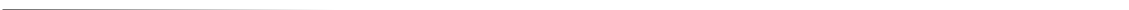


**Web user interface guide to
Basic settings and operational modes**

Xavi X7968r



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1. Introduction

The factory default configuration of the X7968 ADSL router should be suitable for most users, to connect to internet after following the instructions given in the “User guide” document. Nevertheless it could happen that the user requires special configuration of the router in order to allow specific applications to run properly (mainly online games and alike).

For those basic operational modes or configurations, the included software tool (Agente ADSL) is the easiest way to accomplish the desired settings when the user’s computer O.S. is Windows (2000, XP or Vista) and is the recommended procedure. Only experienced users or those not using Windows O.S. should use the Web GUI procedures explained in this manual.

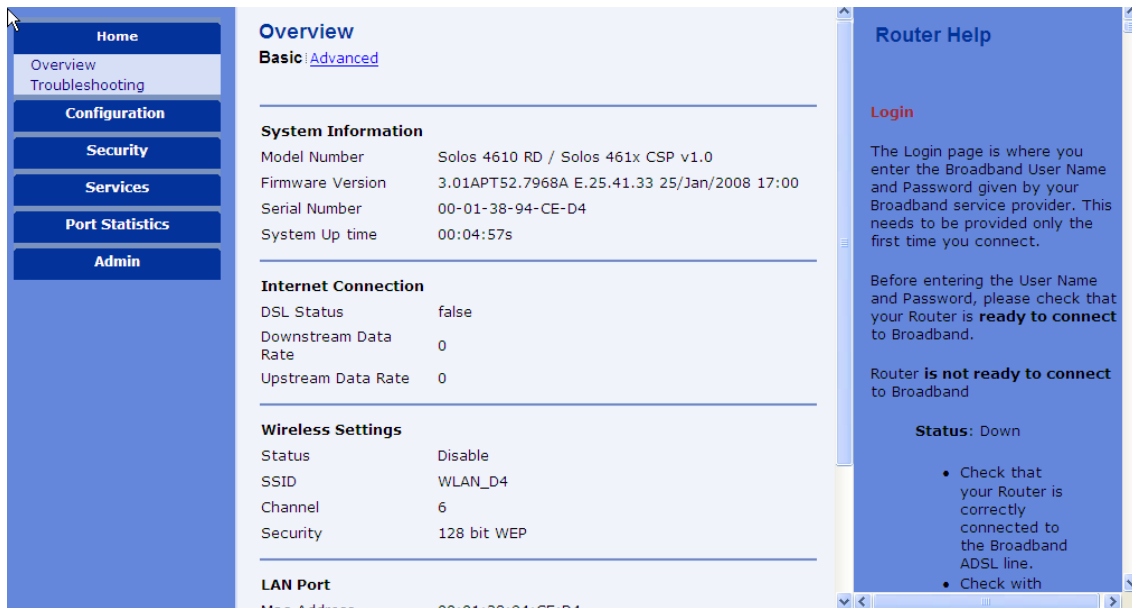
WARNING: Telefonica de España can not be held responsible for the device configuration using this manual. The present manual is sole responsibility of Amper/Xavi.

X7968 ADSL router has a built in web GUI that allows complete configuration for all of its features. Based on these web pages, it will be shown examples how to accomplish each operational mode

Firstly on the search web, access home page of the router’s GUI, using a web browser and pointing it to <http://192.168.1.1>. A popup window will come up to ask for user’s name and password. The default value for both is “1234”. Click to “Accept” button.

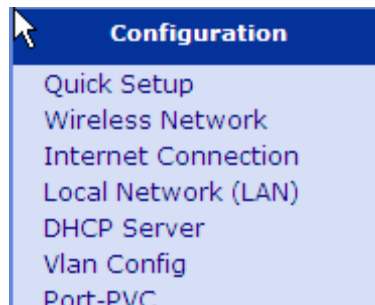


Once introduced, the home page will be shown. If it is not shown please verify that your PC’s IP address belongs to the router’s IP subnet (192.168.1.1). Eventually you could require to reset to default conditions by means of the RESET button on the rear (see Annex in the User Manual).



The left column shows a menu that gives access to the pages with the actual information shows and the settings to do. The right column shows some contextual information for the page shown.

Under the “Configuration” menu it is shown most of the menu options for the complete router configuration.



Telefonica’s ADSL services can be grouped into two main types depending on how the public IP is given to the service you have purchased:

Most common service **PPPoE (also called “dynamic IP”)**. In this service, the public IP will be assigned to your line when it first connects, this IP address will change every time the router connects). In order to establish the connection, you need a special “service user name” and “service password” that will be provided by Telefonica. Your router will use both automatically once properly configured (it is already configured for this from the factory).

“**Static IP**” assigns a fixed public IP to your ADSL line. This IP address will be always “your public IP” and will identify you in the internet and will be provided to you when you purchase the service along with a few other data (IP mask, management IP and management mask) with same format as IP address (i.e.

four numbers with dots (".") between them. In this case you will receive a letter¹ with your configuration parameters.

Besides those two services depending on what you purchase, there is also two options to organize the internal domestic LAN:

“Multiple stations”, this operation mode allows to connect many computers and share the external single internet connection. This requires the use of a special feature in the router called “NAT” (Network Address Translation) that manages the translation of the internal IP addresses of the different devices into the single public IP of your Internet connection. In this operation mode the internal devices are not visible or reachable from Internet so you increase the LAN security. The disadvantage is that there may be special applications that can’t work under this configuration (though very odd) and will require the use of the “single station” operation mode.

“Single station”, this operation mode only one equipment can connect to internet at a time. The advantage in this mode is that the connected equipment is directly connected to internet. So there is no restriction to the kind of applications that can be used. On the other hand, the disadvantage of being directly connected: the internal equipment will be visible and reachable from everywhere out in the internet and can be (and most probably will be) target of hacker programs. It is highly recommended to use good firewall software in “single station” mode. The X7968 built in firewall can also be used for this task. Please learn more in the User manual included in your CD under “Documentación del fabricante” folder.

Based on above operational modes and the IP services hired, there are four different scenarios that require different router configurations. The specific router settings required for these four scenarios will be shown next:

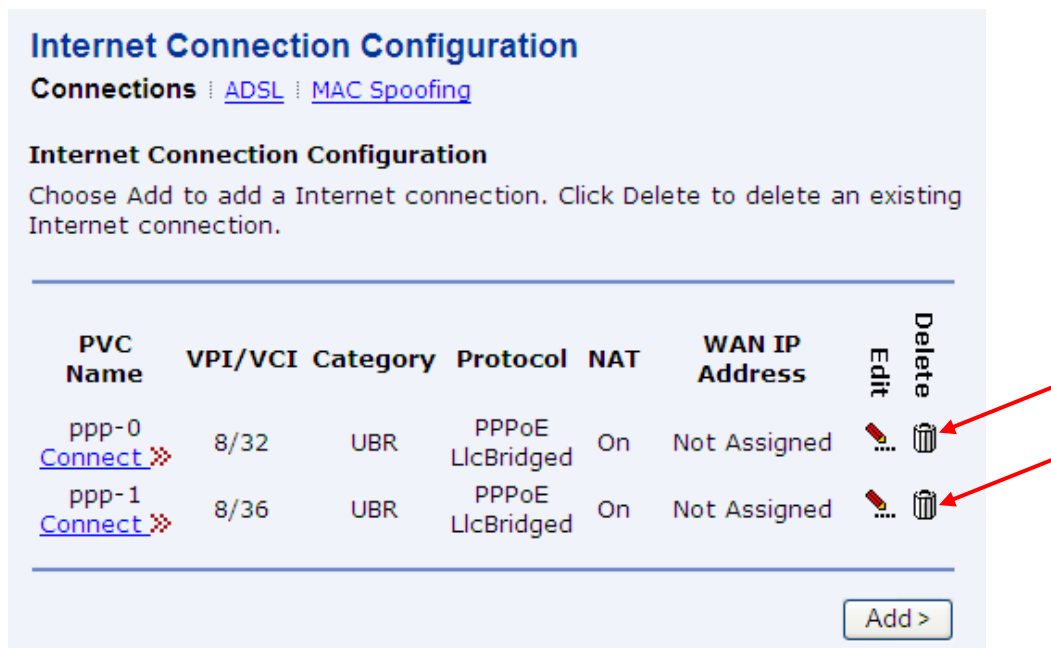
¹ Welcome service letter delivered by Telefónica de España or alternatively you can get your data calling customer care phone number 900 502 010

2. Dynamic IP, multiple stations.

This is the factory default settings in your X7968 router, so there is no need for any special settings in order to get it (just reset to factory default settings). Anyway, in order to show an example on how to configure this mode by means of web GUI, continue the description process.

Clear any existing WAN services and create a new one. From home page:

- Click on Configuration / Internet Connection / Delete



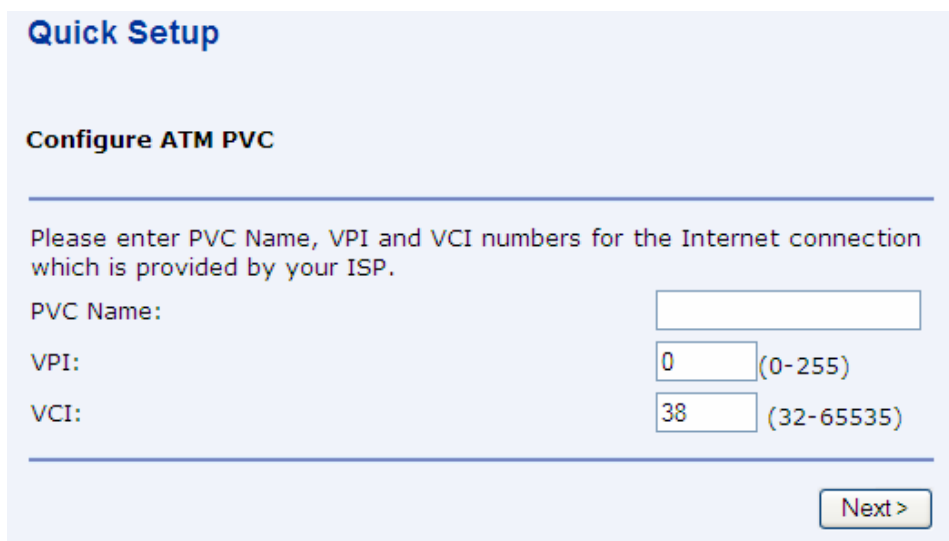
Internet Connection Configuration
[Connections](#) | [ADSL](#) | [MAC Spoofing](#)

Internet Connection Configuration
Choose Add to add a Internet connection. Click Delete to delete an existing Internet connection.

PVC Name	VPI/VCI	Category	Protocol	NAT	WAN IP Address	Edit	Delete
ppp-0 Connect ✖	8/32	UBR	PPPoE LlcBridged	On	Not Assigned		
ppp-1 Connect ✖	8/36	UBR	PPPoE LlcBridged	On	Not Assigned		

[Add >](#)

- Next, create a new service clicking on “Configuration / Quick Setup”



Quick Setup

Configure ATM PVC

Please enter PVC Name, VPI and VCI numbers for the Internet connection which is provided by your ISP.

PVC Name:

VPI: (0-255)

VCI: (32-65535)

[Next >](#)

- Put name to the new PVC as your prefer (i.e. “ppp”) and write the proper values for VPI (8) and VCI (32) and click “Next”.

Quick Setup

Configure Connection Type

Select the protocol and encapsulation type with the ATM PVC that your ISP has instructed you to use.

Protocol:

- PPP over ATM (PPPoA)
- PPP over Ethernet (PPPoE)
- RFC1483(Routed)
- Bridging

Encapsulation Type:

Encapsulation Mode:

- Choose “PPP over Ethernet”
- Choose “LLC/SNAP” for “Encapsulation Type”
- Choose “Routed” for “Encapsulation Mode”
- Click “Next”

Quick Setup

Configure WAN IP Settings

Enter information provided by your ISP to configure the WAN IP settings.

Enable/Disable the Access Concentrator option

Access Concentrator:

Obtain an IP address automatically

Use the following IP address:

WAN IP Address:

Enable NAT

Add Default Route

- Choose “Obtain an IP address automatically”
- Choose “Enable NAT”
- Choose “Add Default Route”
- Click “Next”

The screenshot shows a 'Quick Setup' window with the title 'Configure Broadband User Name and Password'. Below the title is a horizontal line, followed by the instruction: 'To use your Broadband service, please verify your Broadband user name and password.' There are three input fields: 'Broadband User Name:' containing 'adslppp@telefonicanetpa', 'Password:' containing seven dots, and 'Confirm Password:' containing seven dots. Below these are radio buttons for 'Session established by:'. The 'Always On' option is selected. Under 'Always On', there is a checkbox for 'Consider Lanside Traffic Only' which is unchecked, followed by a text box with '0' and the word 'minutes'. The 'Dial on Demand' option is also present and unchecked. Below 'Dial on Demand', there is another checkbox for 'Consider Lanside Traffic Only' which is unchecked, followed by a text box with '0' and the word 'minutes'. At the bottom right of the form are two buttons: 'Next >' and 'Cancel'.

- Write “adslppp@telefonicanetpa” in “Broadband User Name” textbox. (1)
- Write “adslppp” in the “Password” textbox. (1)
- Write “adslppp” in the “Confirm Password” textbox. (1)
- Choose “Always On”
- Click “Next”

(1) You can confirm this values reading the welcome service letter or calling at 900 502 010

Quick Setup

Configure LAN side Settings

Enter your Router IP address and subnet mask for LAN interface and then enable DHCP server on LAN interface to provide IP address settings for your computers.

Primary IP Address:

Subnet Mask:

Configure Virtual IP address and subnet mask

Virtual IP Address:

Subnet Mask:

MTU:
(default: 1500)

DHCP Server Enable Disable

There is no need to modify any of the of the parameters in this page.

- Click “Next”

A summary of the configuration about to be set will be shown.

Quick Setup

Make sure that the settings below match the settings provided by your ISP.

Internet(WAN) Configuration:

VPI / VCI	8 / 32
Connection Type	PPPoE LLC/SNAP, Always On
NAT	On
WAN IP Address	Automatically Assigned
Default Route	On

LAN Configuration:

Primary LAN IP	192.168.1.1 / 255.255.255.0
Secondary LAN IP	0.0.0.0 / 0.0.0.0
DHCP Server	On

Click "Cancel" to discard these settings. Click "Apply" to make modifications.

Click "Apply" to save and apply the new settings.

The management of the IP addresses for the internal computers can be done by the router using the built in DHCP server (this is default configuration) or, manually by the user. You can learn how to configure and disable the DHCP server in the appendix and in the User's manual included in the CDROM.

3. Static IP, multiple stations.

Clear any existing WAN services and create a new one. From home page:

- Click on Configuration / Internet Connection / Delete

PVC Name	VPI/VCI	Category	Protocol	NAT	WAN IP Address	Edit	Delete
ppp-0 Connect	8/32	UBR	PPPoE LlcBridged	On	Not Assigned		
ppp-1 Connect	8/36	UBR	PPPoE LlcBridged	On	Not Assigned		

[Add >](#)

- Next, create a new service clicking on “Configuration / Quick Setup”

Quick Setup

Configure ATM PVC

Please enter PVC Name, VPI and VCI numbers for the Internet connection which is provided by your ISP.

PVC Name:

VPI: (0-255)

VCI: (32-65535)

[Next >](#)

- Put a name to the new PVC as your prefer (i.e. “rfc”) and write the proper values for VPI (8) and VCI (32) and click “Next”.

Quick Setup

Configure Connection Type

Select the protocol and encapsulation type with the ATM PVC that your ISP has instructed you to use.

Protocol:

- PPP over ATM (PPPoA)
- PPP over Ethernet (PPPoE)
- RFC1483(Routed)
- Bridging

Encapsulation Type:

Encapsulation Mode:

- Choose “RFC1483(Routed)”
- Choose “LLC/SNAP” for “Encapsulation Type”
- Choose “Routed” for “Encapsulation Mode”
- Click “Next”

Quick Setup

Configure WAN IP Settings

Enter information provided by your ISP to configure the WAN IP settings.

- Obtain an IP address automatically
- Use the following IP address:

WAN IP Address:

WAN Subnet Mask:

Enable NAT

- Choose “Use the following IP address”.
- Write a number of the public IP address provided by Telefonica into each textbox of “WAN IP Address”. (1)
- Write a number of the public IP address mask provided by Telefonica into each textbox of “WAN Subnet Mask”. (1)
- Check “Enable NAT” checkbox
- Click “Next”

Quick Setup

Configure LAN side Settings

Enter your Router IP address and subnet mask for LAN interface and then enable DHCP server on LAN interface to provide IP address settings for your computers.

Primary IP Address:

Subnet Mask:

Configure Virtual IP address and subnet mask

Virtual IP Address:

Subnet Mask:

MTU:
(default: 1500)

DHCP Server Enable Disable

There is no need to modify any of the of the parameters in this page.

- Click “Next”

A summary of the configuration about to be set will be shown.

(1) You can confirm this values reading the welcome service letter or calling at 900 502 010.

Quick Setup

Make sure that the settings below match the settings provided by your ISP.

Internet(WAN) Configuration:

VPI / VCI	8 / 32
Connection Type	rfc1483(Routed) LLC/SNAP,
NAT	On
WAN IP Address	80.33.22.11
Default Route	Off

LAN Configuration:

Primary LAN IP	192.168.1.1 / 255.255.255.0
Secondary LAN IP	0.0.0.0 / 0.0.0.0
DHCP Server	On

Click "Cancel" to discard these settings. Click "Apply" to make modifications.

3.1. Default configuration route.

Finally configure a default route for the router. Click on Services / IP Routing

IP Routing Configuration

Static Routing | [Dynamic Routing](#)

IP Static Route Settings

Current routes:

Destination	Netmask	Gateway	WAN Interface	Delete
-------------	---------	---------	---------------	--------

- Click "Add"

IP Routing Configuration
 Static Routing : [Dynamic Routing](#)

Add New Static Route

Destination For default route, type 0.0.0.0 or leave blank

IP Address

Netmask

Forward packets to

Gateway IP address:


Interface:

- Fill in the textboxes:
 - IP Address: 0.0.0.0
 - Netmask: 0.0.0.0
- Choose “Interface” and select the interface name defined previously (i.e. “rfc”)
- Click “Apply” and verify that the default route just configured is shown there.

IP Routing Configuration
 Static Routing : [Dynamic Routing](#)

IP Static Route Settings

Current routes:

Destination	Netmask	Gateway	WAN Interface	Delete
0.0.0.0	0.0.0.0	0.0.0.0	rfc	

The management of the IP addresses for the internal computers can be done by the router using the built in DHCP server (this is default configuration) or, manually by the user. You can learn how to configure and disable the DHCP server in the appendix and in the User’s manual included in the CDROM.

4. Static IP, single station.

Clear any existing Wan services and create a new one. From home page:

- Click on Configuration / Internet Connection / Delete

Internet Connection Configuration

[Connections](#) | [ADSL](#) | [MAC Spoofing](#)

Internet Connection Configuration

Choose Add to add a Internet connection. Click Delete to delete an existing Internet connection.

PVC Name	VPI/VCI	Category	Protocol	NAT	WAN IP Address	Edit	Delete
ppp-0 Connect >>	8/32	UBR	PPPoE LlcBridged	On	Not Assigned		
ppp-1 Connect >>	8/36	UBR	PPPoE LlcBridged	On	Not Assigned		

[Add >](#)

- Next, create a new service clicking on “Configuration / Quick Setup”

Quick Setup

Configure ATM PVC

Please enter PVC Name, VPI and VCI numbers for the Internet connection which is provided by your ISP.

PVC Name:

VPI: (0-255)

VCI: (32-65535)

[Next >](#)

- Put a name to the new PVC as you prefer (i.e. “rfc”) and write the proper values for VPI (8) and VCI (32) and click “Next”.

Quick Setup

Configure Connection Type

Select the protocol and encapsulation type with the ATM PVC that your ISP has instructed you to use.

Protocol:

- PPP over ATM (PPPoA)
- PPP over Ethernet (PPPoE)
- RFC1483(Routed)
- Bridging

Encapsulation Type:

Encapsulation Mode:

- Choose “RFC1483(Routed)”
- Choose “LLC/SNAP” for “Encapsulation Type”
- Choose “Routed” for “Encapsulation Mode”
- Click “Next”

Quick Setup

Configure WAN IP Settings

Enter information provided by your ISP to configure the WAN IP settings.

- Obtain an IP address automatically
- Use the following IP address:

WAN IP Address:

WAN Subnet Mask:

Enable NAT

- Choose “Use the following IP address”.
- Write a number of the “management” IP address provided by Telefónica into each textbox of “WAN IP Address”. (1)
- Write a number of the “management” IP address mask provided by Telefónica into each textbox of “WAN Subnet Mask”. (1)
- Do **NOT** check “Enable NAT” checkbox
- Click “Next”

The screenshot shows a web-based configuration interface titled "Quick Setup". Under the heading "Configure LAN side Settings", there is a section for entering LAN interface settings. The text reads: "Enter your Router IP address and subnet mask for LAN interface and then enable DHCP server on LAN interface to provide IP address settings for your computers." Below this, there are two textboxes: "Primary IP Address" containing "80.33.22.1" and "Subnet Mask" containing "255.255.255.0". A checkbox labeled "Configure Virtual IP address and subnet mask" is unchecked. Below it are two more textboxes for "Virtual IP Address" and "Subnet Mask", both empty. Further down, the "MTU" is set to "1500" with "(default: 1500)" below it. The "DHCP Server" section has two radio buttons: "Enable" (unchecked) and "Disable" (checked). At the bottom right, there are two buttons: "Next >" and "Cancel".

- In the textbox “Primary IP Address” write the result of the Boolean operation [(IP AND Mask) OR 1], where IP is the “public” IP address provided by Telefonica (see appendix). (1)
- In the textbox “Subnet mask” write the “public” IP mask provided by Telefónica. (1)
- Disable DHCP server by checking “Disable”.
- Click “Next”

(1) You can confirm this values reading the welcome service letter or calling at 900 502 010.

Quick Setup

Make sure that the settings below match the settings provided by your ISP.

Internet(WAN) Configuration:

VPI / VCI	8 / 32
Connection Type	rfc1483(Routed) LLC/SNAP,
NAT	Off
WAN IP Address	10.111.12.2
Default Route	Off

LAN Configuration:

Primary LAN IP	80.33.22.1 / 255.255.255.0
Secondary LAN IP	0.0.0.0 / 0.0.0.0
DHCP Server	Off

Click "Cancel" to discard these settings. Click "Apply" to make modifications.

- Click "Apply". Once you click there will be no response from the router web GUI because the IP address of the router has changed. Nevertheless, the new configuration is already saved in the router.
- Now, you must configure TCP/IP settings on your PC. The IP address and mask should be the "public" IP address and mask provided by Telefonica. For the gateway IP address you must use the IP address just given to the router (see previous page). You also must configure DNS servers on TCP/IP settings according to the information provided by Telefonica. For a reference on how to do this please refer to "User manual" under "Ayuda" folder.
- Once the PC is configured with new TCP/IP settings please check that you can reach the router again at the new address (80.33.22.1 in this example).

Last step requires the configuration of a default route in the router. Please follow exactly the same approach explained in page 3.2 section.

5. Dynamic IP, single station.

Clear any existing WAN services and create a new one. From home page:

- Click on Configuration / Internet Connection / Delete

Internet Connection Configuration

Connections | [ADSL](#) | [MAC Spoofing](#)

Internet Connection Configuration

Choose Add to add a Internet connection. Click Delete to delete an existing Internet connection.

PVC Name	VPI/VCI	Category	Protocol	NAT	WAN IP Address	Edit	Delete
ppp-0 Connect >>	8/32	UBR	PPPoE LlcBridged	On	Not Assigned		→
ppp-1 Connect >>	8/36	UBR	PPPoE LlcBridged	On	Not Assigned		→

- Next, create a new service clicking on “Configuration / Quick Setup”

Quick Setup

Configure ATM PVC

Please enter PVC Name, VPI and VCI numbers for the Internet connection which is provided by your ISP.

PVC Name:

VPI: (0-255)

VCI: (32-65535)

- Put a name to the new PVC as you prefer (i.e. “rfc”) and write the proper values for VPI (8) and VCI (32) and click “Next”.

The screenshot shows a 'Quick Setup' dialog box with the following content:

Quick Setup

Configure Connection Type

Select the protocol and encapsulation type with the ATM PVC that your ISP has instructed you to use.

Protocol:

- PPP over ATM (PPPoA)
- PPP over Ethernet (PPPoE)
- RFC1483(Routed)
- Bridging

Encapsulation Type:

Encapsulation Mode:

- Choose “Bridging”
- Choose “LLC/SNAP” for “Encapsulation Type”
- Click “Next”

Internet Connection Configuration

Configure WAN IP Settings

Enter information provided by your ISP to configure the WAN IP settings.

None
 Obtain an IP address automatically
 Use the following IP address:

WAN IP Address:
WAN Subnet Mask:

Obtain DNS server address automatically
 Use the following DNS server address:

Primary DNS server:
Secondary DNS server:

This page should be kept unmodified. Click “Next”.

Quick Setup

Configure LAN side Settings

Enter your Router IP address and subnet mask for LAN interface and then enable DHCP server on LAN interface to provide IP address settings for your computers.

Primary IP Address:
Subnet Mask:

Configure Virtual IP address and subnet mask

Virtual IP Address:
Subnet Mask:

MTU:
(default: 1500)

DHCP Server Enable Disable

There is no need to modify any of the of the parameters in this page..

- Click “Next”

A summary of the configuration about to be set will be shown.

Quick Setup

Make sure that the settings below match the settings provided by your ISP.

Internet(WAN) Configuration:

VPI / VCI	8 / 32
Connection Type	Bridging LLC/SNAP,
NAT	Off
WAN IP Address	None
DNS Server	None
Default Route	Off

LAN Configuration:

Primary LAN IP	192.168.1.1 / 255.255.255.0
Secondary LAN IP	0.0.0.0 / 0.0.0.0
DHCP Server	On

Click "Cancel" to discard these settings. Click "Apply" to make modifications.

- Click “Apply” and the configuration will be done.

In this mode, the PC must get the public IP itself. In order to do that, a special software (PPPoE client) is required to establish Internet connection. If you are using Windows XP or Windows 2000 or Windows Vista you can use the PPPoE client built into the O.S. (Remote Access feature). For other O.S. you may have to use different applications (WinPoEt for example). The client must be used to connect to open a connection dialog. (1)

(1) You can confirm this values reading the welcome service letter or calling at 900 502 010.

6. Appendix

6.1. DHCP server configuration.

From home page:

- Click on Configuration/DHCP server.

The screenshot shows the 'DHCP Server Configuration' page. At the top, there are links for 'Global Settings' and 'Server Settings'. The main heading is 'DHCP Server Configuration', followed by a descriptive paragraph: 'This page allows you enable and disable the DHCP server. Also you can specify the interfaces that DHCP Server will operate on.' Below this is a section for 'DHCP server status' with the text 'DHCP server is currently' and two radio buttons: 'Enable' (which is selected) and 'Disable'. An 'Apply' button is located to the right. The next section is 'DHCP server interfaces', with instructions: 'Use this section to edit the list of IP interfaces that the DHCP server will operate on. DHCP server status must be disabled for adding new DHCP server interface or deleting existing DHCP server interface.' It features a table with columns 'Name' and 'Delete'. Below the table, there is a form with 'IP interface' and a dropdown menu showing 'eth0', followed by an 'Add' button.

- In order to enable or disable the service, check the appropriate radio button and “Apply”
- Click on the link “Server Settings” to configure the server. This is not recommended unless you are an advanced user.




DHCP Server Configuration



[Global Settings](#) : **Server Settings**

DHCP Server Configuration

This page allows creation of DHCP server subnets and DHCP server fixed host IP/MAC mappings.

Existing DHCP server subnets

Subnet Value	Subnet Mask	Use local host address as DNS server	Use local host address as default gateway	Assign Auto Domain Name	Edit	Delete	Edit Ip Ranges
192.168.1.0	255.255.255.0	false	true	true			

- Click on icon  under **Edit** in order to modify the subnet of the server. Click on icon  under “**Edit Ip Ranges**” to simply modify the range of IP addresses that the server will use to share with the clients.
- You can read more on the User Manual in the CDROM under “Documentación del fabricante” folder.

6.2. How to calculate the Gateway IP after “public” IP and mask provided by Telefonica.

Each number in the IP (or mask) separated by “.” Should be written as an 8 digit binary number. The boolean operation “AND” must be done between IP address and mask in a one to one basis and the the rightmost number incremented in 1. Finally each number is again written in decimal code.

(IP AND MASK) OR 1

Operation table (truth table):

AND	0	1	OR	0	1
0	0	0	0	0	1
1	0	1	1	1	1

Example:

IP: 80.20.10.50

Netmask: 255.255.255.0

Each value is written as an 8 digit binary number and AND'ed between .

```

IP:      01010000 . 00010100 . 00001010 . 00110010
Mask:    11111111 . 11111111 . 11111111 . 00000000 ← AND.
-----
01010000 . 00010100 . 00001010 . 00000000
                                                1 ← OR.
01010000 . 00010100 . 00001010 . 00000001
    
```

decimal



Gateway IP: 80.20.10.1