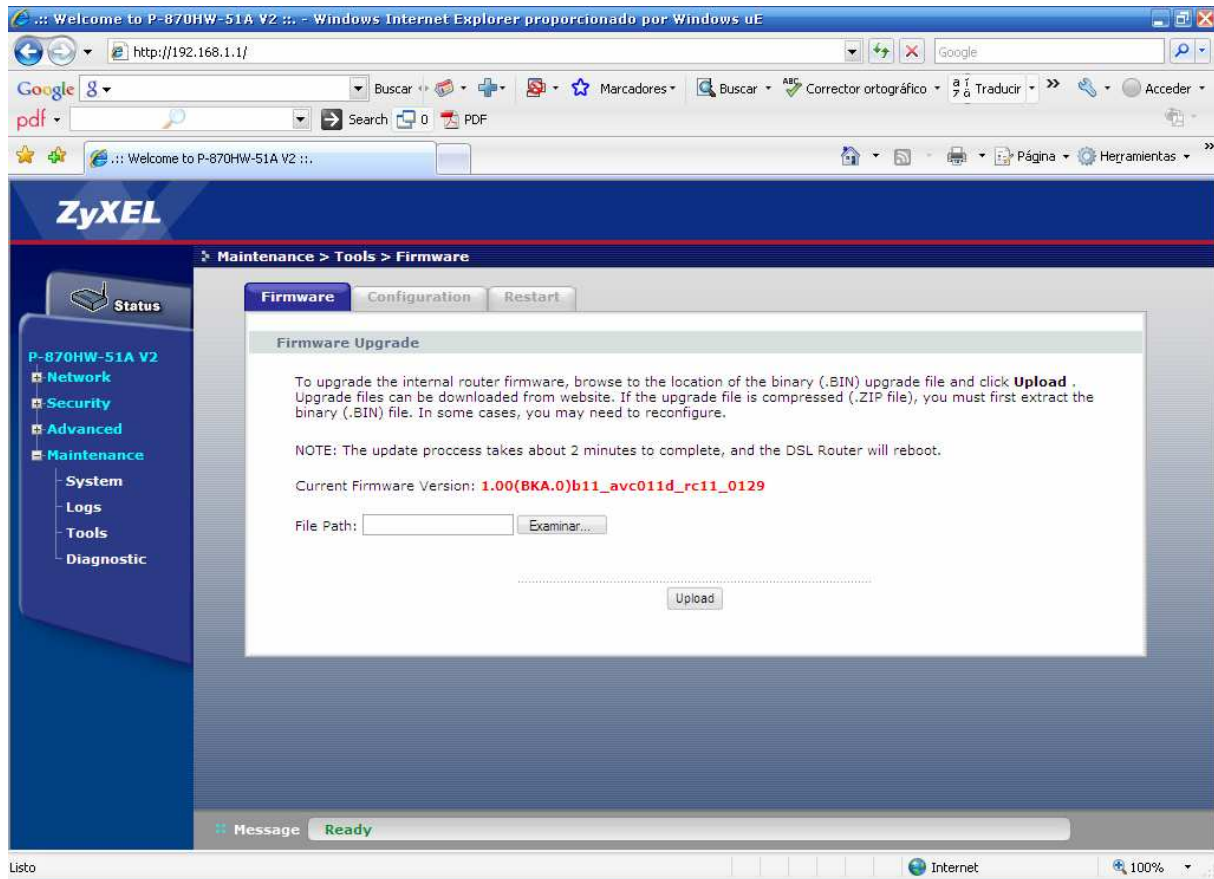
Within this section, the next operation is included:

### FIRMWARE UPGRADE

This is a **critical** operation which can make your router useless, so you must act carefully and use appropriate firmware versions. **It is a must to use OFFICIAL FIRMWARE releases approved by Telefonica for this model. In other case the guarantee period for this device will be cancelled.**

Before starting with this firmware upgrade please **REMIN**D to disconnect the ADSL line from your router.

Go to: *Maintenance -> Tools -> Firmware* (See Figure 3.16)



**Figure 3-56: Firmware upgrade**

Press the *Examinar* button, look for the file containing the firmware in your PC and press *Upload*. The process will start and you will be informed about the process progress till it was completed. **REMIN**D not to switch off the ADSL router nor disconnect it from the PC during the upgrading process.

Wait few minutes for the router reboots. Once the router is initialized again, check the current settings and if it were necessary, reconfigure it again. Please don't forget to connect back the ADSL line to your router.