

# Quadro

## The IP PBXs



# Manual I: Installation Guide

for Quadro2x, 2xi; Quadro4x, 4xi; Quadro16x, 16xi;  
SW Version 5.2.x

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The Epygi Quadro2x, Quadro2xi, Quadro4x, and Quadro4xi have been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which is found by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the device.
- Connect the equipment to an outlet on a different circuit from the receiver.
- Consult a dealer or an experienced Radio/TV technician for assistance.

You are cautioned that any change or modification to the equipment not expressly approved by the manufacturer could void the user's authority to operate this device.

## FCC Statement (Part 15) Class A

- The Epygi Quadro16x and Quadro16xi have been tested and found to comply with the limits for a class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which is found by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the aforementioned measures.

You are cautioned that any change or modification to the equipment not expressly approved by the manufacturer could void the user's authority to operate this device.

### **Administrative Council for Terminal Attachments (ACTA) Customer Information**

This equipment complies with Part 68 of the FCC rules and the requirements adopted by the ACTA. On the back of this equipment is a label that contains, among other information, a product identifier in the format US:AAAEQ###TXXXX, made out to HX7OT00BHX70100. If requested, this number must be provided to the telephone company.

Any plug or jack that is used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ATCA.

The Ringer Equivalence Number is an indicator of the maximum number of devices allowed for connection to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirements that the sum of the RENs of all the devices does not exceed five. Excessive RENs on a telephone line may result in the devices not ringing in response to an incoming line. The REN for this product is part of the product identifier that has the format US:AAAEQ###TXXX, made out to HX7OT00BHX70100. The digits represented by ### are the REN without a decimal point (in this case 00B is a REN of 0.0B.)

If the Quadro causes harm to the telephone network, the telephone company will notify you in advance that a temporary discontinuance of service may be required. But if advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice for you to make the necessary modifications to maintain uninterrupted service.

Connection to a party line service is subject to state tariffs. Contact the state public utility commission, public service commission or the corporation commission for information.

If your home has specially wired alarm equipment connected to the telephone line, ensure the installation of the Quadro does not disable your alarm equipment. If you have any questions about what will disable alarm equipment, consult your telephone company or a qualified installer.

### **Electrical Safety Advisory**

To reduce the risk of damaging power surges, we recommend you install an AC surge arrestor in the AC outlet from which the Quadro is powered.

### **Industry Canada Statement**

This product meets the applicable Industry Canada technical specifications.

### **Safety Information**

Before using the Quadro, please review and ensure the following safety instructions are adhered to:

- To prevent fire or shock hazard, do not expose your Quadro to rain or moisture.
- To avoid electrical shock, do not open the Quadro. Refer servicing to qualified personnel only.
- Never install wiring during a lightning storm.
- Never install telephone jacks in wet locations unless the jack is specified for wet locations.
- Never touch uninsulated telephone wire or terminals unless the telephone line has been disconnected at the network interface.
- Use caution when installing or modifying cable or telephone lines.
- Avoid using your Quadro during an electrical storm.
- Do not use your Quadro or telephone to report a gas leak in the vicinity of the leak.
- An electrical outlet should be as close as possible to the unit and easily accessible.

### **Emergency Services**

The Quadro SIP Service is intended to function as a secondary telephone service. This service is made available through the Internet and therefore is dependent upon a constant source of electricity and network availability. If a power outage occurs, the Quadro SIP Service automatically will be disabled. User understands in the event of a power or network outage, the Quadro SIP Service will not support 911 emergency services, and further, such services only will be available via the user's regular telephone line that is not connected to the Quadro. User further acknowledges that any interruption in the supply or delivery of electricity or network availability is beyond Epygi's control and Epygi shall have no responsibility for losses arising from such interruption.

# Table of Contents

## Manual I: Installation Guide

About This Installation Guide .....	6
Requirements.....	8
Hardware Overview.....	9
The Connectors Panel of Quadro2x, 4x and 16x.....	9
The Connectors Panels of Quadro2xi, 4xi and 16xi.....	11
Quadro's Front Panel LEDs.....	12
Step 1: Installing the Quadro .....	14
Networking Overview.....	14
LAN/WAN Connection Options .....	15
Connecting the Hardware .....	17
Step 2: Configuring the Quadro .....	19
Step 2.1: Logging in to Quadro .....	20
Step 2.2: System Configuration Wizard.....	21
System Configuration .....	21
DHCP Settings for the LAN Interface .....	22
Regional Settings.....	22
Emergency and PSTN Access Code Settings .....	23
Finishing the System Configuration Wizard .....	24
Step 2.3: Internet Configuration Wizard.....	26
Uplink Configuration.....	27
WAN IP Configuration .....	28
PPP/PPTP Configuration.....	29
WAN Interface Configuration .....	30
DNS Settings .....	30
Finishing the Internet Configuration Wizard.....	31
Step 2.4: Firewall Configuration .....	32
Step 2-A: Using IP Lines .....	32
Supported SIP Phones.....	36
Tested SIP Phones.....	36
Step 2-B: Using Receptionist .....	38
Step 2-C: Using ISDN Lines.....	38
Step 3: Registering on Epygi's Technical Support.....	44
Step 4: Making/Receiving Calls .....	45
Using the Default SIP Addresses.....	45
Appendix: PC DHCP Settings .....	47
Appendix: Changing the Admin Password .....	49
Appendix: Configuring NAT Traversal.....	51
Appendix: Registering on Epygi's SIP Server.....	53
Appendix: Checking the Connections .....	58

**Appendix: Pin Assignment of ISDN ..... 61**

**Manual II: see Administrator's Guide**

This guide describes in detail the menus available for administrators only. Furthermore, it includes all the system's default values at a glance.

**Manual III: see Extension User's Guide**

This guide describes in detail the menus available for extension users. Furthermore, it includes all the call codes at a glance.

## About This Installation Guide

This Installation Guide explains the installation of the Quadro IP PBXs of Quadro2x/2xi, Quadro4x/4xi and Quadro16x/16xi series. The Quadro models differ both in their feature sets and the number of phone lines and extensions that are supported:

- **Quadro2x** offers 1 phone line (FXO), 2 phone extensions (FXS) and 1 Ethernet WAN port
- **Quadro2xi** offers 1 phone line (ISDN), 2 phone extensions (FXS) and 1 Ethernet WAN port
- **Quadro4x** supports 2 phone lines (FXO), 4 phone extensions (FXS) and 1 Ethernet WAN port - a special version of Quadro4x offers 2 additional FXO lines
- **Quadro4xi** supports 1 phone line (ISDN), 4 phone extensions (FXS) and 1 Ethernet WAN port - a special version of Quadro4xi offers 2 additional ISDN lines
- **Quadro16x** supports 4 phone lines (FXO), 16 phone extensions (FXS) and 1 Ethernet WAN port
- **Quadro16xi** supports 3 phone lines (ISDN), 16 phone extensions (FXS) and 1 Ethernet WAN port

The installation procedure for all Quadro IP PBXs is the same. Throughout this Installation Guide, the standard edition of the Quadro4x with two FXO ports is shown as the reference system.

This Installation Guide gives step-by-step instructions to provision the Quadro and configure the phone extensions with the Epygi SIP Server. After successfully configuring the Quadro, a user will be able to make SIP phone calls to remote Quadro devices, make local calls to the PSTN and access the Internet from devices connected to the LAN.

This Installation Guide neither describes the PBX, Auto Attendant, Call Relay, and Voice Mail features of the Quadro nor does it provide advanced firewall and VPN configuration information. For these features, refer to the Administrator's and Extension User's Guides.

[Step 1: Installing the Quadro](#) explains the connection of cables and devices to the Quadro.

[Step 2: Configuring the Quadro](#) describes the configuration steps necessary to integrate the Quadro into your network environment.

[Step 2-A: Using IP Lines](#) explains how to configure IP lines on the Quadro IP PBX and to connect IP phones to become functional in the Quadro's LAN.

[Step 2-B: Using Receptionist](#) refers to the document describing Receptionist's configuration on the Quadro.

[Step 2-C: Using ISDN Lines](#) explains how to configure ISDN trunks and to define a default outgoing MSN.

[Step 3: Registering on Epygi's Technical Support](#) shows you how to access the Epygi Technical Support Center and the Epygi SIP Server.

[Step 4: Making/Receiving Calls](#) explains how to enable the Quadro's various telephony features.

[Appendix: PC DHCP Settings](#) explains how to configure your PC to access the Quadro Configuration GUI.

[Appendix: Changing the Admin Password](#) explains how to change the default administrator password.

[Appendix: Configuring NAT Traversal](#) explains configuration of the Quadro if it is placed behind a NAT enabled router.

[Appendix: Registering on Epygi's SIP Server](#) explains how to register on Epygi's powerful SIP server.

[Appendix: Checking the Connections](#) gives hints on solving common problems.

## Requirements

- One 120/240 VAC power outlet in close proximity to the Quadro.
- One RJ45 Ethernet 10/100 broadband Internet connection.
- At least one RJ11 telephone connection is recommended to connect the Quadro to the PSTN network (all Quadro IP PBXs with FXO ports). For ISDN Quadros an RJ45 CAT 5 cable is needed to connect Quadro to ISDN.
- At least one off-the-shelf analog phone with an RJ11 telephone cable.
- One CAT 5 Ethernet cable with an RJ45 connector to connect to the Quadro LAN port.
- One PC with a 10/100 Mbps Ethernet card or adapter installed.
- TCP/IP network protocol installed on each PC.
- For optimal results, Internet Explorer 5.5 or higher, or Netscape Navigator 4.7 or higher are recommended.

**Please Note:** All Quadro IP PBXs are shipped with one RJ11 cable and one straight RJ45 CAT 5 cable. If the LAN connector of the Quadro connects to a hub or switch, a crossover cable may be required.

Other cables are added according to the different connectivity requirements of the Quadro IP PBX types.

# Hardware Overview

## The Connectors Panel of Quadro2x, 4x and 16x

The illustration below includes the connectors panel of regular Quadro models in plastic enclosure.

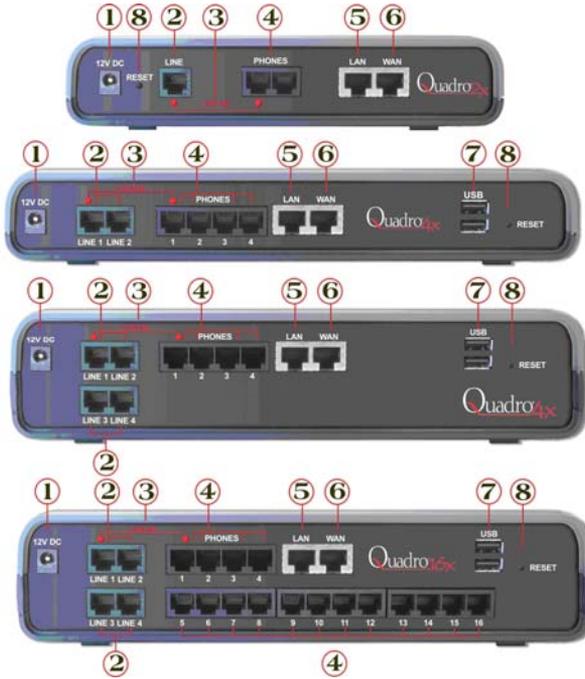


Fig. I-1: Regular Quadro's Connectors Panels in plastic enclosure

The illustration below includes the connectors panel of regular Quadro models in rack mountable enclosure.

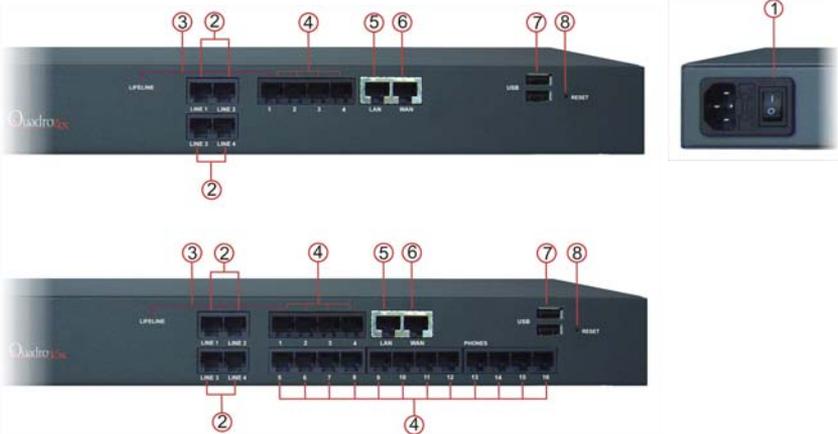


Fig. I-2: Regular Quadro's Connectors Panels in rack mountable enclosure

- 1 Power supply socket. **Use only the power adapter delivered with the Quadro.**
- 2 LINE sockets to connect the Quadro to the PSTN network using standard analog phone service. These are FXO (Foreign Exchange Office) analog ports.
- 3 In the event of a power failure, PHONE 1 is connected to LINE 1, allowing the phone to send/receive phone calls directly to the PSTN network. PHONE 1 is powered by the PSTN.

**Please Note:** Only LINE 1 is connected to PHONE 1 during a power failure. The other LINE and PHONE ports are not connected together.

- 4 PHONE sockets with RJ11 connectors enable connectivity of regular analog telephones. These are FXS (Foreign Exchange Station) analog ports. As a factory default, the phones connected to PHONE sockets 1-3 (1-2 for Quadro2x) are configured as voice extensions. PHONE socket 4 is preconfigured for a fax machine.
- 5 RJ45 socket to attach to the Local Area Network (LAN) via an Ethernet CAT 5 cable. If a PC is connected directly to this socket, a straight cable is used. If an Ethernet hub, router or switch is used; a crossover cable may be required.
- 6 RJ45 socket to attach the Internet Uplink (WAN) via an Ethernet CAT 5 cable.
- 7 The USB socket enables connectivity of USB flash memory providing expansion for additional voice mails and record data. Refer to the Administrator's Guide for supported devices.
- 8 The Reset button may be used in two ways: (1) to initiate a normal reset or (2) to carry out a factory reset. A normal reset is executed by pressing the Reset button with a paper clip for an instant.

Pressing the reset button and holding it down for seven seconds or more will execute a factory reset. This will restore the factory defaults and clear all settings including the IP address and the administration password you entered.

**Please Note:** A Factory Reset forces the default LAN IP address of 172.30.0.1 and default admin password of 19.

## The Connectors Panels of Quadro2xi, 4xi and 16xi

The illustration below includes the connectors panel of ISDN flavored Quadro models in plastic enclosure.



Fig. I-3: ISDN/Ethernet flavored Quadro's Connectors Panels in plastic enclosure

The illustration below includes the connectors panel of ISDN flavored Quadro models in rack mountable enclosure.

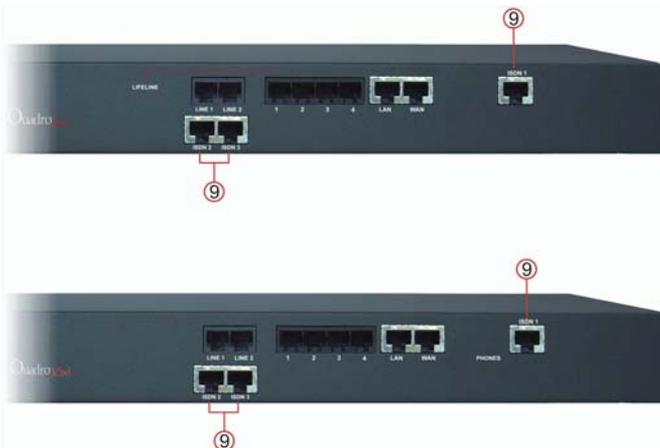


Fig. I-4: ISDN/Ethernet flavored Quadro's Connectors Panels in rack mountable enclosure

- 9 RJ45 socket(s) to connect the Quadro to the ISDN-PSTN network using a digital phone service.

## Quadro's Front Panel LEDs

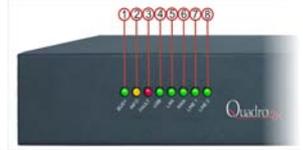


Fig. I-5: Quadro's Front Panel LEDs

1	<b>Busy</b> green Status of CPU	<b>off:</b> no power <b>on or blinking:</b> normal activity	
2	<b>Info</b> yellow System information	<b>on:</b> device is booting <b>off:</b> no information <b>blinking:</b> an event occurred; details specified in the System Event section of the Management interface	
3	<b>Fault</b> red System status	<b>on</b> either an error or the device is booting <b>off:</b> no error <b>blinking:</b> system unusable	
4	<b>USB</b> green Status of the USB interface	<b>on:</b> USB memory device installed correctly <b>off:</b> no USB memory device found (Quaro2x: not used)	
	<b>PWR</b> (Quadro2x only) green Status of the power supply	<b>on:</b> power supply ok <b>off:</b> no power supply or device is still booting (Quadro2x only)	
5	<b>LAN</b> green Status of the LAN interface	<b>on:</b> link ok <b>off:</b> no link <b>flickering:</b> traffic on the link	
6	<b>WAN</b> green Status of the WAN interface	<b>on:</b> link ok <b>off:</b> no link <b>flickering:</b> traffic on the link	
7	<b>Line1</b> green	Status of the: FXO LINE (Quadro2x) FXO LINE 1 (Quadro4x) FXO LINE 1 or 2 (Quadro16x, 4x special edition)	<b>on:</b> line in use <b>off:</b> line not in use
		Status of ISDN (Quadro2xi, 4xi, 16xi)	<b>on:</b> one or more (but not all) channels are busy <b>off:</b> all channels are free <b>flickering:</b> at least one of the started trunks is disconnected
8	<b>Line2</b> green	Status of the: FXO LINE 2 (Quadro4x) FXO LINE 3 or 4 (Quadro16x, 4x special edition) (Quadro2x: not used)	<b>on:</b> line in use <b>off:</b> line not in use
		Status of ISDN (Quadro2xi, 4xi, 16xi)	<b>on:</b> all channels are busy <b>off:</b> free channels available <b>flickering:</b> at least one of the started trunks is disconnected

### LED indication during a firmware update

A firmware update is indicated by the red (**Fault**) and yellow (**Info**) LEDs. Both will blink simultaneously for about two minutes while the firmware is being updated. The Quadro will then reboot automatically showing the boot LED sequence.

### LED indication during a boot sequence

A boot sequence is indicated as follows: The red **Fault** LED will glow for a few seconds, then the yellow **Info** LED will glow for another four or five minutes while the green **Busy** LED is blinking. Once the **Info** LED is off, the boot sequence has been completed successfully.

### LED indication during emergency firmware upload

The red **Fault** LED and the yellow **Busy** LEDs will stop blinking alternately and start blinking in parallel. This shows that Quadro has accepted the emergency firmware and is loading it. After a few seconds, Quadro will boot, indicated as follows: The red **Fault** LED will glow for a few seconds, then the yellow **Info** LED will glow for another few seconds while the green **Busy** LED is jittering. When the yellow **Info** LED extinguishes, the boot sequence has been completed successfully.

# Step 1: Installing the Quadro

## Networking Overview

To establish a connection between the Internet and your local area network (LAN), an access router is needed. The Quadro IP PBX serves, among other functions, as an access router, and will perform the task of connecting your LAN, or a group of one or more PCs, to the wide area network (WAN) or the Internet. The Quadro will process and regulate the data traffic between these two networks. All Quadro IP PBXs have one LAN port that can connect to Ethernet hubs and switches on the LAN, allowing additional devices to be connected to the network.

The Quadro is a device with two sides: one side connects to your LAN, and the other side connects to the Internet, or the WAN. Quadro's firewall and Network Address Translation (NAT) functionality protects your LAN from being seen from the Internet side making the LAN private and secure.

The Ethernet WAN port transmits up to 10 Mbps, and the LAN port transmits at 10 Mbps or 100 Mbps.

Every device within an IP network requires a unique IP address to identify itself. Since the Quadro connects to both the LAN and the WAN, it has to be part of both networks, and must have two IP addresses: one for the WAN side and one for the LAN side. The Quadro's integrated firewall/NAT functionality will hide the LAN IP address from the WAN (Internet) side.

There are two ways of assigning an IP address: statically or dynamically.

A Static IP address is a fixed, manually assigned IP address that remains valid until changed. If you plan to use the Quadro as your Internet access router, contact your Internet Service Provider (ISP) to find out if a static IP address is assigned to your account. If so, you will need this static IP address when configuring the Quadro device.

A dynamic IP address is a temporary address that is automatically assigned by your ISP and will change periodically. If your ISP offers a dynamic IP address, the Quadro will act as a DHCP client and will receive a new IP address from the ISP's DHCP server or PPPoE feature.

**Please Note:** A DHCP client is a piece of software that requests an IP address from a DHCP server. A DHCP server assigns on request a unique IP address to a device. The Quadro, like many routers, acts as a DHCP client on its WAN interface and as a DHCP server on its LAN interface.

The Quadro must be visible to the Internet to be able to receive and send VoIP calls. When the Quadro is placed in a private network, typically behind existing routers, it will by default attempt to pass through the NAT of this router with its STUN (Simple Traversal of UDP over NAT) feature. STUN will work without user configuration with the majority of basic routers. In some scenarios, port forwarding on the router is required to make the Quadro accessible to other Quadro devices and the Epygi SIP Server on the Internet. Another configuration option is to use the Quadro as the Internet access router, connected directly to the WAN, eliminating the traverse to the local NAT firewall.

## LAN/WAN Connection Options

- A Quadro IP PBX with an Ethernet WAN port behind a router, which is connected to a cable or xDSL modem.

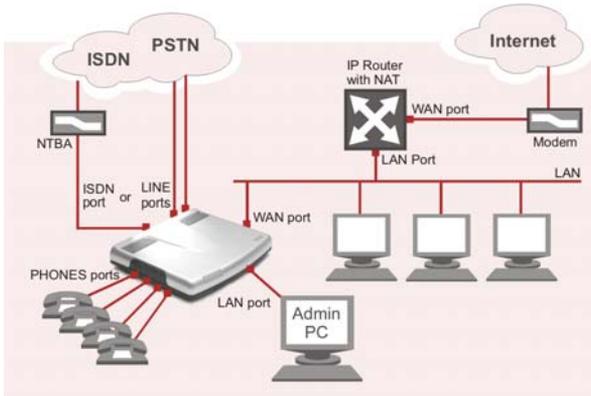


Fig. I-6: Configuration: Quadro behind a router

In this configuration (Fig.I-7), the IP router typically acts as a DHCP server for the LAN and assigns the IP addresses to the PCs and other devices. The Quadro can be connected through its WAN port directly to one of the router's LAN ports and will get an IP address from the router. By default, the Quadro acts as a DHCP client on the WAN port.

**Please Note:** Since Quadro uses STUN by default, it will work with most basic routers without any further configuration.

**Please Note:** Initially, the Admin PC must be connected to the Quadro LAN port to access Web Management of the Quadro. Later, this PC can be moved to the router's LAN. The Quadro Web Management can be accessed from any PC in the router's LAN as soon as the firewall is disabled on the Quadro.

- A Quadro IP PBX used as an Internet Access Router, connected directly to the Internet

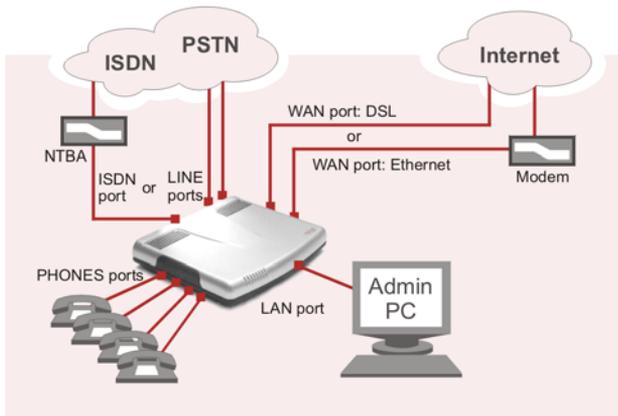


Fig. I-7: Configuration: Quadro used as Internet Access Router

**Please Note:** The Admin PC is connected to the Quadro LAN port to access the Web Management of the Quadro. After the initial configuration has been completed, this PC can then be moved to the LAN and connect to the Quadro over a switch (see Fig.I-7). You also may reach the Quadro for its first configuration from an Admin PC within the LAN, but this may cause collisions in case of non-fitting IP addresses and competing DHCP servers.

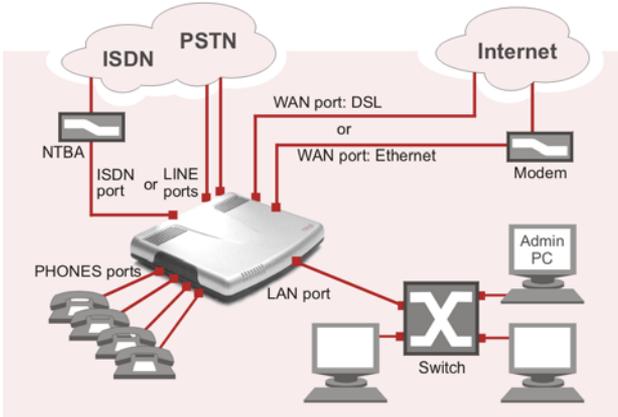


Fig. I-8: Configuration: Quadro used as Internet Access Router with a switch connected to the LAN port

If the user already operates a router connected to the cable or DSL modem and has devices behind the router, the router is disconnected from the modem and the Quadro is inserted between the modem and the router (see Fig.I-9). The Quadro serves as an Internet access router and DHCP server. The Quadro will be configured to connect directly to the Internet through a cable or DSL modem. The router then is connected to the Quadro LAN port.

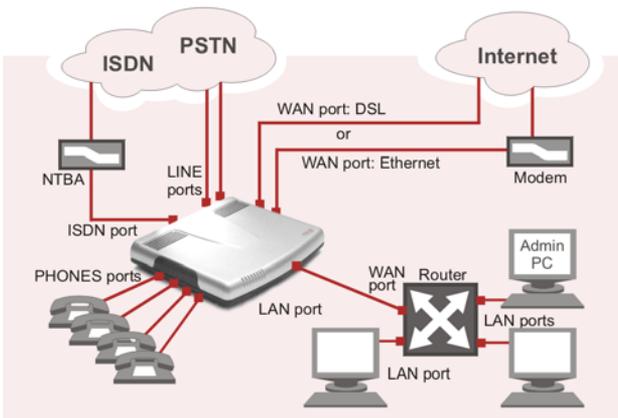


Fig. I-9: Configuration: Quadro used as Internet Access Router with a router connected to the LAN port

**Please Note:** If there are services configured behind the existing router such as Web or gaming servers, these services also must be configured through the Quadro firewall for proper operation. Refer to the Administrator's Guide for more information.

## Connecting the Hardware

- Quadro4x behind a router**  
 Quadro2x and Quadro16x are connected accordingly.

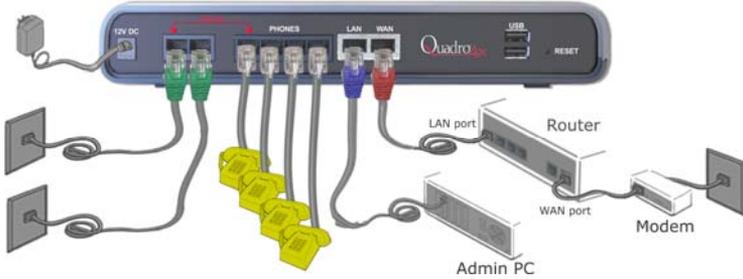


Fig. I-10: Installation: Quadro4x behind a router

- Quadro4x used as Internet access router**  
 Quadro2x and Quadro16x are connected accordingly.

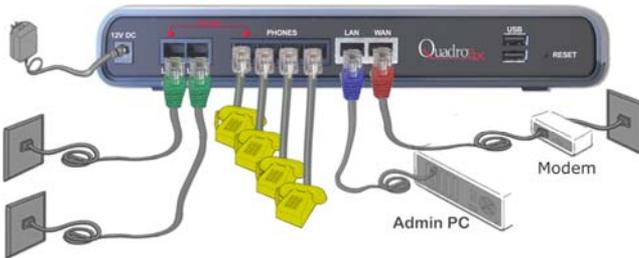


Fig. I-11: Installation: Quadro4x used as an Internet Access Router

- Quadro4xi used as Internet access router**  
 All Quadro ISDN IP PBXs are connected accordingly. They also may be connected with its Ethernet WAN port to a router (see Fig.I-9) and additionally, the ISDN ports of all Quadro devices may be joined to a PBX with ISDN interfaces.



Fig. I-12: Installation: Quadro4xi used as an Internet Access Router

- Verify the product package contents are complete. Refer to the contents sheet included in the packaging to determine if all the items were shipped in the box.
- Before you connect the hardware, make sure that all devices are powered off.
- Connect telephones to the PHONE ports on the Quadro's rear panel. You may connect as many phones as there PHONE sockets available. PHONE socket 1 must be connected to a telephone to enable lifeline support functionality.
- Connect at least one of Quadro's LINE (FXO) ports to the telephone service from the PSTN. The Quadro2x offers connectivity of one line, Quadro4x offers two lines, and the Quadro16x offers four lines. If you use a Quadro4xi, connect the Quadro's ISDN port to the digital telephone service (or to an ISDN port of a PBX).  
**Please Note:** If your Internet connection is a DSL modem, you may need to use a micro filter between the FXO LINE port and the phone line. Micro filters are typically provided by your ISP but are also available at most computer stores. If a micro filter is already installed, simply connect the RJ11 from the existing phone to the Quadro FXO port leaving the micro filter connection as is.
- Connect the Ethernet port on your PC via a straight CAT 5 cable with an RJ45 connector to the LAN socket of the Quadro. If a hub or switch is connected between the Quadro and your PC, use a crossover cable from the LAN interface of the Quadro to the hub/switch.
- Connect the WAN port of the Quadro to the Internet service via a cable or DSL modem.
- Power up the DSL or Cable modem first.
- Connect the power adapter to the POWER port on the Quadro's rear panel and plug the power adapter into a power outlet. Only use the original Quadro power adapter and plug it into a power strip with surge protection or to a UPS if available.  
The red LED (Fault) will glow for several seconds followed by the yellow LED (Info), which will glow for several minutes. When Info LED is off, the Quadro is operational.
- Power up any hub or switch followed by any PC and other devices on the LAN side.  
**Please Note:** The PC must be configured for DHCP to receive an IP address directly from the Quadro. Refer to [Appendix: PC DHCP Settings](#) for instructions on setting up a PC for DHCP operation.
- Check the LEDs: The green Busy LED must glow continuously. The green LAN and WAN LEDs will blink when cables are connected to these ports and all devices are powered up. If the green LAN and WAN LEDs do not blink, verify cabling and ensure that all devices are powered up.  
**Please Note:** CAT 5 cables can be faulty without any visual indication. The LAN and WAN LEDs verify that the Ethernet connection is established between the end points. If these LEDs are not illuminated, there is a connection problem between the Quadro and the other device. Some modems, hubs, switches and routers will require the use of crossover cables.

## Step 2: Configuring the Quadro

### Quadro IP PBXs with Ethernet WAN up-link do not require further configuration in two cases:

- **The Quadro is connected behind a basic router that has no conflicts with the STUN protocol.**
- **The Quadro is used as the Internet access router and your ISP supports DHCP.** There are no other router devices between the Quadro and the DSL or cable modem and you get the IP address assigned automatically by the ISP.

Simply power up the modem. Once the modem is up and running (after a few minutes) power up the Quadro.

Verify functionality of both IP and PSTN calls:

- **PSTN telephony:** Make an outbound PSTN call and arrange to receive an incoming call. The incoming PSTN calls will be routed to the Auto Attendant by default, and the caller has to enter a valid extension number, e.g., 11, followed by the # sign to reach a phone connected to the first PHONE port of the Quadro.
- **IP telephony:** Dial **899#** and you will hear a voice message that confirms you have successfully established an IP call. If this call is not successful, go to [Appendix: Checking the Connections](#) for troubleshooting.

You may customize the following settings by connecting the PC to Quadro's LAN port and logging in to the Quadro's Web Management:

- **Bandwidth** - to regulate the number of calls allowed by the Quadro to avoid degradation in low bandwidth conditions.
- **Time/Date** - to ensure the correct time and time zone are used for call records.
- **Regional Settings** - if your Quadro is located outside the United States, it is important to properly configure your line connections to the PSTN in your location.
- **Firewall** - if your Quadro is connected behind a router with its own firewall service running, disable the firewall to make Quadro accessible for management purposes.

## Step 2.1: Logging in to Quadro

- Start a browser (MS Internet Explorer, Netscape, Opera) on a PC connected to the LAN port.
- Enter **http://172.30.0.1** (Quadro's default LAN IP address) into the address field.
- The **Login** page of the Quadro will be displayed (see Fig.I-13).

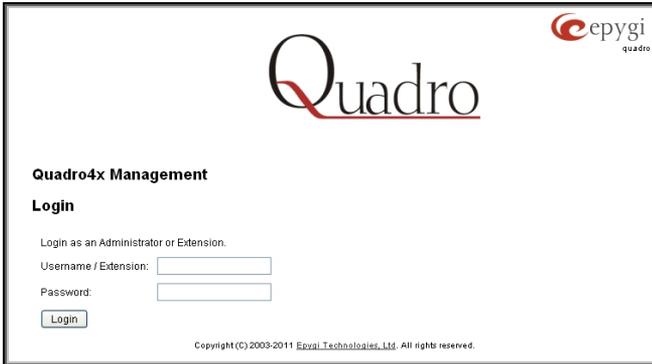


Fig. I-13: Login page

Enter **admin** as the Username and **19** as the password to log in as the administrator. Once you log in, you will enter into the Quadro Management Menu.

**Please Note:** If you consecutively enter a wrong password and/or username for five times the device will be unavailable for login for five minutes.

After log in, the **Quadro Management** page will be displayed.

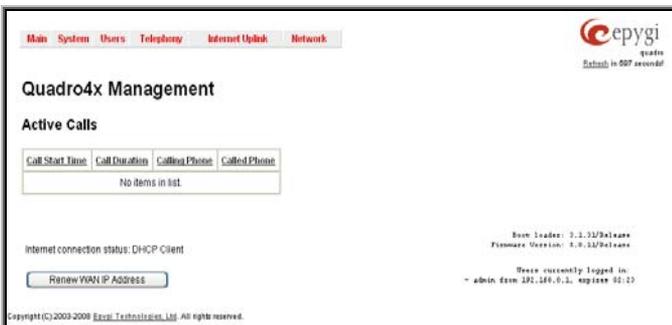


Fig. I-14: Quadro Management page

**Please Note:** The illustrations above and the following screenshots show the screens of a Quadro4x. The management screens of the other Quadro IP PBXs differ only slightly, therefore the Quadro4x management screens will be used as reference through this document.

## Step 2.2: System Configuration Wizard

Select the **System Configuration Wizard** from the **System** menu. The **System Configuration Wizard** is a tool for the administrator to define the Quadro's Local Area Network settings and to specify regional configuration settings to make Quadro operational in its LAN. **The System Configuration Wizard must be run upon Quadro first startup.**

For the basic configuration, some pages in this wizard may be skipped and left default for the basic configuration.

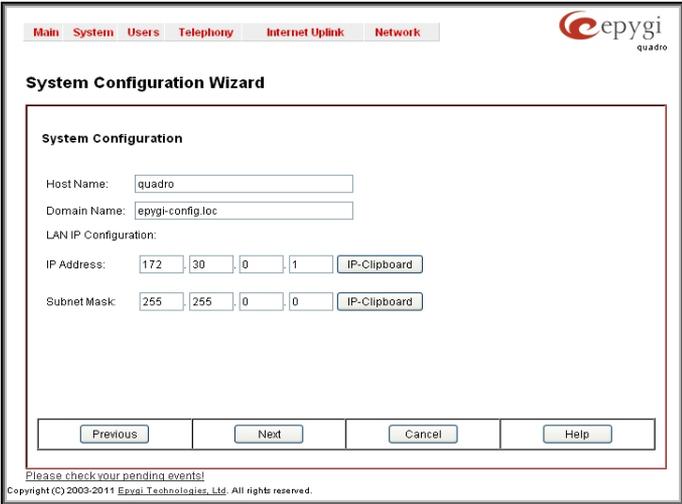
**Please Note:** It is strongly recommended that factory default settings are left unchanged if their meanings are not completely understandable to the party administering the Quadro.

### System Configuration

The first page of System Configuration Wizard shows all items to be configured. Click the **Next** button to start. Enter into the **Host Name** field the unique name (top right corner, under Epygi logo) for the Quadro device. The **Domain Name** text field requires the LAN side domain name which the Quadro belongs to.

For a basic configuration, the **LAN IP address** does not need to be changed, but if you must change it (for example, to integrate the device into an existing LAN), record the new LAN IP address and have it handy. You'll need it for subsequent access to Quadro's management.

**Please Note:** The **Host Name** is very useful when many Quadro's are part of a network and one administrator has remote access to all of them. All Quadro pages show the host-name on the top right corner under Epygi logo.



The screenshot shows the 'System Configuration Wizard' interface. At the top, there is a navigation menu with tabs for 'Main', 'System', 'Users', 'Telephony', 'Internet Uplink', and 'Network'. The 'System' tab is currently selected. In the top right corner, the 'epygi quadro' logo is displayed. The main heading is 'System Configuration Wizard'. Below this, the 'System Configuration' section contains several input fields: 'Host Name' with the value 'quadro', 'Domain Name' with 'epygi-config.loc', and 'LAN IP Configuration' which includes 'IP Address' (172.30.0.1) and 'Subnet Mask' (255.255.0.0). There are 'IP-Clipboard' buttons next to the IP address and subnet mask fields. At the bottom of the configuration area, there are four buttons: 'Previous', 'Next', 'Cancel', and 'Help'. A small note at the bottom left of the window says 'Please check your pending events!' and a copyright notice at the very bottom reads 'Copyright (C) 2009-2011 Epygi Technologies, Ltd. All rights reserved.'

Fig. I-15: System Configuration page

Clicking **Next** shows the page **DHCP Settings for the LAN Interface**.

## DHCP Settings for the LAN Interface

If the DHCP server is enabled, the Quadro will automatically assign dynamic IP addresses to the stations connected to its LAN port.

If you didn't change the default LAN IP address of the Quadro, you also may leave the default values for the **IP Address Range**. Make sure your connected LAN devices belong to the same network as the LAN port of your Quadro.

**Please Note:** Make sure there is only one DHCP server on the LAN, otherwise, unpredictable network behavior can occur.

The screenshot shows the 'System Configuration Wizard' window for 'epysi quadro'. The title is 'DHCP Settings for the LAN Interface'. There is a checked checkbox for 'Enable DHCP Server'. Below it, the 'Dynamic IP Address Range' is set from '172.30.0.100' to '172.30.0.254', with 'IP-Clipboard' buttons next to each field. The 'WINS Server' is set to '0.0.0.0' with an 'IP-Clipboard' button. Under 'Static mappings', it says 'None'. At the bottom, there are 'Previous', 'Next', 'Cancel', and 'Help' buttons. A small copyright notice is visible at the very bottom: 'Copyright (C) 2003-2011 Epysi Technologies, Ltd. All rights reserved.'

Fig. I-16: DHCP Settings for the LAN Interface page

Click on **Next** to display the **Regional Settings** page.

## Regional Settings

If your Quadro is located outside of the United States, it is important to properly configure your line connections to the PSTN in your location.

The screenshot shows the 'System Configuration Wizard' window for 'epysi quadro'. The title is 'Regional Settings and Preferences'. 'Your locale (location)' is set to 'US' and 'Timezone' is set to '(GMT-06:00) Central Time (US & Canada)'. Under 'Choose Default GUI Theme', there are two radio buttons: 'Plain' and 'Dynamo', with 'Dynamo' selected. There is also a checked checkbox for 'Choose Theme on Login'. At the bottom, there are 'Previous', 'Next', 'Cancel', and 'Help' buttons. A small copyright notice is visible at the very bottom: 'Copyright (C) 2003-2009 Epysi Technologies, Ltd. All rights reserved.'

Fig. I-17: Regional Settings page

Proper configuration of **Regional Settings** is important for the functionality of the voice subsystem. The **Regional Settings** determine the proper telephony parameters on the LINE (ISDN) and PHONE ports of the Quadro for the specified country. Select the country where the Quadro is located. If you do not find your country in the list, pick the closest in your timezone.

The Quadro obtains the correct time automatically over the Internet from a time server. If you are not located in the US/Central standard time zone, you will need to change the **Timezone** to your region.

Click on **Next** to display the **Emergency and PSTN Access Code Settings** page.

## Emergency and PSTN Access Code Settings



The screenshot shows the 'System Configuration Wizard' window for 'epygi quadro'. The 'Telephony' tab is selected. The main heading is 'Emergency Codes and PSTN Access Code Settings'. Below this, a message reads: 'Please enter all your Emergency Codes separated by commas and PSTN Access Code into following fields:'. There are two input fields: 'Emergency Codes:' with a text box containing '911', and 'PSTN Access Code:' with a dropdown menu showing '9'. At the bottom, there are four buttons: 'Previous', 'Next', 'Cancel', and 'Help'. A small note at the bottom left says 'Please check your pending events!' and a copyright notice at the very bottom reads 'Copyright (C) 2003-2011 Epygi Technologies, LLC. All rights reserved.'

Fig. I-18: Emergency and PSTN Access Code Settings page

You may enter your local specific emergency codes into the appropriate field. For example, in the United States the emergency number is 911, whereas in Germany it is 112,110. In case of an emergency you can then pick up any FXS phone and dial your configured emergency code without any prefixes for PSTN calls (see [Step 4: Making/Receiving Calls](#)).

The PSTN Access Code is the prefix number you choose to dial to tell the Quadro to “make this call over PSTN” (see [Step 4: Making/Receiving Calls](#)). Users in the United States will usually choose 9 here. European users usually would want to enter zero (0). If you do not enter anything into this field the currently configured PSTN Access Code will stay unchanged.

Click on **Next** to display the **Summary Page**.

## Finishing the System Configuration Wizard



Fig. I-19: System Configuration Wizard finishing page

Click on **Finish** to complete the System Configuration Wizard. The Quadro will then stop internal functions and apply the changes made in the Wizard.

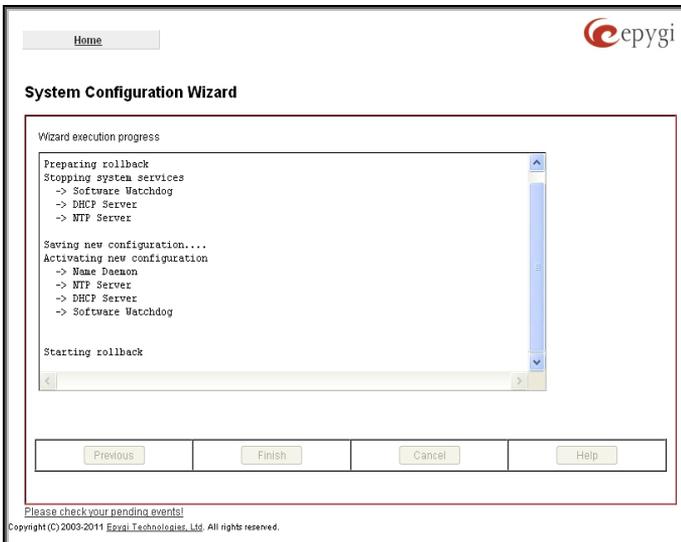


Fig. I-20: Wizard Execution Progress page

After this is complete, the Quadro will reply with the **Confirm Settings** page requesting confirmation of the changes. Press on **OK** to confirm the settings.

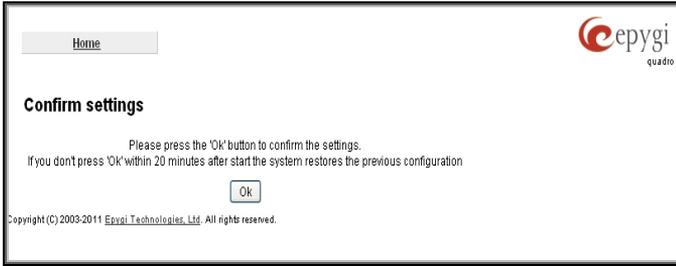


Fig. I-21: Confirm Settings page

**Please Note:** You must confirm the settings within 20 minutes. Otherwise the device will **revert back to the previous configuration and reboot.**

**Please Note:** If you do not use DHCP for your LAN and you have changed your LAN settings, make sure that the IP address of the PC connected to Quadro is still within the specified IP address range, otherwise your PC may not establish a connection to Quadro.

If you changed the network configuration of the LAN, restart your LAN connection to receive a new IP address from the new network. Then you can access the Web Management of the Quadro on the new IP address you've assigned to the Quadro.

## Step 2.3: Internet Configuration Wizard

Open the **Internet Configuration Wizard** by selecting the corresponding menu item on the **System** menu. The **Internet Configuration Wizard** is a tool for the administrator to configure the WAN settings and to adjust Quadro's connectivity in the global network. It must be run if Quadro is desired to be connected to the Internet.

The page **Getting Started** will be displayed:

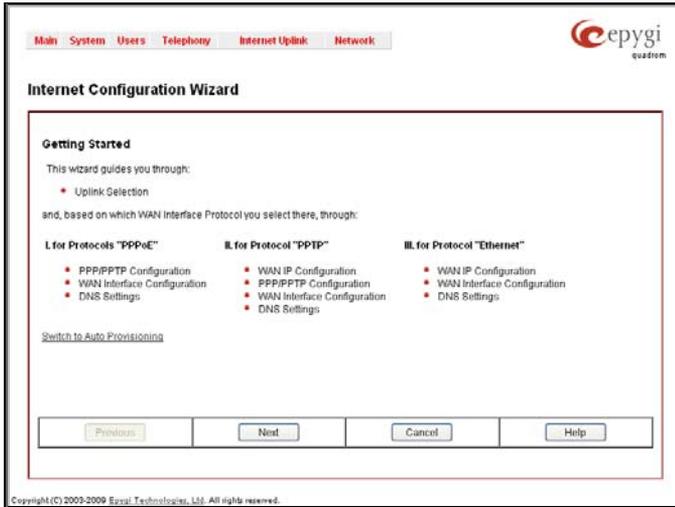


Fig. I-22: Internet Configuration Wizard

This first page of the **Internet Configuration Wizard** is for informational purposes only and lists the items to be configured, Click on the **Next** button for the **Uplink Configuration** page.

Before configuring the WAN port to the Internet, you need to get the following information from your internet service provider:

- Bandwidth - how much is available upstream and downstream?
- WAN IP Configuration - is DHCP supported? If yes, no more information is needed. If DHCP is not supported, the following data is needed: the WAN IP address, the subnet mask, the IP address of the standard gateway and the IP address of the Domain Name Server (DNS).
- MAC address - needed when the ISP requires a specific MAC address for the WAN.

Additionally, for Point-to-Point Protocol over Ethernet (PPPoE) WAN interface, you need to get the following information from your internet service provider:

- PPP Configuration - does your ISP use a dynamic or fixed WAN IP address? If the WAN IP address is dynamic, no more information is needed. If the WAN IP address is fixed, you will have to enter it.
- Authentication - does your ISP require authentication? If authentication is required, information about the corresponding method (PAP, CHAP or MSCHAP) is needed including the username and password of the PPPoE account.

This information will be needed to be inserted in the Internet Configuration Wizard.

## Uplink Configuration

Select the desired WAN Interface Protocol and enter the **WAN Interface Bandwidth** to assure the quality of IP calls.

The screenshot shows the 'Internet Configuration Wizard' window with the 'Uplink Configuration' tab selected. The 'WAN Interface Protocol' section has three radio buttons: 'PPPoE', 'PPTP', and 'Ethernet'. The 'Ethernet' radio button is selected. To the right, under 'WAN Interface Bandwidth', there are three input fields: 'Upstream:' with a value of '10000' and '(max. 10000)', 'Downstream:' with a value of '10000' and '(max. 10000)', and 'Min Data Rate:' with a value of '0' and '(kbit/s)'. At the bottom, there are four buttons: 'Previous', 'Next', 'Cancel', and 'Help'. A small note at the bottom left says 'Please check your pending events!' and a copyright notice is at the bottom center: 'Copyright (C) 2003-2011 Epygi Technologies, Ltd. All rights reserved.'

Fig. I-23: Uplink Configuration

If the available bandwidth is used to the point where the quality of an additional IP call would suffer, then new IP calls are rejected.

The bandwidth provided by your ISP must be specified for both **Upstream** and **Downstream** fields. The default entry in both fields is **10000**, the maximum bandwidth of the 10 MB uplink module. For basic DSL and cable modem service in the United States, typical values are **300** for Upstream and **1500** for Downstream.

The **Min Data Rate** text field is used to specify the amount of bandwidth reserved for data applications. The value entered here needs to be smaller than the value specified for **Upstream Bandwidth**.

Specify the **WAN Interface Protocol** by choosing between available WAN interface protocols: **PPPoE** (Point to Point over Ethernet), **PPTP** (Point to Point Tunneling Protocol) and **Ethernet**. Use Ethernet for DHCP or static IP.

For **Ethernet**, clicking **Next** will display the **WAN IP Configuration** page. If **PPPoE** is the selected WAN Interface Protocol, the next page will be **PPP/PPTP Configuration**. For **PPTP** WAN Interface Protocol, **PPP/PPTP Configuration** page will follow the **WAN IP Configuration**.

## WAN IP Configuration

Your Internet Service Provider (ISP) should provide this information.

- **Assign automatically via DHCP** - The parameters are set automatically by the ISP. This is common with cable modem and DSL service.
- **Assign Manually** requires the administrator to enter the external **IP Address**, the corresponding **Subnet Mask**, and the IP address of the **Standard Gateway**. This is common when you have a static IP address with your ISP.

**Main System Users Telephony Internet Uplink Network**

**epygi**  
quadro

### Internet Configuration Wizard

#### WAN IP Configuration

IP configuration of the WAN interface

Assign automatically via DHCP
  Assign manually

IP Address: 192 168 73 149   
 Subnet Mask: 255 255 255 0   
 Default Gateway: 192 168 73 5

[Please check your pending events!](#)

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Fig. I-24: WAN IP Configuration page

Click on **Next** to display the **WAN Interface Configuration** page.

## PPP/PPTP Configuration

Enter the IP address of the PPTP server into the **PPTP Server** text field.

Choose the encryption for the traffic over the PPTP interface from the **Encryption** drop down list.

**Authentication Settings** require the Username and the Password used for the authentication on the ISP server.

**Dial Behavior** radio buttons:

- **Dial Manually** - if this radio button is activated, a button will be displayed in the main management window that serves to switch the Internet connection on/off. When accessing the Internet, every station of the connected LAN has to connect to Quadro first.
- **Always connected** - Quadro stays in the always connected mode. This will allow Quadro always remain online in the network.

The **IP Address Assignment** field is used to specify the external IP address given to the Quadro. Usually it is a dynamic address but in some cases you may be given a static IP address.

The screenshot shows the 'Internet Configuration Wizard' for 'PPP / PPTP Settings'. At the top, there are navigation tabs: 'Main', 'System', 'Users', 'Telephony', 'Internet UpLink', and 'Network'. The 'ePygi quadro' logo is in the top right. The main content area is titled 'PPP / PPTP Settings' and contains the following fields and options:

- PPTP Server:** A text input field containing '172.11.168.80' and an 'IP-Clipboard' button.
- Encryption:** A dropdown menu set to '128 Bit'.
- Authentication Settings:**
  - User name:** A text input field containing 'quadro'.
  - User password:** A text input field containing '\*\*\*\*'.
- Dial behaviour:** Two radio buttons: 'Dial manually' (unselected) and 'Always connected' (selected).
- IP Address Assignment:** Two radio buttons: 'Dynamic IP Address' (unselected) and 'Fixed IP Address' (selected). Below the 'Fixed IP Address' radio button is a text input field containing '192.168.75.235' and an 'IP-Clipboard' button.
- Keep connection alive:** A checked checkbox.

At the bottom of the form are four buttons: 'Previous', 'Next', 'Cancel', and 'Help'. A small copyright notice 'Copyright © 2009 Epygi Technologies, Ltd. All rights reserved.' is visible at the bottom left of the window.

Fig. I-25: PPP/PPTP Configuration page

If your ISP assigns a dynamic IP address, activate the **Dynamic IP Address** radio button, otherwise activate the **Fixed IP Address** radio button and enter the IP address you were assigned by your ISP.

**Keep Connection alive** checkbox enables keeping the connection alive by sending control packets dedicated for the link state verification.

Click the **Next** button to display the **WAN Interface Configuration** page.

## WAN Interface Configuration

If your ISP requires a specific MAC address, (for example, for authentication), it can be entered on this page. The required MAC address can be entered into the **User defined** field. If a specific MAC address is not required, leave the default selection **This device** selected.

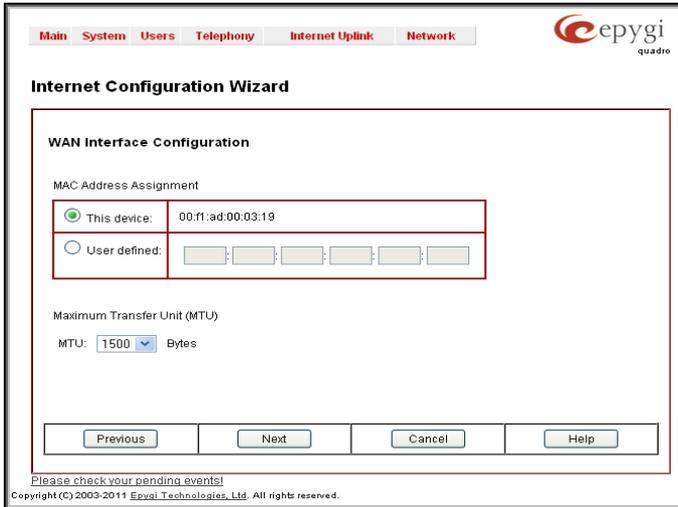


Fig. I-26: WAN Interface Configuration page

Use the **MTU** drop down list to select the maximum packet size on the Ethernet (in bytes). Click **Next** to display the **DNS Settings** page.

## DNS Settings

For DNS, the selection is set to **Dynamically by Provider**. When using a static IP address, fixed values must be entered.

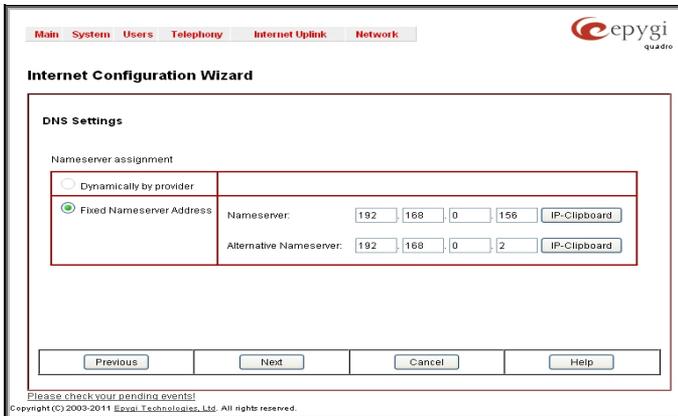


Fig. I-27: DNS Settings page

The Quadro will suggest the correct settings. If **Dynamically by Provider** is selected, the DNS server settings will be set automatically whenever a connection to the Internet is established.

If **Fixed Nameserver Address** is selected, manually enter the IP addresses provided by your ISP for the name server and the alternative name server.

Clicking **Next** shows the summary page of the Internet Configuration Wizard.

## Finishing the Internet Configuration Wizard

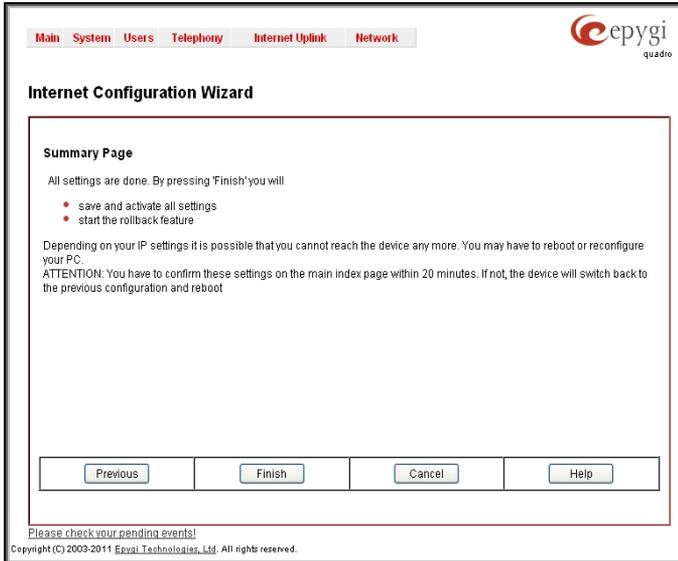


Fig. I-28: Internet Configuration Wizard Summary page

Click the **Finish** button to complete the Internet Configuration Wizard. The Quadro will then stop internal functions and apply the changes made in the Wizard. After this is complete, the Quadro will display the **Confirm Settings** page requesting confirmation of the changes. Press the **OK** button to confirm the settings.

**Please Note:** the settings should be confirmed within 20 minutes; otherwise, the device will **revert back to the previous configuration and reboot**.

## Step 2.4: Firewall Configuration

By default, Firewall configuration on the Quadro has medium security, which denies any incoming traffic from the WAN except for voice traffic.

Disabling the firewall is only required to access the Quadro's management when the Quadro is connected behind a router. To disable the firewall, open **Firewall Configuration** from the **Internet Uplink** menu. Disable the firewall by deselecting the corresponding checkbox and save changes.

The screenshot shows the 'Firewall Configuration' page. At the top, there are navigation tabs: 'Main', 'System', 'Users', 'Telephony', 'Internet Uplink', and 'Network'. The 'Internet Uplink' tab is active. The epygi quadro logo is in the top right. The main heading is 'Firewall Configuration'. Below it, there are three checked checkboxes: 'Enable IDS', 'Enable NAT', and 'Enable Firewall'. Underneath, there is a table with three rows representing security levels:

<input type="radio"/> Low Security	Everything is allowed that's not explicitly forbidden! This policy doesn't block anything per default. You have to configure the filters manually. This option is recommended if this device is already located behind another firewall or if you are sure that you have configured every filter correctly. Basic protection against the most common attacks (port scans, flooding, etc) is still provided with this policy.
<input checked="" type="radio"/> Medium Security	Traffic originating from the LAN-side may pass and traffic from the WAN-side will be blocked per default. This is the recommended policy.
<input type="radio"/> High Security	Everything that is not explicitly allowed will be blocked. This includes traffic from the LAN-side. You have to configure the filters to open up the firewall as desired.

Below the table, there is a link 'Advanced Firewall Configuration' and 'View Filtering Rules'. At the bottom, there are buttons for 'Save', 'Back', and 'Help'. A note at the bottom left says 'Please check your pending events!' and a copyright notice at the very bottom reads 'Copyright (C) 2003-2011 Epygi Technologies, Ltd. All rights reserved.'

Fig. I-29: Firewall Configuration page

## Step 2-A: Using IP Lines

Before starting the IP Lines configuration, the appropriate IP phone should be connected to the Quadro either to the WAN or LAN port. If the phones are placed on the Quadro WAN, which is assumed by the default configuration, please ensure that the **Connect IP phones from WAN side** checkbox is enabled on the **Line Settings** page (see Fig. I-30).

The Quadro2x, 2xi; 4x, 4xi; 16x, 16xi provides two options for configuring IP phones:

- The **Plug-and-Play** option is available for supported SIP phones only. The list of these phones is given [below](#). The **Plug-and-Play** option does not require any specific configuration except that the **Enable PnP for IP lines** checkbox should be enabled on the **Line Settings** page (see Fig. I-31).
- The **Auto-Configuration** option is available for tested and supported SIP phones. The list of tested SIP phones is given [below](#). The **Auto-Configuration** option (described in detail below) requires specifying some basic parameters on the Quadro and restarting the phone.

Each IP line should be configured individually from the **Telephony** menu, **Line Settings** page, **IP Line Settings** tab.

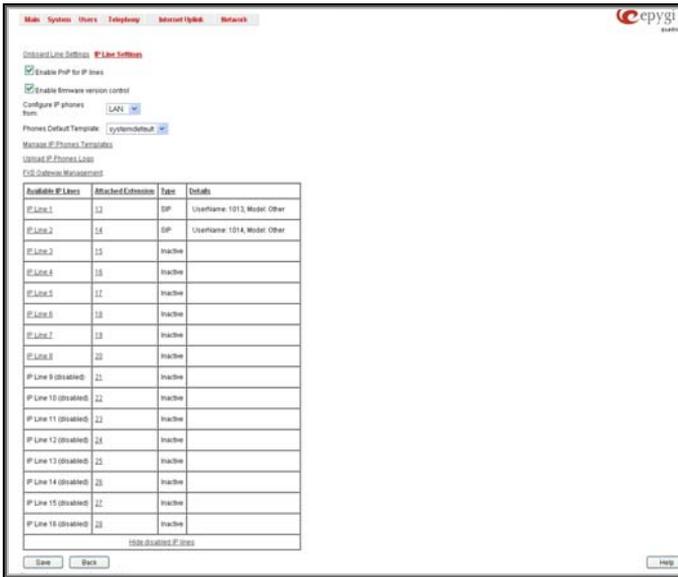


Fig. I-30: Line Settings page

Click on the IP Line number to enter the **IP Lines Settings** page.

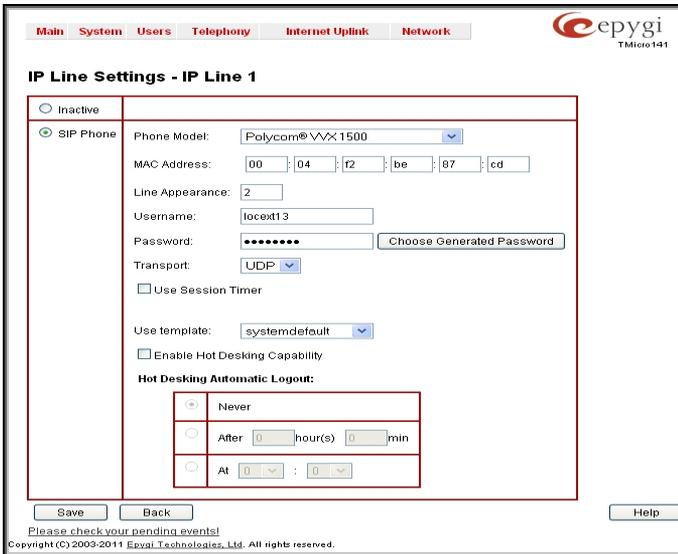


Fig. I-31: IP Line Settings page

Select the **SIP Phone** radio button. Select the SIP IP phone model from the **Phone Model** drop down list.

Insert the SIP Phone's **MAC address** in the corresponding fields. The MAC address of an IP phone is usually printed on the back of the phone's base unit.

In the **Line Appearances** text box, enter the number for simultaneous calls supported by the SIP IP phone – which is the sum of the number of active and held calls. For example, if this field is set to **1**, only one active call is possible to have on the phone and making or accepting a second call while the other is on hold will not be allowed. Note, that this number depends on the phone brand and model, and cannot exceed the number of simultaneous calls supported by the phone.

**Username** and **Password** are required to be inserted for this selection. They should match on both Quadro and SIP phone for a successful connection. The **Password** field is checked against its strength and you may see how strong is your inserted password right below that field. To achieve the well protected strong password minimum 8 characters of letters in upper and lower case, symbols and numbers should be used. If you are unable to define a strong password, press **Choose Generated Password** to use one of system defined strong passwords.

The **Transport** drop down list is used to select the SIP protocol transport layer - UDP, TCP or TLS. For TLS you may activate the TLS certificate update mechanism from IP Phone to obtain the latest certificate generated by the Quadro.

The **Use Session Timer** enables the SIP session timer for the corresponding IP line. This checkbox enables advanced mechanisms for connection activity checking. This option allows both user agents and proxies to determine if the SIP session is still active.

The **Use Template** drop down list is used select a preconfigured custom template for the IP phone. When the “Use default” is selected in this drop down list, the template selected on the **IP Line Settings** page will be used.

The **Enable Hot Desking Capability** checkbox is used to enable the Hot Desking feature on the corresponding IP line (see Manual II – Administrator’s Guide for more details).

The **Hot Desking Automatic Logout** section is used to configure Hot Desking functionality expiration on the corresponding IP line. This may be useful when someone who logged in to the public phone with the extension attached to this line forgot to log out after using it. With this option enabled, once the expiration time arrives, the extension will automatically log out from the public phone.

The following options are available:

- **Never** – the extension will never expire and will remain logged in to the public phone.
- **After the defined period of time** – requires the period after which the extension will automatically log out from the public phone.
- **At the certain moment** – requires the moment (hour and minute) when the extension will automatically log out from the public phone.

Reset the SIP Phone. After restart, the appropriate configuration will be automatically downloaded from the Quadro to the SIP Phone.

**Please Note:** For automatic configuration, some SIP phones may require additional actions to follow the restart. For example, by default the IP Dialog SIP Tone II is in a non-auto provisioning mode, so it should be manually enabled on the phone. Refer to the user’s manual of the corresponding SIP phone for instructions on performing a factory reset or reboot on any of the supported phones, what additional configurations are required for a specific SIP phone, and how to manipulate with the GUI.

To make sure the line configuration works properly, do the following:

- Go to **Quadro Status- SIP Registration status – Registered IP Lines** to see if IP Line registration is successful.
- Dial \*74 to get the line information.
- Make outgoing and accept incoming calls.

To make the IP line functional (for example, to be able to make/receive calls), refer to the [Step 4: Making/Receiving Calls](#) and [Appendix: Registering on Epygi's SIP Server](#) chapters further in this guide, with the difference that the extensions should be attached to the configured IP line.

## Supported SIP Phones

Below is the list of SIP phones that are officially supported by Epygi and can be configured to work with Quadro2x, 2xi; 4x, 4xi; 16x, 16xi using both Plug and Play and the automatically configuration options, as well as the full set of advanced features, like paging and intercom:

- snom 300 (also supports FVC)
- snom 320 (also supports FVC)
- snom 360 (also supports FVC)
- snom 370 (also supports FVC)
- snom 820 (also supports FVC)
- snom 821 (which is replacement for snom 820)
- snom 870 (also supports FVC)
- snom MeetingPoint (also supports FVC)
- Aastra 480i (also supports FVC)
- Aastra 480iCT
- Aastra 9112i (also supports FVC)
- Aastra 9133i (also supports FVC)
- Aastra 9143i(33i)(also supports FVC)
- Aastra 9480i(35i)(also supports FVC)
- Aastra 9480iCT
- Aastra 6751i (also supports FVC)
- Aastra 6753i (also supports FVC)
- Aastra 6755i (also supports FVC)
- Aastra 6757i(57i) (also supports FVC)
- Aastra 6757iCT (57iCT) (also supports FVC)
- Aastra 6730i (also supports FVC)
- Aastra 6731i (also supports FVC)
- Aastra 6739i (also supports FVC)

## Tested SIP Phones

Below is the list of SIP phones that are tested and can be configured to work with Quadro2x, 2xi; 4x, 4xi; 16x, 16xi using the automatically configuration option. Some Quadro supported features like Paging, Intercom, etc. may be missing in these SIP phones.

- CISCO 7960
- CISCO SPA525G2
- CISCO SPA303
- CISCO SPA501G
- CISCO SPA509G
- IpDialog SipTone II
- Polycom SoundPoint IP 300SIP
- Polycom SoundPoint IP 330SIP\*
- Polycom SoundPoint IP 331SIP\*
- Polycom SoundPoint IP 335SIP\*
- Polycom SoundPoint IP 450SIP\*
- Polycom SoundPoint IP 501SIP
- Polycom SoundPoint IP 550SIP\*
- Polycom SoundPoint IP 601SIP
- Berkshire (ATL) 5000
- Grandstream BT100
- Grandstream BT200
- Grandstream GXP1400
- Grandstream GXP1405
- Grandstream GXP1450
- Grandstream GXP2000
- Grandstream GXP2100
- Grandstream GXP2110
- Grandstream GXP2120
- Grandstream GXV3140
- Grandstream GXV3175
- Grandstream HT286
- Grandstream HT386

- Polycom SoundPoint IP 650SIP\*
- Polycom SoundStation IP 5000\*
- Polycom SoundStation IP 6000\*
- POLYCOM VVX 1500\*
- POLYCOM KIRK wireless server 6000
- POLYCOM KIRK wireless server 300
- SIPUra SPA 841
- Snom 190
- Snom 200
- Snom 220
- Snom M3
- Snom PA1
- Swissvoice IP 10S
- Thomson ST2030S
- Linksys SPA921
- Linksys SPA922
- Linksys SPA941
- Linksys SPA942
- Linksys SPA2002
- Linksys PAP2T
- Yealink SIP-T20P
- Yealink SIP-T22P
- Yealink SIP-T26P
- Yealink SIP-T28P
- Yealink VP-2009/VP-2009P
- Aastra MBU400
- Telematrix IP550 Spectrum Plus
- Telematrix IP 3300
- Telematrix IP9600 MWD5

To use Plug and Play (PnP) option for supported IP phones, connect them to LAN/WAN for the Quadro and power up. If the phone is in default settings then it will automatically select a free IP line and attach to an extension. If not, reset the phone to factory defaults manually.

**Please Note:** To use PnP the appropriate option should be selected in the IP line settings.

**Please Note:** In the model's list the Polycom phones with (\*) sign are also presented as **Polycom-xx-Pre-3.3.0** due to backward incompatibility of UCSoftware 3.1.1 configuration. It is recommended to use **Pre-3.3.0** models with Application SIP software 3.2.2.0477.

## Step 2-B: Using Receptionist

If you wish to use the Receptionist's features, the Receptionist should be set up on the Quadro. The Quadro's basic configuration should be done in the same way as described in the Step 2.

The Receptionist related setup, with detailed instructions on how to configure the Quadro and the attached IP Phones, is described in the "**Receptionist Setup on Quadro**" document, which you can find at the Epygi's Support Web portal.

## Step 2-C: Using ISDN Lines

The basic configuration procedure for Quadro IP PBXs that use ISDN lines is exactly the same as described in Step 2.

As some ISDN providers require an outgoing MSN to be defined, go to the **Telephony** menu and open the **ISDN Settings** page.

The number of available ISDN trunks is dependent on the type of your Quadro. Quadro2xi and Quadro4xi have only one ISDN trunk available. Quadro16xi and the special edition of Quadro4xi have 3 ISDN trunks available.

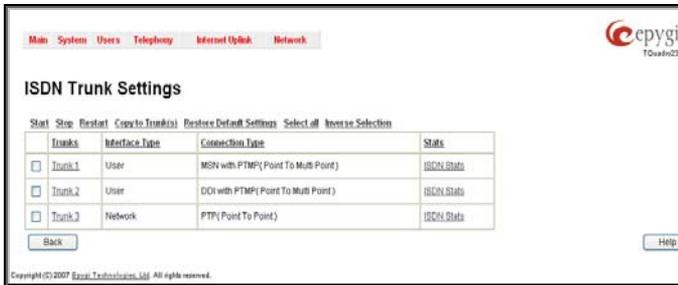


Fig. I-32: ISDN Trunk Settings page

Before starting the ISDN Trunk configuration, please consult with your ISDN provider administrator to receive instructions for which settings are necessary to be configured.

Run the **ISDN Wizard** for each ISDN trunk to make sure that all settings are proper. To access **ISDN Wizard**, push the appropriate trunk number in the ISDN Trunk Settings table.

The **ISDN Wizard – ISDN Settings** allows you to choose the interface type and the connection type of the selected trunk(s).

The **Interface Type** drop down list allows you to select between the User and the Network interfaces. If the ISDN port of the Quadro is connected to the CO then **User** interface type should be selected. If the ISDN port of the Quadro is connected to the PBX then **Network** interface type should be selected (in that case Quadro acts as a CO for that PBX).

The **Connection Type** manipulation radio button group allows you to choose the connection type for the selected trunk(s):

- **PTP (Point to Point)**

In case of connection to the CO (**User** interface type is selected on Quadro) choose this option if only Quadro is connected to the ISDN trunk from CO (no other ISDN devices are connected to the particular ISDN trunk from CO besides the Quadro).

In case of connection to the PBX (**Network** interface type is selected on Quadro) choose this option if only the PBX is connected to the ISDN trunk from the Quadro (no

other ISDN devices are connected to the particular ISDN trunk from the Quadro).

In both cases, with this selection, Quadro sets the TEI to manually mode assigning the default value of 0. If needed, that value can be changed later in the **Advanced Settings** page of ISDN Wizard.

- **PTMP (Point to Multi Point)**

In case of connection to the CO (**User** interface type is selected on the Quadro) choose this option if there can be other devices connected to the same ISDN trunk from CO except the Quadro.

In case of connection to PBX (**Network** interface type is selected on the Quadro) choose this option if there can be other devices connected to the same ISDN trunk from Quadro except for the PBX.

In both cases, with this selection Quadro sets the TEI to automatic mode.

**Please Note:** Consult with your CO operator or network administrator before configuring the ISDN connection type.

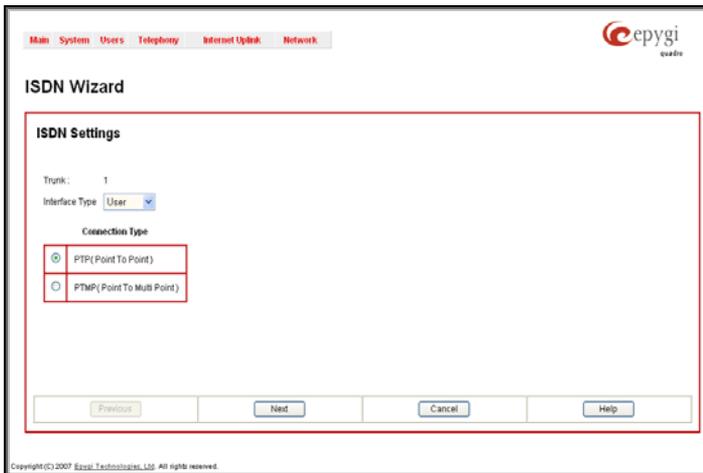


Fig. I-33: ISDN Wizard – ISDN Settings

The **ISDN Wizard - Page 2** content is dependent on the connection type selected on the previous page of **ISDN Wizard**:

The next page is **ISDN Wizard – MSN Settings** page which is used to turn on the MSN configuration. It is recommended to enable the MSN when there are multiple ISDN devices connected to the same ISDN bus. If the MSN is enabled on this page, the next page will require the MSN table configuration.

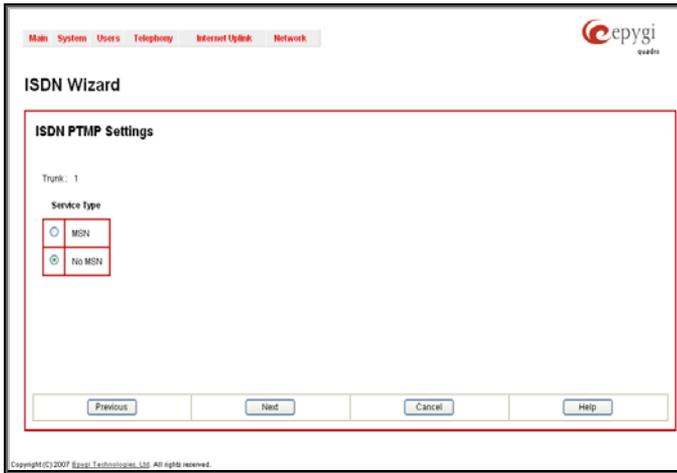


Fig. II-34: ISDN Wizard – ISDN PRMP Settings

For MSN service enabled, the **Routing Settings** page is used to assign MSN numbers to the certain destinations on the Quadro. The MSN number can be assigned to the Quadro's extensions, to the Auto Attendant, or to the routing agent. The destination selected from this page will ring upon incoming call to the corresponding MSN number comes in.

The fields in the **MSN Number** column require the MSN numbers allocated to the Quadro.

**Please Note:** At least one MSN number should be defined in this page. The system displays an error message if the same MSN number is used twice in this page.

The **Route Incoming Call to** drop-down lists are used to select the destination where the incoming call addressed to the certain MSN number will be routed. Choosing the **Routing with inbound destination number** selection will automatically use the initially dialed number to connect the destination without any additional dialing. If MSN is disabled on the **ISDN Wizard - MSN Settings** page, the **ISDN Wizard - Routing Settings** page contains only one **Route Incoming Call to** drop-down list.

Selecting the **Use Default outgoing Caller ID** allows you to overwrite the source caller information with the one specified in the **Default outgoing Caller ID** field when placing outgoing calls toward the CO. The **Default outgoing Caller ID** field requires the caller ID for the outgoing calls from the Quadro through the ISDN trunk. That number should be registered at the CO and can be one of the MSNs provided by the CO. If this checkbox is enabled but no value is defined in the **Default outgoing Caller ID**, empty caller information will be sent to the CO. If this checkbox is disabled, the source caller information will be forwarded to the CO.

Select the **Advanced Settings** checkbox if you wish to adjust trunk L2 and L3 Settings manually, otherwise leave this checkbox unselected to use the system default values.

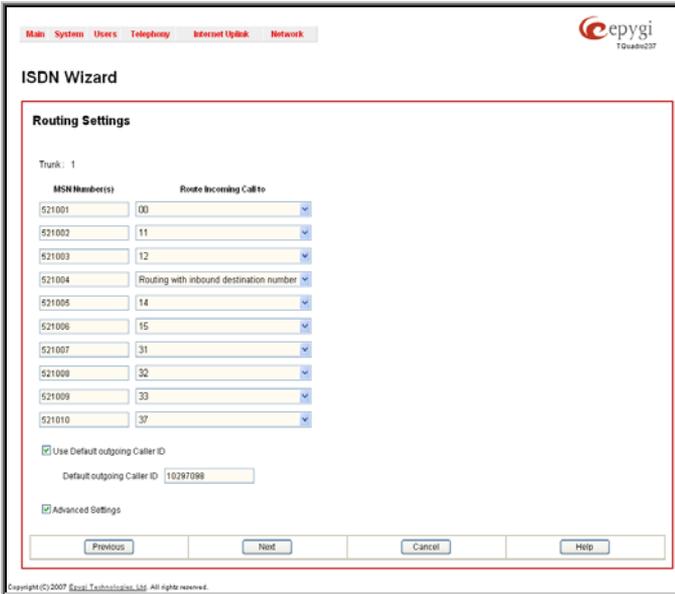


Fig. II-35: ISDN Wizard – Routing Settings

The **ISDN Wizard – L2&L3 Settings** is used for advanced configuration only and contains L2&L3 Settings. This page only appears when the **Advanced Settings** checkbox is selected on the previous page of the wizard. This page contains the following components:

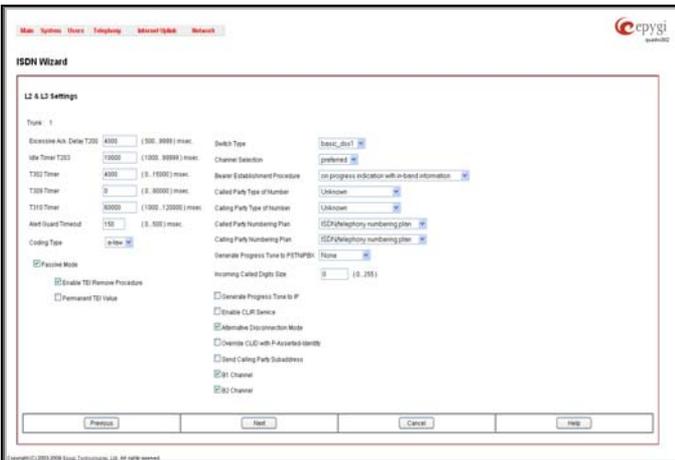


Fig. II-36: ISDN Wizard – L2&L3 Settings

**ISDN L2 Timers:**

- **Excessive Ack. Delay T200** configures the period in milliseconds (numeric values from 500 to 9999) between the transmitted signaling packet and its acknowledgement received.

- **Idle Timer T203** configures the period in milliseconds (numeric values from 1000 to 99999) for the ISDN client idle timeout.

### ISDN L3 Timers:

- The **T302 Timer** text field requires the value for the T302 timer in milliseconds (digit values from 0 to 15000). It indicates that the time frame system is waiting for a digit to be dialed. When the timer expires, it initiates the call.
- **T309 Timer** requires the value for the T309 timer in milliseconds (numeric values from 0 to 90000). It is responsible for call steadiness during link disconnection within the period equal to this timer value. If the value in this field is zero (0), the T309 timer will be disabled.
- **T310 Timer** requires the value for the T310 timer in milliseconds (numeric values from 1000 to 120000). It is responsible for the outgoing call steadiness when CALL PROCEEDING is already received from the destination but call confirmation (ALERT, CONNECT, DISC or PROGRESS) has not yet arrived.
- **Alert Guard Timeout** requires the value for the Alert Guard Timer in milliseconds (numeric values from 0 to 500) between CALL PROC and ALERT messages. **Alert Guard Timer** it is used when Quadro is connected to a slow ISDN-PBX. Recommended values are:
  - fast connection (0ms);
  - normal (150ms), default;
  - slow ISDN-PBX (350ms);
  - very slow ISDN-PBX (500ms).

The **Coding Type** drop down list allows you to select between **a-law** and **mu-law** coding types.

The **Switch Type** is another configuration parameter that depends on the Service Provider.

The **Passive Mode** checkbox is used to leave the ISDN Layer1 connection in the Slave mode. When this checkbox is selected, Layer1 remains idle when calls are not available. When this checkbox is not selected, Quadro keeps its Layer1 always active. This checkbox enables the **Enable TEI Remove Procedure** and **Permanent TEI Value** checkboxes. With the **Enable TEI Remove Procedure** checkbox is selected, the trunk will lose the assigned TEI when entering into passive mode on the Layer 2. With the **Permanent TEI Value** checkbox is selected, the trunk will keep the assigned TEI when entering into passive mode on the Layer 2 or when Quadro detected ISDN link DOWN signal from carrier.

**Channel Selection** is used to select between the **Preferred** and **Exclusive** B channel selection methods. For **Preferred** channel selection, the CO answers to the call request by the first available timeslot. With the **Exclusive** channel selection, the CO should feedback only by the timeslot asked in the call request.

The **Bearer Establishment Procedure** drop down list allows selecting the session initiation method on the B channel. One of the following options can be selected for the transmission path completion prior to receipt of a call acceptance indication:

- on channel negotiation at the destination interface
- on progress indication with in-band information
- on call acceptance

The **Calling Party Type of Number** drop down list allows you to select the type identifying the origin of call.

The **Called Party Type of Number** drop down list allows you to select the type identifying the subaddress of the called party of the call.

The **Called Party Numbering Plan** and **Calling Party Numbering Plan** drop down lists correspondingly indicate the numbering plan of the called party's and calling party's number.

The **Incoming Called Digits Size** text field indicates the number of received digits (in a range from 0 to 255) required to establish a call. When this field has a "0" value, the system uses either the timeout defined in the T302 field or the **Sending Complete Information element** messages to establish a call. Independent on the value in this field, **Sending Complete Information element** and the pound sign always result in call establishment.

The **Generate Progress tone on IP** checkbox selection will generate the progress tone to IP.

When **Generate Progress Tone to PSTN/PBX** checkbox is selected, Quadro generates ring tones to callers during ISDN call dialing. This feature is mainly applicable to 2-stage dialing mode.

**Enable CLIR Service** checkbox selection enables Calling Line Identification Restriction (CLIR) service which displays the incoming caller ID only if Presentation Indication is allowed on the remote side. Otherwise, if CLIR service is disabled, caller ID will be unconditionally displayed.

When the **Alternative Disconnection Mode** checkbox is not selected, Quadro will disconnect the call as soon as the disconnect message has been received from the peer. When the checkbox is selected, Quadro's user may hear a busy tone when peer has been disconnected.

The **Override CLID with P-Asserted-Identity** checkbox selection enables SIP P-Asserted-Identity support. For the calls from SIP to ISDN if Invite SIP message contains a P-Asserted-Identity, then the CallerID on ISDN is sent with the value from the "P-Asserted-Identity" field, otherwise the CallerID on ISDN is sent with the value from the "From" field. For the calls from ISDN to SIP if the incoming CallerID from the ISDN network contains a restricted flag then the "P-Asserted-Identity" field in the Invite SIP message contains the restricted CallerID and the "From" field contains "anonymous".

When the **Send Calling Party Subaddress** checkbox is selected, Quadro will send the extension number as subaddress and the value defined in the **Default outgoing Caller ID** field as caller ID on the outgoing call. When this checkbox is disabled, no subaddress information will be sent and the caller ID will be defined according to the selection of the **Use Default Outgoing Caller ID** checkbox (see above). Caller ID information, along with the Subaddress, can be displayed on the phone display depending on the phone and PBX settings and capabilities.

The **B1 Channel** and **B2 Channel** checkboxes enables/disables timeslots for voice transfer. Disabling the timeslot will prevent both incoming and outgoing calls.

## Step 3: Registering on Epygi's Technical Support

It is recommended that you register your Quadro on the Epygi Technical Support web page. Registration will give you access to the Technical Support Database. There, you can submit requests concerning technical problems as well as refer to the Frequently Asked Questions (FAQ) section. In addition, the technical support page allows users to download new firmware, manuals and other information. You can access the support section only if you are registered. Additionally, registration at Epygi's Technical Support web page gives you the username and password to login to the Epygi SIP Server.

To register, you need to know the serial number of your Quadro, which is located on a label on the bottom of Quadro. You will also need the date of purchase. Next, open the Epygi home page ([www.epygi.com](http://www.epygi.com)), select **Support** and click on **Registration Form**. The online registration page will appear:

Complete all fields and record the **Login Name** and **Password** in a safe place. You will need it for the SIP server.

**Please Note:** In some cases, the Quadro units will be shipped pre-configured from the factory with the Support login and password already set up. In this case, an information sheet is included in the packaged contents indicating the username and password to access Epygi's Online Support and the Epygi SIP Server.

Fig. I-37: Online Registration page

## Step 4: Making/Receiving Calls

**Please Note:** The Quadro default settings are sufficient to make SIP phone calls. It is not necessary to make any changes unless the user wants to create new SIP extensions on the Epygi SIP Server, create a private directory for several Quadro units, or use alternate VoIP services. Refer to the Administrator’s Guide for more information on these configurations.

- To make a call to the PSTN, dial **9** and the local phone number. You may accelerate the dialing process by adding the # after the last digit, e.g., 9 + 972-661-1335#. You are making a local call through the PSTN. It is assumed an FXO phone line is connected to the Quadro.

**Please Note:** In case you had changed the default value of the **PSTN Access Code** in the System Configuration Wizard to something other than 9, you will need to dial your chosen digit instead.

- To make a VoIP call to a user on the remote Quadro, lift the handset and dial **8 + SIP Address** (of the user on the remote Quadro) + #. You are calling over the Internet to a remote user.

**Please Note:** Epygi has a SIP Address test line to test newly provisioned Quadro devices. Call **8 + 99 + #** and you will hear a message if the call was successful. This message comes from a Quadro in one of our offices. SIP Addresses are described below.

- Received IP calls will ring the extensions automatically.
- Received PSTN calls will be directed to the Quadro’s default Auto Attendant (00).

### Using the Default SIP Addresses

Making Internet IP calls is simple with the Quadro. By default, every standard (analog) telephone connected to one of Quadro’s phone lines functions as an IP phone. If you open the **Extensions Management** page, you will see that some **SIP Addresses** are available, one attached to the Auto Attendant and one to each extension. These SIP addresses are the IP telephone numbers of these extensions. Anyone with a Quadro or any other SIP IP device on the Internet can place a call to **SIPAddress@sip.epygi.com** and the call will ring the associated extension.

Under **Extensions Management**, you may edit the **Display Names** to assign extensions to people.

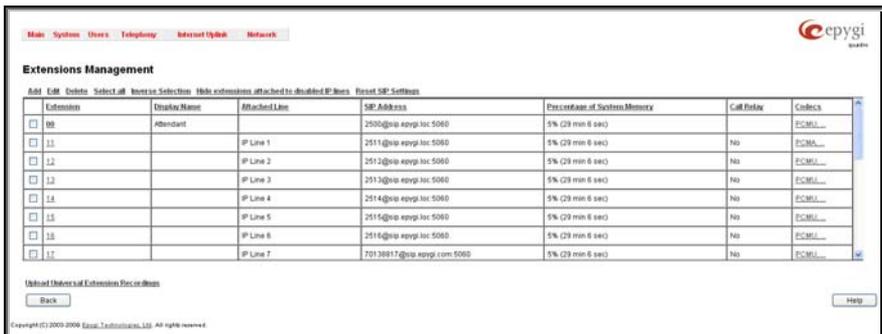


Fig. I-38: Extensions Management page

To do so, click on the box in the first column next to the extension to edit and click the **Edit**

button. When the page opens, go to **General Settings** and edit the **Display Name** and click the **Save** button. Do not change any other settings at this time. For more information on the **Extensions Management** settings, refer to the Administrator's Guide and [Appendix: Registering on Epygi's SIP Server](#) of this document. The default SIP addresses are based on internal parameters unique to each Quadro device. If the Quadro undergoes a factory reset, the default addresses will be restored.

If you want to establish a dial plan between several Quadro units in a private group, refer to [Appendix: Registering on Epygi's SIP Server](#), which describes how to change the default, SIP addresses on the Epygi SIP server and in the Quadro devices. With the directory service, you can create a private directory accessible from the Internet using a user-name/password. This service is enabled through the Epygi SIP Server.

## Appendix: PC DHCP Settings

The Quadro has a DHCP server for the LAN side devices that provides DHCP IP addresses to devices connected to the LAN either directly or through an Ethernet hub or switch. This appendix describes how to configure Windows PCs for DHCP. The PC used to access the Quadro must meet the following conditions:

- TCP/IP network protocol has to be installed.
- DHCP has to be activated in order to request the IP address automatically.

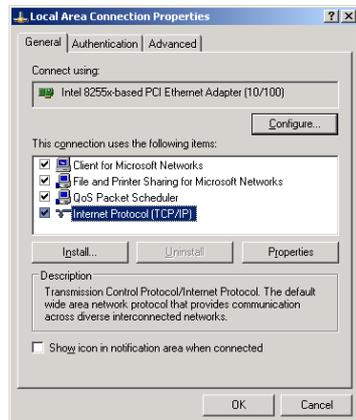
**Please Note:** If your PC is already configured for DHCP and connected directly to the Quadro, then simply power it on and verify the LAN LED is lit. If LED is off, check the cable connections.

Follow the instructions below to install TCP/IP and enable DHCP functionality:

### TCP/IP and DHCP under Windows 2000/Windows XP

Windows 2000 and Windows XP PCs with Ethernet cards or adapters normally are configured with a TCP/IP network connection by default. Nothing in addition is required. To enable the DHCPs functionality, you may have to modify the properties of TCP/IP:

1. Click the **Start** button. Choose **Settings**, then **Control Panel**.
2. Double-click on the **Network Connection** icon to open the corresponding window. Select **Local Area Connection** with the right mouse button and select **Properties**.
3. Highlight **Internet Protocol (TCP/IP)** under **General** tab and click **Properties**. The corresponding window will be displayed.



4. Choose **Obtain an IP address automatically** and **Obtain DNS server address automatically** selections and press **Advanced** button.
5. You will see the entry **DHCP Enabled**.
6. Click **OK** three times to close all windows.



## TCP/IP and DHCP under Windows 95/98/ME

1. Click the **Start** button. Choose **Settings**, then **Control Panel**.
2. Double-click on the **Network** icon to open your Network window. Select the **Configuration** tab.
3. Click **Add**.
4. Double-click on **Protocol**.
5. Highlight "Microsoft" under the list of manufacturers.
6. Find and double-click on **TCP/IP** in the list to the right.
7. The Network window will appear with the TCP/IP protocol now listed.
8. Highlight "TCP/IP" and click on **Properties**.
9. Select **Getting IP address automatically** to enable the DHCP functionality.
10. Click **OK**.
11. Windows will ask you to restart the PC. Click **Yes**.

The TCP/IP installation is now complete and the DHCP functionality is enabled.

## Appendix: Changing the Admin Password

For security reasons, it is recommended that you change the default admin password. The username of the administrator (**admin**) cannot be changed.

To change the administrator password, go to the **System** menu, **User Rights Management**.



Fig. I-39: User Right Management page

Choose **admin** from the list and press the **Change Password** functional button from the **User Right Management** page toolbar.

For **Administrator** account the page contains two parts - one for **GUI Access Password**, the other one for **Phone Access Password**.

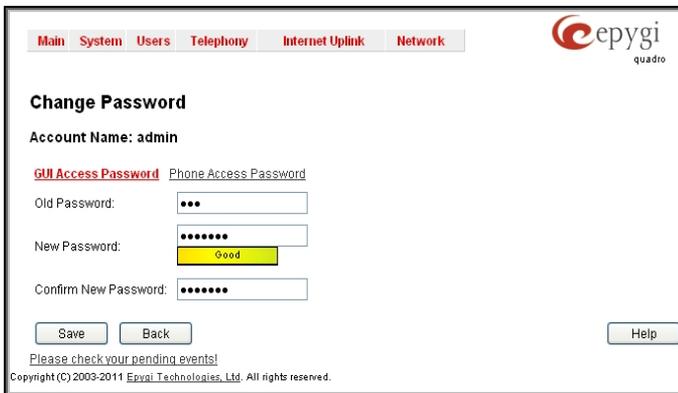


Fig. I-40: Change Password page

The **GUI Access Password** offers the following components:

- The **Old Password** field requires the current password of the **Administrator**. An error message prevents entering the wrong password.
- The **New Password** field requires a new password for the **Administrator**. Reentering the new password in the **Confirm New Password** field will confirm the new password. Up to twenty (0-20) digits and symbols are allowed. The **New Password** field is checked against its strength and you may see how strong is your inserted password right below that field.

The **Phone Access Password** offers the following components:

- The **Old Password** field requires the current password of the **Administrator**. An error message prevents entering the wrong password.
- The **New Password** field requires a new password for the **Administrator**. Reentering the new password in the **Confirm New Password** field will confirm the new password. The **New Password** field is checked against its strength and you may see how strong is your inserted password right below that field. The password can consist of numeric values only. Up to twenty (0-20) digits are allowed. A corresponding warning appears if any other symbols are inserted.

**Please Note:** If **Administrator** is changing the **Local Administrator** or **Extension** passwords or **Local Administrator** is changing the **Extension** password then the **Old Password** field is not displaying.

**Attention:** It is highly recommended to define a proper and non-empty password on this page if the extension is being used for the Call Relay service from the Quadro's [Auto Attendant](#).

Write down the password somewhere and keep it in a secure place. If the password is lost, a factory reset will be required on the unit (see Administrator's Guide, Hardware Overview). All settings are lost after a factory reset. After a factory reset the default password (19) will be restored.

## Appendix: Configuring NAT Traversal

NAT or Network Address Translation is a common feature used to expand the use of connected PCs and other networked devices without having to use multiple global Internet public IP addresses. Most ISP's will assign one public IP address to each customer that is connected to the Internet. The customer can use a router to provide NAT capability and create a private network of PCs and other devices not visible from the Internet. This method offers security and also eliminates the need to assign global Internet public IP addresses to each device on the LAN.

The Quadro initiates and receives SIP calls from the Internet (or the network connected to the WAN port). To receive SIP calls, the Quadro must be able to receive packets from the SIP server or any other device that is trying to make an incoming call. If the Quadro is placed behind a router with NAT, like most basic routers on the market today, the Quadro will not be able to receive calls. To resolve this issue, either STUN must be enabled on the Quadro or SIP NAT traversal must be set up in the router and in the Quadro to route the incoming calls properly.

**Please Note:** NAT traversal only works with Internet connections that have static IP addresses. Verify from your provider that this is the case for your Internet connection. Some ISPs provide dynamic IP addresses that may change from time to time, and are not appropriate for SIP NAT traversal.

**Please Note:** If you have more than one router in series between the Quadro and the Internet, the same port forwarding setup must be configured on each router.

### NAT Traversal Setup

- Install the Quadro behind the router. If the Quadro is configured with its factory default settings, it is already configured for DHCP and will obtain an IP address automatically from the router.
- Connect a PC to the Quadro LAN port and power it up.
- Verify the Quadro can connect to the Internet by opening a browser window and browsing to a familiar WEB site. If the Quadro cannot reach the Internet, verify the LAN/WAN LEDs and the cabling. Verify the Quadro is set up for DHCP on the WAN and that the router has the DHCP server enabled for the devices behind it.
- Find the address of the router and log into the router. Refer to the router's user manual on how to open the router configuration.
- Set up port forwarding on the router to forward UDP ports 5060, 6000-6099 to the IP address assigned to the Quadro. You can see the IP address of the Quadro in the **System** menu under **Status**, submenu **Network Status**. The IP address will be listed as the WAN IP address. Your router also may indicate the IP address assigned to the Quadro.
- Find out the public Internet address (WAN IP address) of the router. To do so, open a browser and go to [www.whatismyip.com](http://www.whatismyip.com). The site will return your public Internet IP address. Record this IP address.
- From the **Telephony** menu of the Quadro Management go to the **NAT Traversal Settings** page, go to **General Settings** and set the enable **NAT Traversal for SIP** radio buttons selection to **Force**. **Save** the selection.



Fig. I-41: NAT Traversal Settings – General Setting

Go to **SIP Parameters** page.

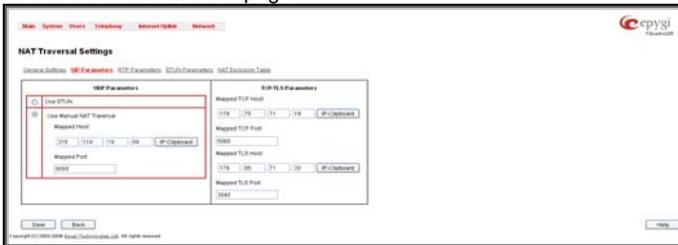


Fig. I-42: NAT Traversal Settings - SIP Parameters

Select **Use Manual NAT Traversal** and enter the WAN IP address of the router into the **Mapped Host** text field. For **Mapped Port**, enter the router’s corresponding port number, in this case **5060**. **Save** the entries.

- Go to the **RTP Parameters** page and select **Use Manual NAT Traversal**.

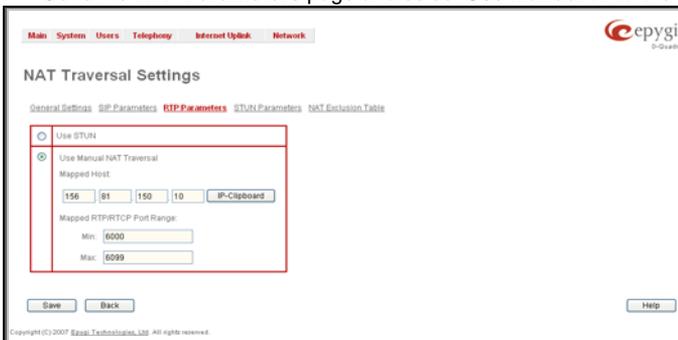


Fig. I-43: NAT Traversal Settings - RTP Parameters

- Enter the WAN IP address of the router into the **Mapped Host** text field. Set the **Mapped RTP/RTCP Port Range** according to the values specified on the router, in this case to **6000 (Min)** and **6099 (Max)**, respectively. Click the **Save** button to save the contents.

The Quadro will activate the settings and register the extensions on the Epygi SIP Server after a few minutes. You can verify the settings from the main **Quadro Management** menu under **Status** in the **SIP Registration Status** section.

## Appendix: Registering on Epygi's SIP Server

You may login directly to Epygi's SIP Server if you have registered your Quadro at [Epygi's Technical Support Center](#). If you have not registered with Epygi Technical Support, you cannot login to the Epygi SIP Server.

Login to the Epygi SIP Server at [www.epygi.com](http://www.epygi.com). Click on **SIP, Login here**. Use the same login name and password you used for Epygi Support for Customer Login.

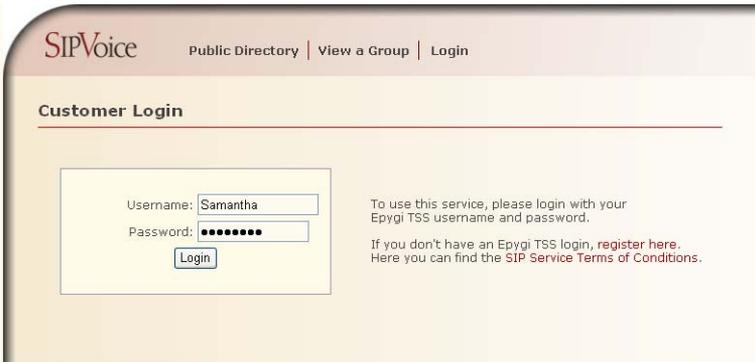


Fig. I-44: SIP Services Login page

Read the **SIP Service Terms and Conditions** and accept it to proceed. The displayed page now welcomes you and allows you to **Subscribe a New Extension**.

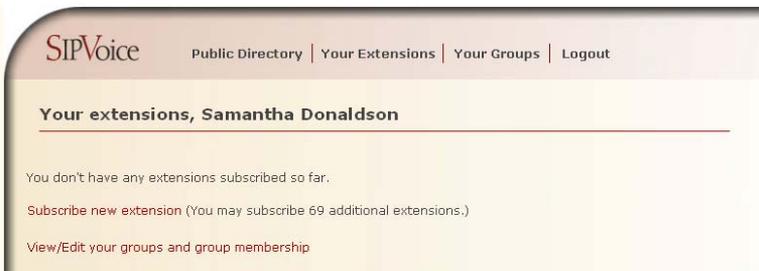


Fig. I-45: SIP Services Welcome page

Selecting **Subscribe a New Extension** leads you to a page where you can enter the user information as shown below. The **Extension Nr.** is the eight-digit SIP number assigned to your extension. The first five are fixed by the SIP Server and cannot be changed and the last three are user defined. Notice the check box to enable this extension to be shown in the Epygi **Public SIP Directory**.

**Please Note:** If you enable this extension to be shown in the Epygi **Public SIP Directory**, all information related to this extension will be published in the Public SIP Directory, which is accessible by anyone from the Internet. To maintain privacy, do not check this box.

Fig. I-46: SIP Services Add New Extension page

The **Authentication password** validates the entry and must match the password entered on the Quadro later. Make sure to record the name, Authentication Password and SIP extension number for entry into the Quadro later.

**Save** will store the entered information and conclude the basic SIP registration. The following page then will be displayed:

EXT.#	STAT. ?	NAME	LOCATION	COMPANY	DESCRIPTION	EMAIL	PUB	GROUPS ?
<a href="#">edit</a> 30256321	unreg.	Samantha Donaldson	Seattle	OmniTec, Ltd.	Headquarters		yes	- <a href="#">delete</a>

[Subscribe new extension](#) (You may subscribe 9 additional extensions.)

[View/Edit your groups and group membership](#)

Fig. I-47: SIP Services Your Extension page

This table shows **unreg.** in the **Stat.** column. This entry will change to **reg.** when the required settings in the Quadro are complete and the Quadro successfully registers on the SIP Server.

Repeat this for all four extensions on the Quadro and the Auto Attendant.

## Configuring Quadro Extensions

Once the SIP server has the created extensions with the user information, create these extensions in the Quadro devices. Once they are entered in the Quadro, they will be registered and can then be used.

Login into the Quadro and go to **Extensions Management**.

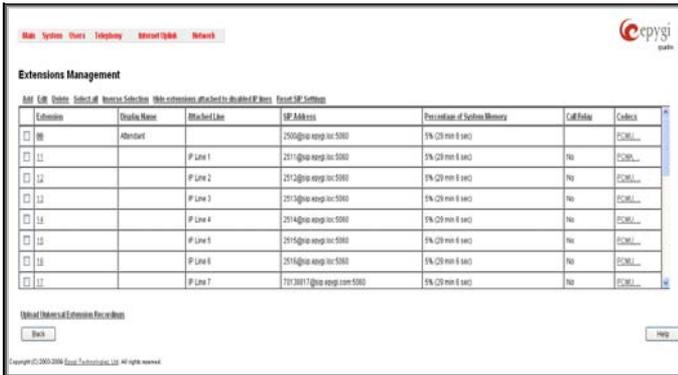


Fig. I-48: Extensions Management page

Select the first extension to change by clicking the appropriate checkbox and press **Edit** functional button. The **Extensions Management – Edit Entry** page will be displayed.

Go to the **General Settings** page and adjust the **Display Name** as needed.

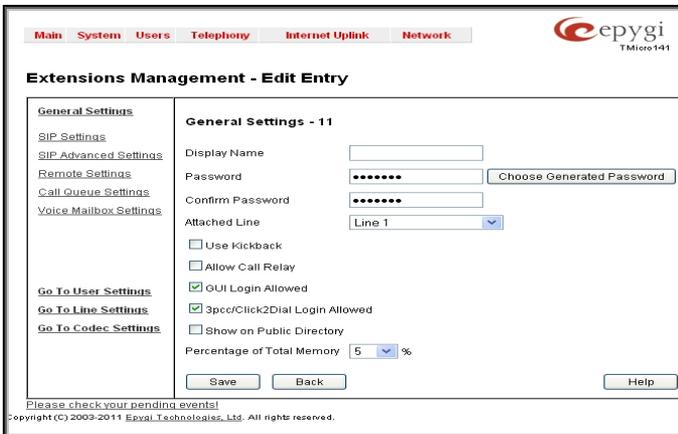


Fig. I-49: Extensions Management - Edit Entry – General Settings page

Go to the **SIP Settings** page to enter the **SIP Registration Settings** you received from the Epygi SIP server.

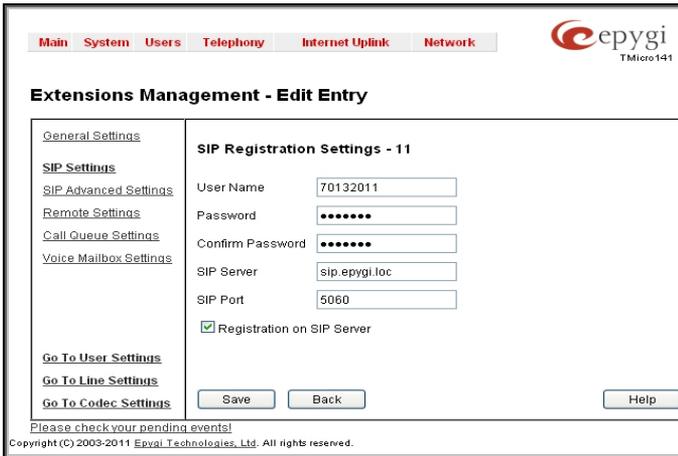


Fig. I-50: Extensions Management - Edit Entry – SIP Settings page

- Enter the SIP registration number displayed in the column **Ext#** into the text field **Registration User Name**.
- In the **Password** field, enter the password you specified when registering at the SIP server and confirm it in the field below.
- In **Registration SIP Server**, the selected SIP server address must be entered. If you use the Epygi SIP server, you may enter **sip.epygi.com**.
- Most SIP server providers, including Epygi, use port 5060 as the **Registration SIP Port**. You may leave the default entry as is.
- Select **Registration on SIP Server** if you want to establish and receive IP calls.
- Click the **Save** button to activate the settings.

Other settings of the extension might be also modified from **Extensions Management – Edit Entry** page (refer to the Manual II - Administrator’s Guide).

Your settings will be verified, then after a few seconds the **Extensions Management** page is updated with the changes as shown in the below example, Fig.I-51.

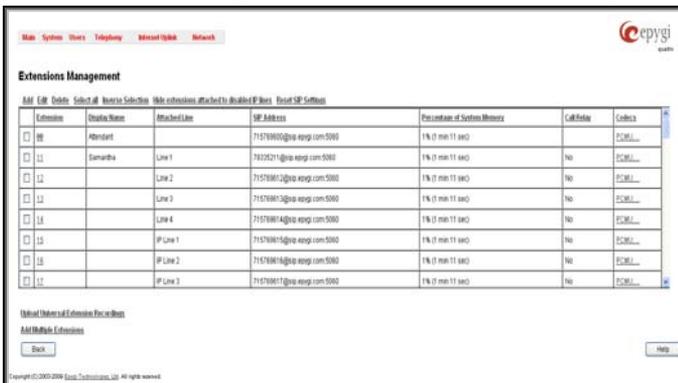


Fig. I-51: Extensions Management page

If you go back to Epygi's SIP Server, you will find the value **reg.** for this number in the column **Stat. Reg.** This will indicate that the Quadro has successfully registered the new number. If this does not happen after a few minutes, again verify the SIP Number and passwords.

## Appendix: Checking the Connections

If the system doesn't seem to be working properly, even when all the cables are connected properly, it may be helpful to **Start Network Diagnostics**: The WAN link, IP configuration, gateway, DNS server, and STUN-NAT will all be checked.

To start diagnostics, open the **System's** menu item **Diagnostics** and click **Start Network Diagnostics**.

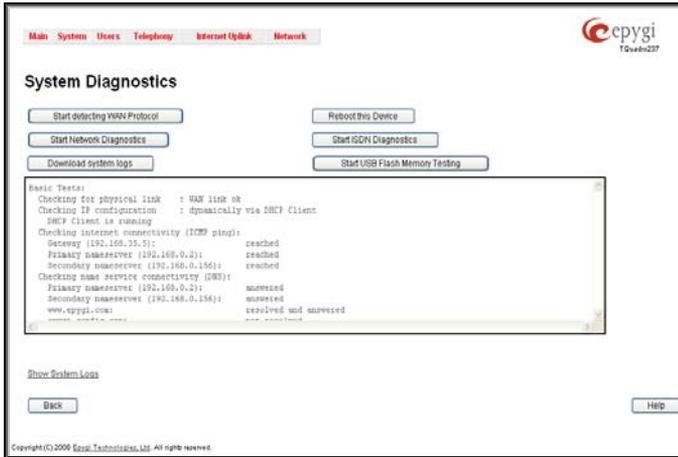


Fig. I-52: System Diagnostics - Network Diagnostics page

If the test passes, the output of the system may look as follows:

### Basic Tests:

```

Checking for physical link:           WAN link ok
Checking IP configuration:           dynamically via DHCP Client
DHCP Client is running

Checking internet connectivity (ICMP ping):
Gateway:                             reached
Primary nameserver:                 reached
Secondary nameserver:               not configured
www.epygi.com:                      reached

STUN Network Address Translation (NAT) Check:
External visible address:           212.126.210.179
Detected NAT type                   : Restricted cone

Performing MTU Discovery:
preparing system
Sending UDP Datagram of size 1500    got answer
clean up
Largest usable MTU size is: 1500 Bytes

Test successful.
  
```

Depending on where the test is failing, the diagnostic can give some advice on how to solve the problem. See the example below of a failed test:

### Basic Tests:

```

Checking for physical link:           no WAN link
Please check the physical connection of the WAN interface. Cable not
plugged or broken?

Test failed.
  
```

If diagnostics are successful, but you are still unable to place a call to 899# then check the SIP registration status.

Open the SIP Registration Status page using the Quadro management **System** menu item **Status**. Besides the SIP registration information for the auto attendant and each connected extension, the **Detected Connection Type** is shown. If Quadro is placed behind a NAT router and the STUN is enabled, the detected connection type and the IP address of this router's WAN port are displayed.

**Quadro Status - SIP Registration Status**

General Information

Network Status

Lines Status

Memory Status

Hardware Status

**SIP Registration Status**

IP Lines Registration Status

License Status

**Registration on SIP Servers**

Extension	Real Name	Server	Registered	Registration Time
97	877508841	sip99.threesia.com	Yes	07-Sep-2007 16:01:15
10	223710	sip.epygi.loc	Yes	07-Sep-2007 15:10:23
00	223700	sip.epygi.loc	Yes	07-Sep-2007 15:10:23
20	223730	sip.epygi.loc	Yes	07-Sep-2007 15:10:23
27	223727	sip.epygi.loc	Yes	07-Sep-2007 15:10:23
26	223726	sip.epygi.loc	Yes	07-Sep-2007 15:10:23
25	223725	sip.epygi.loc	Yes	07-Sep-2007 15:10:23
24	223724	sip.epygi.loc	Yes	07-Sep-2007 15:10:23
23	223723	sip.epygi.loc	Yes	07-Sep-2007 15:10:23
22	223722	sip.epygi.loc	Yes	07-Sep-2007 15:10:23
21	223721	sip.epygi.loc	Yes	07-Sep-2007 15:10:23
20	223720	sip.epygi.loc	Yes	07-Sep-2007 15:10:23
17	223717	sip.epygi.loc	Yes	07-Sep-2007 15:10:23
14	223714	sip.epygi.loc	Yes	07-Sep-2007 15:10:23
13	223713	sip.epygi.loc	Yes	07-Sep-2007 15:10:23
12	223712	sip.epygi.loc	Yes	07-Sep-2007 15:10:23
11	223711	sip.epygi.loc	Yes	07-Sep-2007 15:10:23

Detected connection type: Full Cone NAT (external IP: 83.139.17.135:5132).

**SIP Tunnels to Slave Devices**

Tunnel Name	Slave Device IP	Slave Device Port	Registration State	Registration Date/Time
SIP_Tunnel221215	192.168.25.221	5079	Registered	03/06/2007 - 12:50:12
SIP_Tunnel156	192.168.75.166	5176	Registered	03/06/2007 - 12:38:05
SIP_Tunnel05_79			Not Registered	N/A
SIP_Tunnelmidi15			Not Registered	N/A

**SIP Tunnels to Master Devices**

Tunnel Name	Master Device IP	Master Device Port	Registration State	Registration Date/Time
SIP_Tunnel264	192.168.05.34	5081	Not Registered	N/A

Back Help

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Fig. I-53: SIP Registration Status page

Quadro cannot work behind your router if **Detected Connection Type** is one of the following:

- Unknown connection - unexpected error
- Symmetric NAT
- Symmetric Firewall
- Blocked UDP

If you get one of the above mentioned Detected Connection Types, either connect the Quadro in front of the router, or configure NAT traversal manually as explained in [Appendix: Configuring NAT Traversal](#).

If you are unable to resolve your problems, please send us a technical support request on the **Support** section of <http://www.epyqi.com/>. Please prepare a system log file and attach it to your request.

To download the system logs, open the **System Diagnostics** page **System** menu item **Diagnostics** and click **Download System Logs**.

## Appendix: Pin Assignment of ISDN

Pin	Signal
1	N.C.
2	N.C.
3	SSR1
4	SSX1
5	SSX2
6	SSR2
7	N.C.
8	N.C.

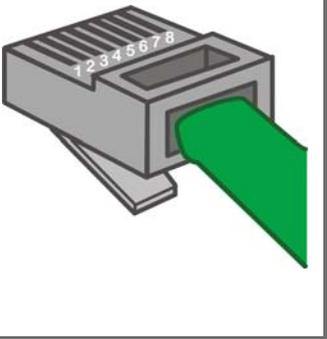


Fig. I-54: Pin Assignment of ISDN in User mode

Pin	Signal
1	N.C.
2	N.C.
3	SSX1
4	SSR1
5	SSR2
6	SSX2
7	N.C.
8	N.C.

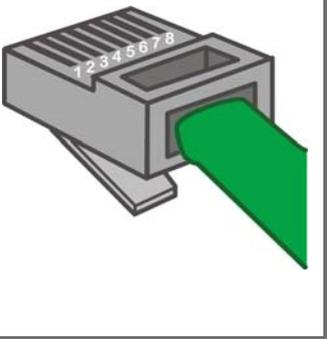
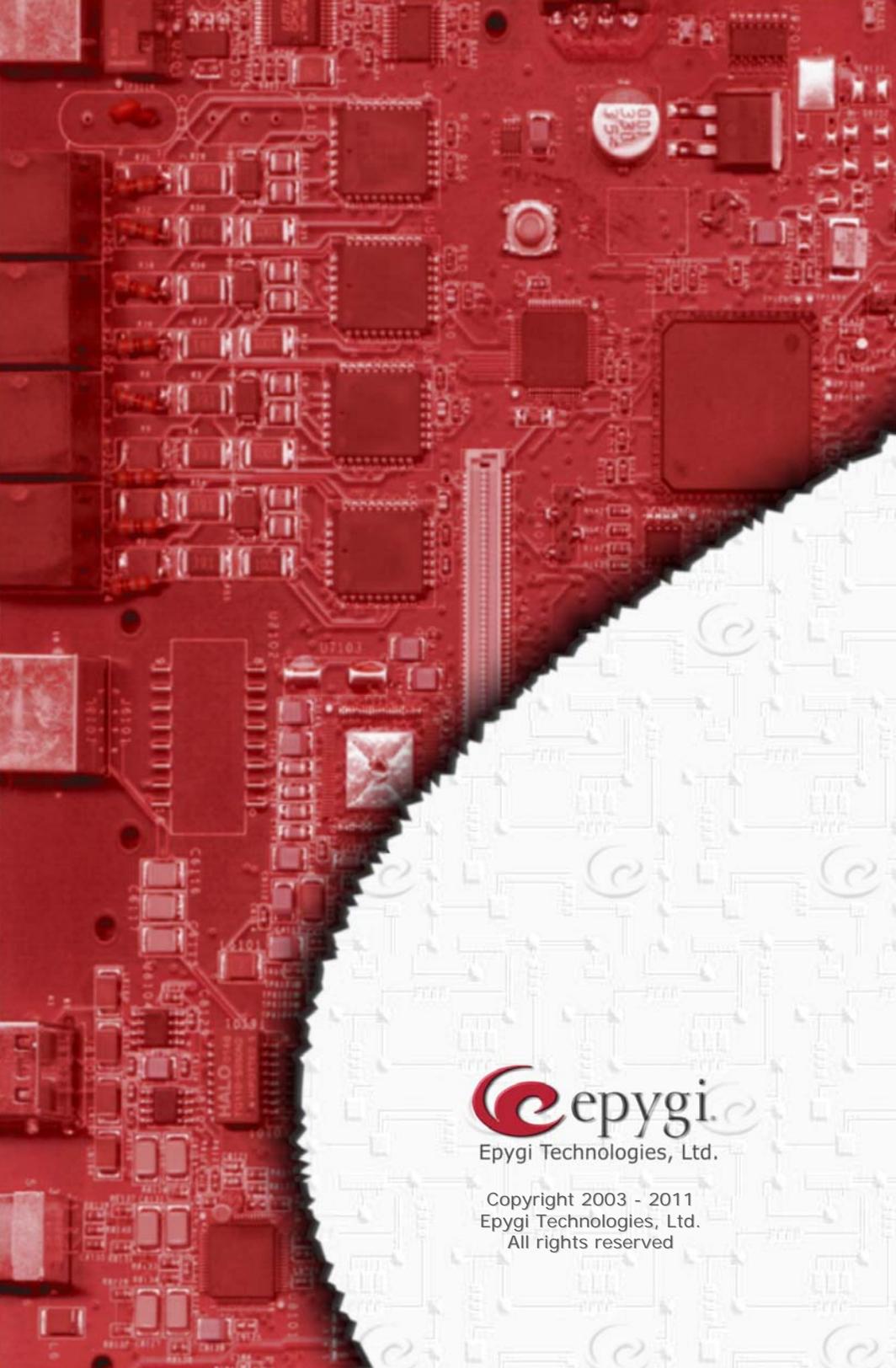


Fig. I-55: Pin Assignment of ISDN in Network mode



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