



# Manual I: Installation Guide for QX Gateways

This manual is effective for all QX Gateways: QXFX04, QXISDN4, QXE1T1 and QXFXS24.

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### **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. Located on the equipment is a label that contains, among other information, the ACTA registration number and ringer equivalence number (REN). If requested, this information must be provided to the telephone company.

The REN is used to determine the quantity of devices which may be connected to the telephone line. Excessive REN's on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all areas, the sum of the REN's should not exceed five (5.0). To be certain of the number of devices that may be connected to the line, as determined by the total REN's contact the telephone company to determine the maximum REN for the calling area.

This equipment cannot be used on the telephone company-provided coin service. Connection to Party Line Service is subject to State Tariffs.

If this equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. 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 in order for you to make the necessary modifications in order to maintain uninterrupted service.

If trouble is experienced with this equipment, please contact EPYGI TECHNOLOGIES, LTD.

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

### **Industry Canada Statement**

This product meets the applicable Industry Canada technical specifications.

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

- To prevent fire or shock hazard, do not expose your Quadro or QX to rain or moisture.
- To avoid electrical shock, do not open the Quadro or QX. 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 non-insulated 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 or QX during an electrical storm.
- Do not use your Quadro, QX 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 use of VoIP telephony is made available through IP networks such as the Internet and is dependent upon a constant source of electricity, network availability and proper operation of the equipment. If a power outage, network disruption or equipment failure occurs, the VoIP telephony service could be disabled. User understands that in any of those events the Quadro or QX may not be able to support 911 emergency services, and further, such services may only be available via the user's regular telephone line or mobile lines that are not connected to the Quadro or QX. User further acknowledges that any interruption in the supply or delivery of electricity, network availability or equipment failure is beyond Epygi's control and Epygi shall have no responsibility for losses arising from such interruption.

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## Document Edition History

Edition	Date	Description	Valid for FW	Valid for Models
1	27-May-16	Initial Release	6.1.17 and higher	QX Gateways
2	24-Mar-17	Updated	6.1.17 and higher	QXFXO4, QXISDN4, QXE1T1
			6.1.40 and higher	QXFXS24

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# 1 About Installation Guide

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This guide is intended for administrators who need to prepare for, install, configure and operate QX Gateways (herein QX). In this guide, we describe the configuration of QXs as well as references to other guides, manuals and complementary resources. After successfully configuring the QX, a user will be able to make SIP and PSTN calls and access the Internet from devices connected to the Local Area Network (LAN).

This guide contains many example screen illustrations. Since QXs offer a wide variety of features and functionality, the example screenshots shown may not appear exactly the same for your particular QX as they appear in this manual. The example screenshots are for illustrative and explanatory purposes, and should not be construed to represent your own unique environment.

**Installation Guide** consists of the following parts:

- Installing the QX Gateways explains the connection of cables and devices to the QX Gateway.
- [Configuring QX Gateways in Standalone Mode](#) describes the configuration steps needed to establish QX gateway as a standalone device.
- [Configuring the QXFXO4, QXISDN4 and QXE1T1 Gateways](#) describes the configuration steps that might be needed to establish QXFXO4, QXISDN4 and QXE1T1 as a PSTN line expansion for a QX IP PBX.
- [Configuring the QXFXS24 Gateway as QX IP PBX Expansion device](#) describes the configuration steps that might be needed to establish the QXFXS24 as a FXS lines expansion for a QX IP PBX.
- [Registering on Epygi's Support Portal](#) shows how to access the Epygi Technical Support Center and the Epygi SIP Server.
- [Appendix: Changing the Admin Password](#) explains how to change the administrator default password.
- [Appendix: Configuring NAT Traversal](#) explains configuration of the QX Gateway if it is placed behind a NAT enabled router.
- [Appendix: Checking the Connections](#) gives hints on solving common problems.

## 2 System Requirements

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- One 100-240 VAC power outlet in close proximity to the QX.
- One RJ45 Ethernet 10/100 broadband Internet connection.
- For QXFXS24 at least one analog phone, RJ21 connector (F) with cable and distributed panel.
- One CAT 5 Ethernet cable with RJ45 connector to connect to the QX LAN port.
- One PC with a 10/100 Mbps Ethernet card.
- TCP/IP network protocol installed on each PC.
- Internet Explorer, Mozilla Firefox, Google Chrome or Opera browser is recommended.

### 3 Hardware Overview

- QXFXO4 has 4 FXO ports, 1 Ethernet WAN and 1 Ethernet LAN ports.
- QXISDN4 has 4 ISDN ports, 1 Ethernet WAN and 1 Ethernet LAN ports.
- QXE1T1 has 1 E1T1 port, 1 Ethernet WAN and 1 Ethernet LAN ports.
- QXFXS24 has 24 phone ports (FXS), 1 Ethernet WAN and 1 Ethernet LAN ports.

#### 3.1 The Connectors Panel of QX Gateways

The illustration below includes the connector's panel of QXFXO4, QXISDN4, QXE1T1 and QXFXS24 gateways.

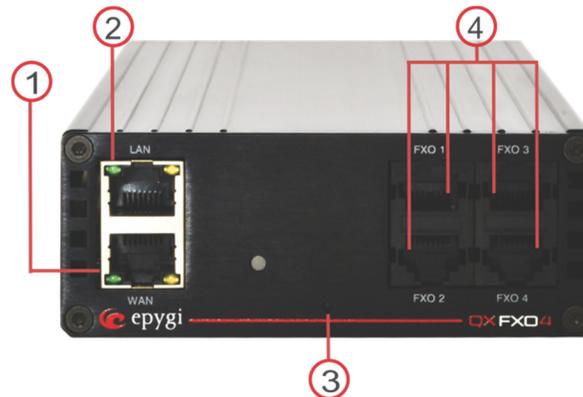


Figure 1: QXFXO4's connector panel

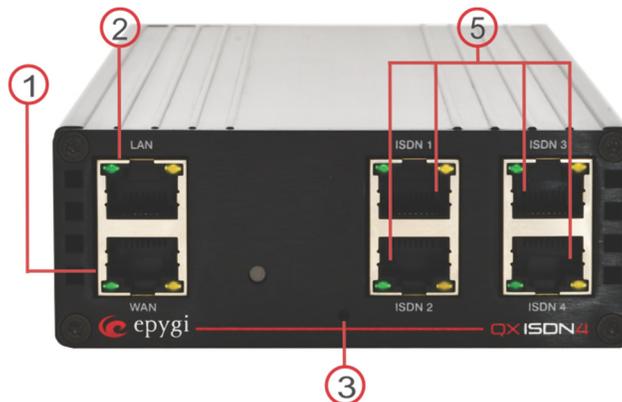


Figure 2: QXISDN4's connector panel

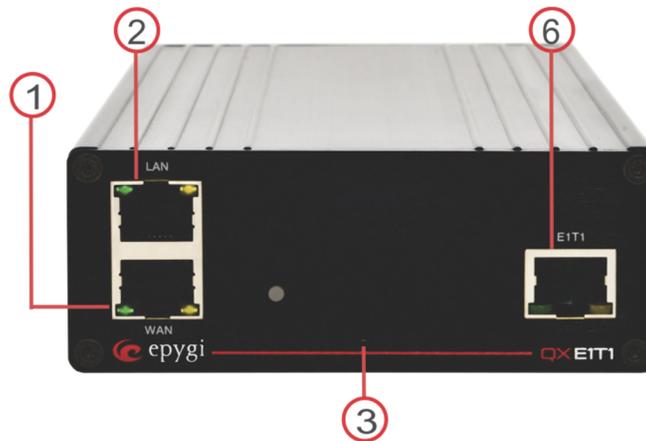


Figure 3: QXE1T1's connector panel



Figure 4: QXFXS24's connector panel

1. WAN RJ45 socket to attach the Internet Uplink (WAN) via an Ethernet CAT 5 cable.
2. LAN RJ45 socket to attach a Local Area Network (LAN) via an Ethernet CAT 5 cable. If a QX IP PBX or a PC is connected directly to this socket, a straight cable is used.
3. The reset button may be used in two ways:
  - pressing for an instant to initiate a normal restart.
  - pressing and holding down for three seconds or more to carry out a factory reset. This will restore the factory defaults and clear all settings including the IP address and administration password you entered.
4. Line socket to attach the FXO trunk to QX Gateway depending on the model of QX Gateway.
5. Line socket to attach the ISDN trunk to QX Gateway depending on the model of QX Gateway.
6. Line socket to attach the E1T1 trunk to QX Gateway depending on the model of QX Gateway.
7. Line socket to attach the FXS trunk to QX Gateway depending on the model of QX Gateway. Phone sockets with RJ11 connectors enable connectivity of regular analog telephones. These are Foreign Exchange Station (FXS) analog ports.



Figure 5: QX Gateways back plate

- AUX PWR (DC Power) connector to connect two units together. The first unit will power the second by using 12V DC power connector.
- AC Power (placed in the back panel of QX gateway) supply socket to connect a power cable.

### 3.2 QX Gateways Front Panel LEDs

System Status	LED Color	State Description
Busy	GREEN	<b>Blinking:</b> normal activity
Info	ORANGE	<b>Blinking:</b> an event occurred; details specified in the System Event section of the Management interface
Fault	Red	<b>On:</b> steady red, system unusable

Table 1: Front Panel LEDs

ETH Interface Status	LED Color	State Description
WAN	GREEN	<b>On:</b> link ok <b>Off:</b> no link <b>flickering:</b> traffic on the link
LAN	ORANGE	<b>On:</b> full duplex mode <b>Off:</b> half duplex mode

Table 2: Interface LEDs

#### LED indication during a firmware update or reboot

1. Power ON – steady GREEN LED for about 3 seconds.
2. Bootstrap loading – steady RED LED for about 3 seconds.
3. Steady ORANGE LED for about 15 seconds.
4. During Reboot – RED/GREEN LEDs are blinking.
5. After Reboot – Slow blinking GREEN LED (normal activity).

### LED indication during emergency firmware update

1. Power ON – steady GREEN LED for about 3 seconds.
2. Bootstrap loading – steady RED LED for about 1 second.
3. Steady ORANGE LED for about 5 seconds.
4. RED LED blinking for about 1 second.
5. Steady ORANGE LED for about 1 minute.
6. Fast blinking ORANGE LED for about 5 second.
7. Reset the board and see the LED indication steps described for firmware update or reboot.

### LED indication during emergency firmware update failure

1. Power ON – steady GREEN LED for about 3 seconds.
2. Bootstrap loading – steady RED LED for about 1 second.
3. Steady ORANGE LED for about 5 seconds.
4. RED LED blinking for about 1 second.
5. Steady ORANGE LED for about 1 minute.
6. Fast blinking RED LED for about 5 second.
7. Steady ORANGE LED for about 15 seconds.

## 4 Installing the QX Gateways

### 4.1 Networking Overview

To establish connections between the PSTN (or the legacy PBX) and the Internet, a gateway is needed. The QX gateway, used as a standalone device, will perform the task of connecting the PSTN (or PBX) to a Private Data Network or the Internet. The QX gateway will process and regulate the voice traffic between these networks according to specified dial plan.

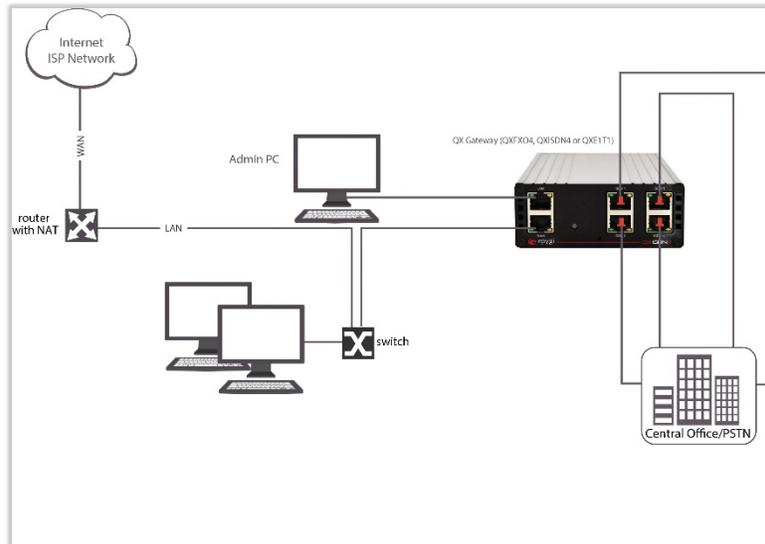


Figure 6: Standalone gateway (QXFXO4, QXE1T1 or QXISDN4): Connection overview

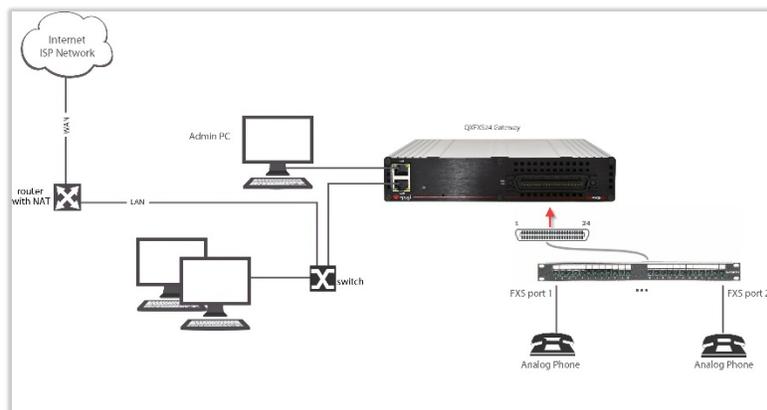


Figure 7: Standalone gateway (QXFXS24): Connection overview

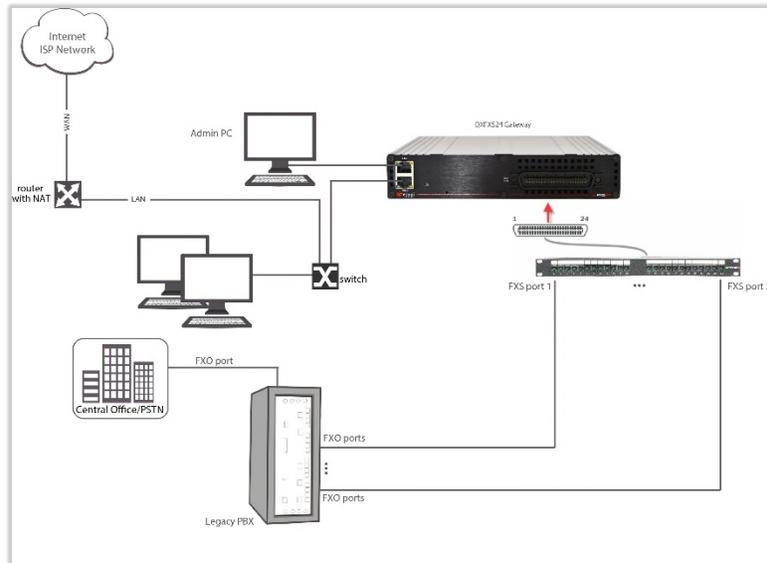


Figure 8: Standalone gateway with Legacy PBX (QXFXS24): Connection overview

Every device within an IP network requires a unique IP address to identify itself. Since the QX gateway, used as a standalone gateway, connects to both the LAN (Admin PC) and the WAN (Private Data Network or Internet), 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 QX gateway's integrated firewall/NAT functionality will hide the LAN IP address from the WAN side.

There are two ways of assigning an IP address: statically or dynamically. The QX gateway can be configured with a static IP address on the WAN interface. You can use also the Internet Service Provider's DHCP server for assigning IP address on the WAN side.

Besides acting as a standalone device, QX gateways may serve as a PSTN LINE expansion for QX IP PBXs. In this case, the QX gateway gets a WAN IP address from the DHCP server of the connected QX IP PBX (see sections [5](#) and [7](#)).

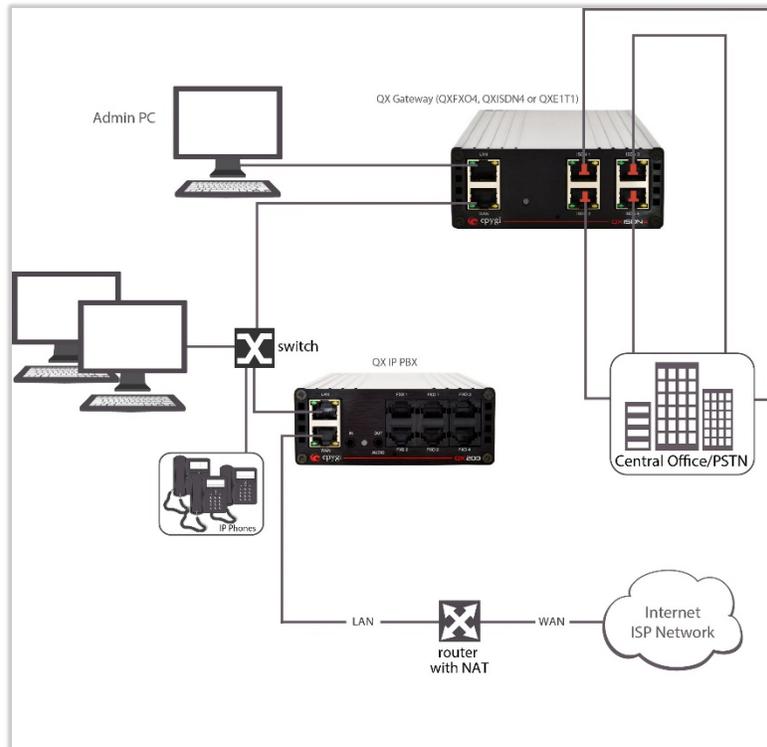


Figure 9: QX gateway (QXFXO4, QXE1T1 or QXISDN4) in shared mode: Connection overview

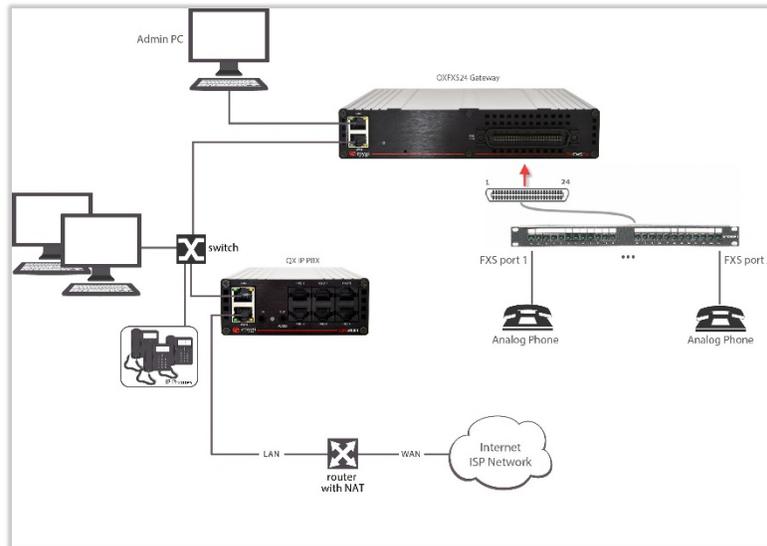


Figure 10: QX gateway (QXFXS24) in shared mode: Connection overview

## 4.2 Connecting the Hardware

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.

1. Connect the Ethernet port on your PC via a straight CAT 5 cable with an RJ45 connector to the LAN socket of the QX.
2. Connect the WAN port of the QX to the ISP network.
3. Power the QX by connecting the power cable to a power strip with surge protection and a UPS.
4. Power up any hub or switch followed by any PC and other devices on the LAN side.
5. Check the LEDs: The green WAN LED will blink when cables are connected to these ports and all devices are powered up. If the green WAN LED does not blink, verify cabling and ensure that all devices are powered up.

**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 endpoints. If these LEDs are not illuminated, there is a connection problem between the QX and the other device.

## 5 Configuring QX Gateways in Standalone Mode

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The basic configuration of the QX gateway in standalone mode includes two main steps:

- Basic Setup
  - System Configuration Wizard
  - Internet Configuration Wizard
- Specifying the Call Routing Patterns according to desired dial plan.

The most important settings required in **Basic Setup**:

- **IP address for the WAN Interface.** If you use a DHCP server, please configure it to deliver the IP address. In this case, QX Gateway will get the IP address automatically, as it acts as a DHCP client on the WAN side.
- **Bandwidth** – used to regulate a number of calls allowed by the QX Gateway to avoid degradation in low bandwidth conditions.
- **Regional Settings** – if your QX Gateway is located outside the United States, it is important to properly configure your line settings according to your location.
- **Firewall** – enable and configure the firewall to make the QX Gateway safe and accessible for management at the same time.

To customize these settings, connect a PC to QX's LAN port, log in and complete the **Basic Setup** as described in the subsequent sections.

## 5.1 Logging in to QX Gateway

1. Start a browser (Google Chrome, Opera, Mozilla Firefox, etc.) on a PC connected to the QX.
2. Since **Firewall** is disabled on the QX by default, you may connect the Web GUI either from WAN or LAN side of the QX. To connect the QX's Web GUI from the WAN side, enter **http://QX IP PBX** (IP address assigned by the company's DHCP server) in the address field of your browser. If the PC is connected to the QX's LAN side, enter the **172.28.0.1** in the address field of your browser.
3. The **Login** page of the QX will be displayed.



Figure 11: Login page

4. Enter the default credentials (Username: **admin** and Password: **19**) to log in as the administrator. Once you log in, you will enter into the QX Management page.

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

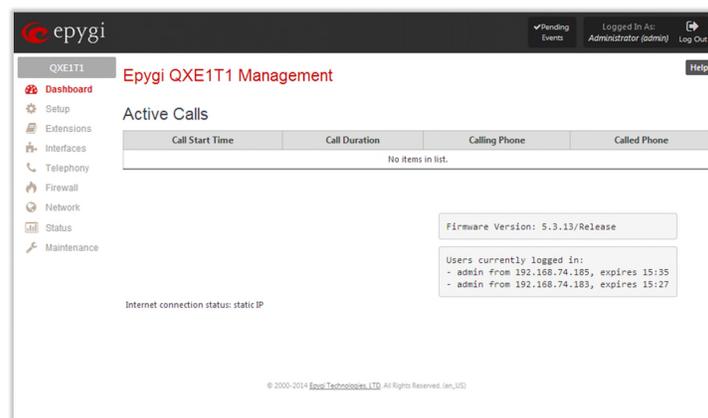


Figure 12: Dashboard page

## 5.2 Basic Setup - System (LAN)

Navigate to the **Setup**→**Basic Setup**→**System (LAN)**. The **System Configuration Wizard** defines the QX's LAN settings and specifies regional configuration. The **System Configuration Wizard** must be run upon QX first startup. Some sections in this wizard may be skipped and left default for the basic configuration.

**Note:** It is strongly recommended to leave the factory default settings unchanged if their meanings are not completely understandable to the party administrating the QX.

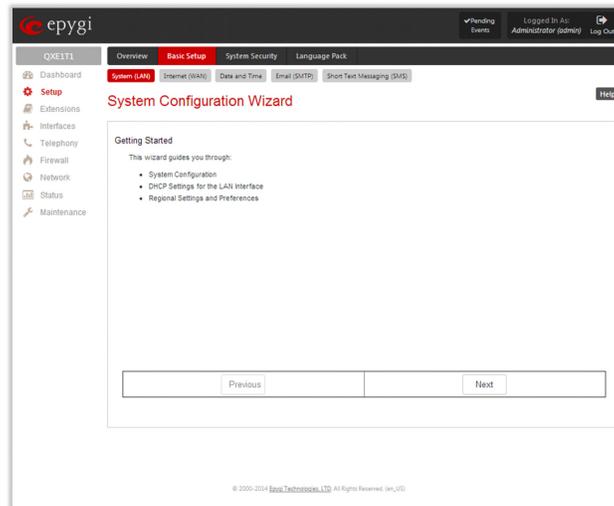


Figure 13: System Configuration Wizard page

### System Configuration

Enter the unique name into the **Host Name** field and the LAN side domain name (to which the QX belongs to) into the **Domain Name** text field.

The **LAN IP Address** doesn't need to be changed for a basic configuration. For more advanced configuration, record a new **LAN IP Address** and keep it handy, you will need it for subsequent access to the QX's management page.

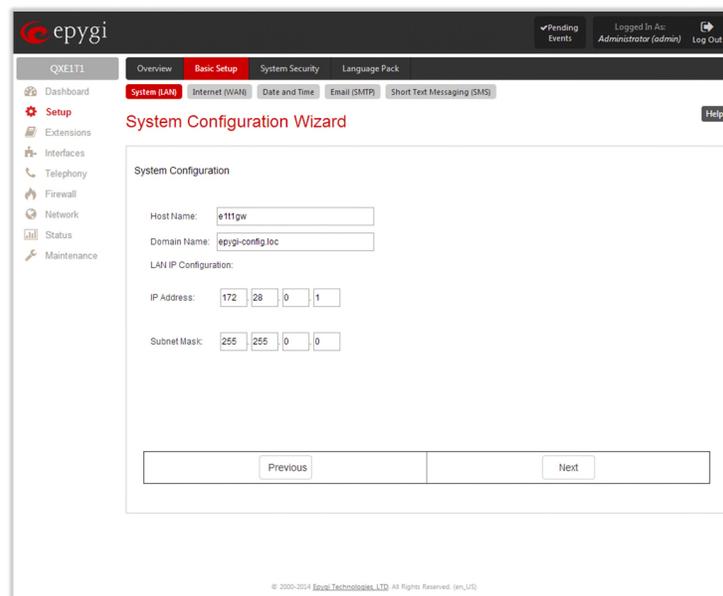


Figure 14: System Configuration section

## DHCP Settings for the LAN Interface

Enabled DHCP server allows the QX automatically assign dynamic IP addresses to the devices on its LAN side. If you didn't change the default LAN IP address of the QX, you also may leave the default values for the **IP Address Range**. **TIP:** Make sure your connected LAN devices belong to the same network as the LAN port of your QX. Make sure there is only one DHCP server on the LAN, otherwise, unpredictable network behavior can occur.

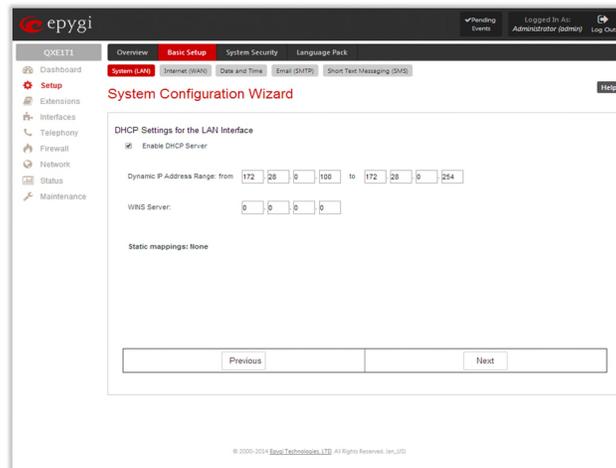


Figure 15: DHCP Settings for the LAN Interface section

## Regional Settings and Preferences

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

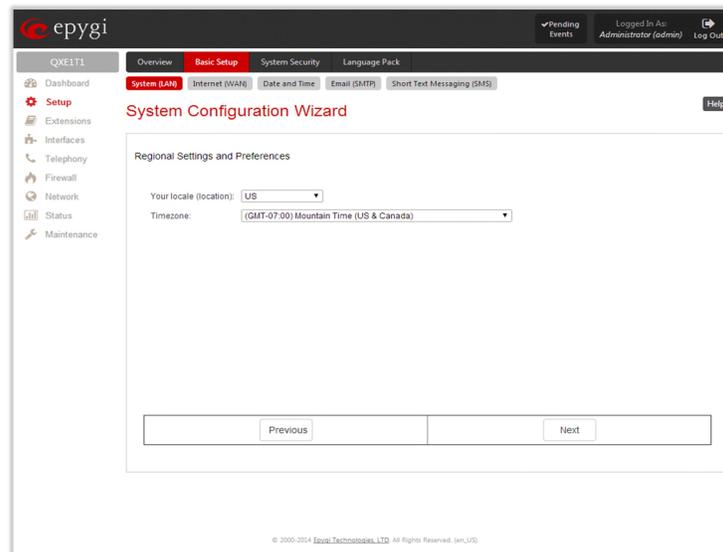


Figure 16: Regional Settings and Preferences section

Proper configuration of the **Regional Settings** is important for the functionality of the voice subsystem. The **Regional Settings** determine the proper telephony parameters on the Line/Trunk and Phone ports of the QX for the specified country. Select the country where the QX is located. If you do not find your country in the list, pick the closest in your timezone.

The QX 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.

## Summary Page

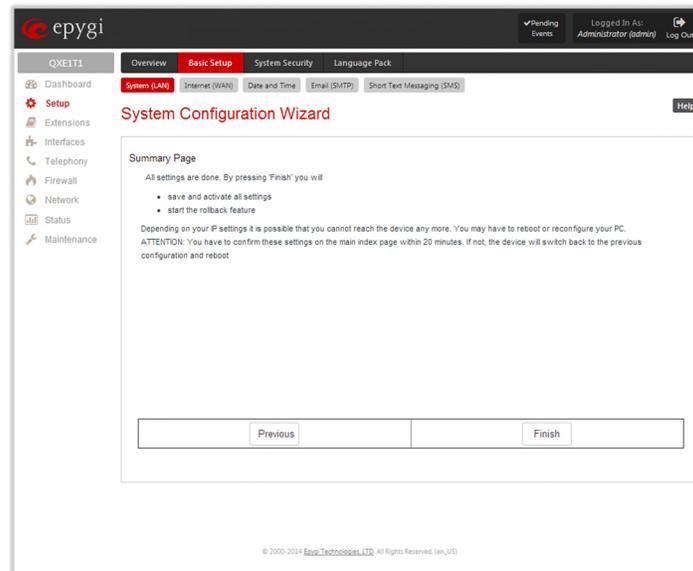


Figure 17: Summary Page section

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

The QX will reply with the **Confirm Settings** page requesting confirmation of the changes. Click **OK** to confirm the settings.

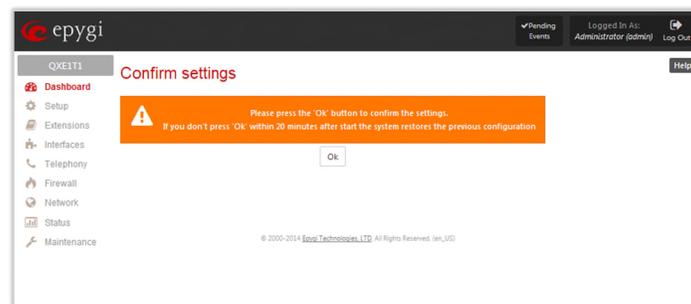


Figure 18: Confirm Settings window

### Note:

- You must confirm the settings within **20** minutes. Otherwise the device will return back to the previous configuration and reboot.
- 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 QX is still within the specified IP address range, otherwise your PC may not establish a connection to QX.
- 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 QX on the new IP address you've assigned to the QX.

## 5.3 Internet (WAN)

Go to the **Setup**→**Basic Setup**→**Internet (WAN)** to configure the network parameters for the WAN interface and adjust QX's connectivity to an external network. The **Internet Configuration Wizard** defines WAN settings and adjusts QX's connectivity to the global network. It must be run if QX is desired to be connected to the Internet.

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

- **Bandwidth** – the 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 default 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.

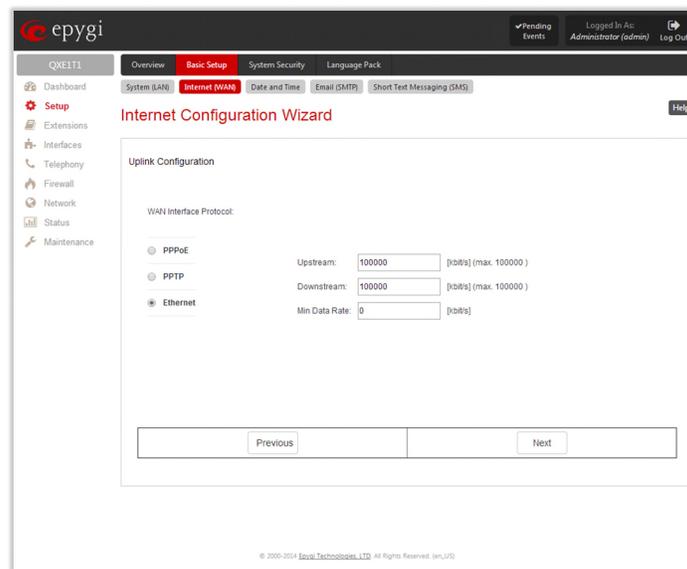


Figure 19: Uplink Configuration section

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 **100000**, the maximum bandwidth of the 100 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**.

### 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 QX first.
- **Always connected** – QX stays in the always connected mode. This will allow QX always remain online in the network.
- The **IP Address Assignment** field is used to specify the external IP address given to the QX. Usually it is a dynamic address but in some cases, you may be given a static IP address.

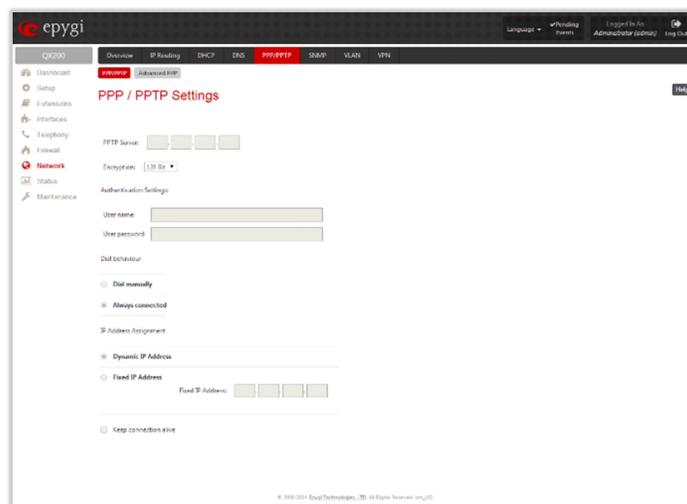


Figure 20: PPP/PPTP Configuration page

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.

## 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 **Default Gateway**. This is common when you have a static IP address with your ISP.

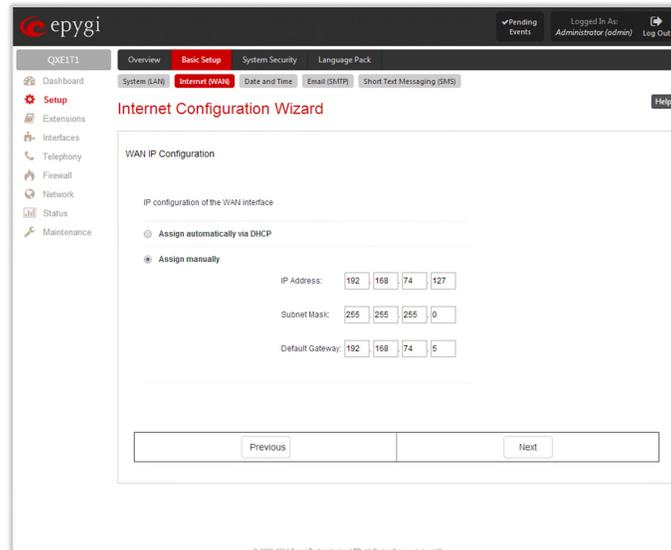


Figure 21: WAN IP Configuration section

## 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.

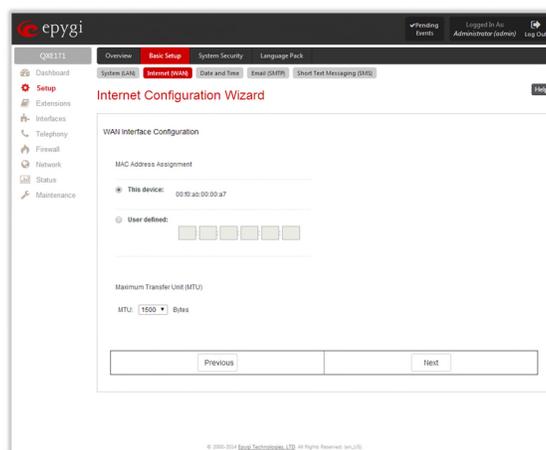


Figure 22: WAN Interface Configuration page

Use the **MTU** drop down list to select the maximum packet size on the Ethernet (in bytes).

## DNS Settings

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

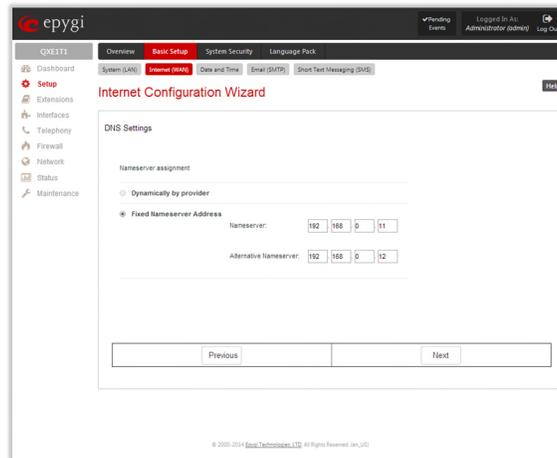


Figure 23: DNS Settings page

The QX 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.

## Summary Page

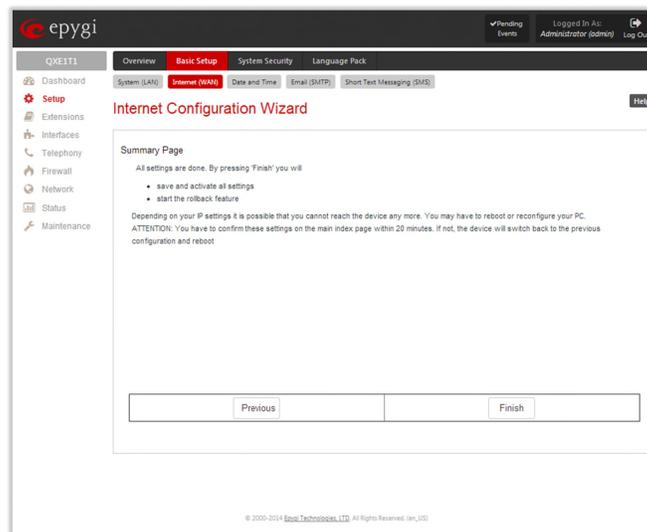


Figure 24: Internet Configuration Wizard Summary page

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

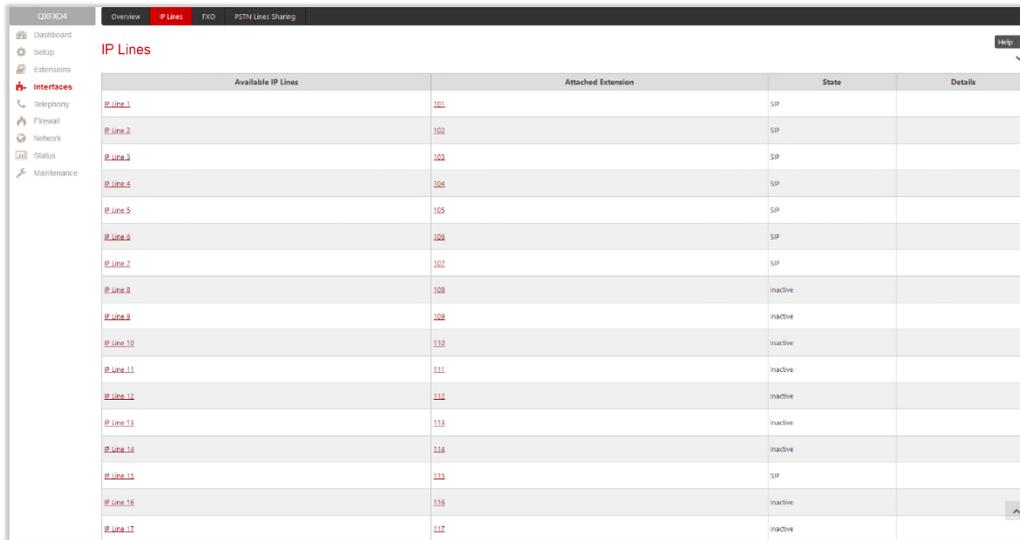
**Note:** The settings should be confirmed within 20 minutes; otherwise, the device will **revert back to the previous configuration and reboot**.

## 6 IP Lines Configuration

The **IP Lines** page is available on the QXFXO4 and QXE1T1 GWs and used to configure the IP lines to connect [IP phones](#) to QX.

**Attention:** The IP phone support is a licensable feature for QXFXO4 and QXE1T1, so enter an IP phone license key on the **Licensed Features** page to enable the IP phones support on the QX. The total number of IP lines available is **200**.

The **IP Lines** table lists all IP lines available on the QX with the specific information on each line.



Available IP Lines	Attached Extension	State	Details
<a href="#">IP Line 1</a>	101	SIP	
<a href="#">IP Line 2</a>	102	SIP	
<a href="#">IP Line 3</a>	103	SIP	
<a href="#">IP Line 4</a>	104	SIP	
<a href="#">IP Line 5</a>	105	SIP	
<a href="#">IP Line 6</a>	106	SIP	
<a href="#">IP Line 7</a>	107	SIP	
<a href="#">IP Line 8</a>	108	Inactive	
<a href="#">IP Line 9</a>	109	Inactive	
<a href="#">IP Line 10</a>	110	Inactive	
<a href="#">IP Line 11</a>	111	Inactive	
<a href="#">IP Line 12</a>	112	Inactive	
<a href="#">IP Line 13</a>	113	Inactive	
<a href="#">IP Line 14</a>	114	Inactive	
<a href="#">IP Line 15</a>	115	SIP	
<a href="#">IP Line 16</a>	116	Inactive	
<a href="#">IP Line 17</a>	117	Inactive	

Figure 25: IP Lines page

- **Available IP Lines** – displays all IP lines available on the QX. Press a hyperlinked IP line to go to the **IP Line Settings** page (Figure 26) to configure the selected IP line.
- **Attached Extension** – displays the extension attached to the corresponding IP line. Nothing will be displayed if there is no extension attached to that line. Click the hyperlinked extension number to go to the **Extensions Management – Edit Entry** page to configure the extension’s settings.
- **State** – displays whether the IP line is configured with an IP phone (**SIP**) or not (**Inactive**).
- **Details** – displays the settings for the IP phone configured on the corresponding line, such as the authorization credentials.
- **Hide disabled IP lines/Show disabled IP lines** – are used to respectively hide or show the IP lines that have not been activated with a feature key.

IP Line Settings – IP Line # page is used to configure the IP Line with a phone.

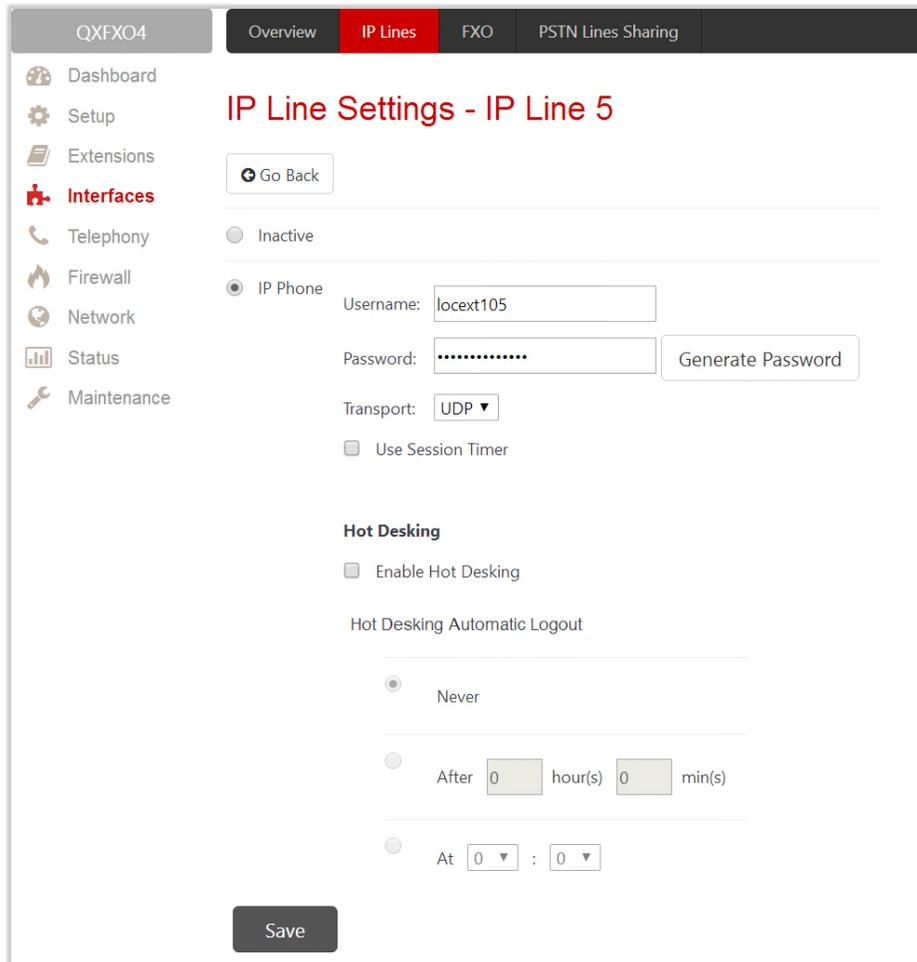


Figure 26: IP Line Settings – IP Line # page

- **Inactive** – if selected, turns the IP line state to inactive.
- **IP Phone** – if selected, activates the line to be configured with an IP phone as follows:
  - **Username** and **Password** – define the authentication parameters to register the IP phone on the QX. **TIP:** The same parameters should be manually configured on the phone using the phone GUI.
  - **Transport** – select the transport protocol for SIP messages – **UDP**, **TCP** or **TLS**. For TLS, you may activate the update mechanism from an IP Phone to obtain the latest certificate generated by the QX.
  - **Use Session Timer** – enable the SIP session timer for the corresponding IP line. This option allows both user agents and proxies to determine if the SIP session is still active.

The **Hot Desking** section is used to enable and configure the **Hot Desking** service on the IP Line as follows:

- **Enable Hot Desking** – enable the **Hot Desking** on the corresponding IP line.
- **Hot Desking Automatic Logout** – 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** – if selected, the **Hot Desking** will never expire for the extension.
  - **After** – if selected, extension will automatically log out from the public phone after the defined period.
  - **At** – if selected, extension will automatically log out from the public phone at the defined moment (hour and minute).

## 6.1 The Hosted PBX Survivability feature on QX

QXE1T1 and QXFXO4 gateways support the Hosted PBX Survivability (HS). This feature can be helpful in the scenario when using a Hosted PBX, but cannot make calls due to loss of the broadband connection. Using QXE1T1 and QXFXO4 gateways with HS allow IP phones to work, even when the broadband link or Hosted PBX are down. Users can also use the HS feature to provide access to remote phones in a branch office.

**Attention:** HS support is available for the firmware version 6.1.17 and higher.

Generally, IP phones register on the Hosted PBX, where they make and receive calls, as a primary SIP proxy server. Additionally, IP phones register on the QX Gateway as a secondary SIP proxy server. When the broadband link or Hosted PBX fail, the QX Gateway takes control of the IP phone calls, connecting them to the PSTN. Transition from the Hosted PBX to the QX via the HS is transparent to users. This list of IP phones configured and tested to work properly with QXE1T1 and QXFXO4, supporting most of Epygi telephony features and HS, is provided in the table below.

Vendor	Model	SW/FW Version
Aastra	6757iCT(57iCT)	3.3.1.2256-SIP
Aastra	9480iCT(35iCT)	3.3.1.2256-SIP
Grandstream	GXP1100	1.0.8.6
Grandstream	GXP1105	1.0.8.6
Grandstream	GXP1160	1.0.8.6
Grandstream	GXP1165	1.0.8.6
Grandstream	GXP1400	1.0.8.6
Grandstream	GXP1405	1.0.8.6
Grandstream	GXP1450	1.0.8.6
Grandstream	GXP1610	1.0.2.27
Grandstream	GXP1620/GXP1625	1.0.2.27
Grandstream	GXP2100	1.0.8.6
Grandstream	GXP2110	1.0.8.6
Grandstream	GXP2120	1.0.8.6
Grandstream	GXP2124	1.0.8.6
Grandstream	GXP2130	1.0.5.23
Grandstream	GXP2140	1.0.5.23
Grandstream	GXP2160	1.0.5.23
Grandstream	GXP2200	1.0.3.27
Grandstream	GXV3140	1.0.7.80
Grandstream	GXV3175	1.0.3.76
Grandstream	GXV3240	1.0.3.62
Grandstream	GXV3275	1.0.3.62
Mitel (Aastra)	6730	3.3.1.4305-SIP
Mitel (Aastra)	6731	3.3.1.4305-SIP
Mitel (Aastra)	6735	3.3.1.8140-SIP
Mitel (Aastra)	6737	3.3.1.8140-SIP
Mitel (Aastra)	6739	3.3.1.4305-SIP
Mitel (Aastra)	6753	3.3.1.4305-SIP
Mitel (Aastra)	6755	3.3.1.4305-SIP
Mitel (Aastra)	6757	3.3.1.4305-SIP
Mitel (Aastra)	6863	4.0.0.92-SIP
Mitel	6865	4.0.0.92-SIP
Mitel	6867	4.0.0.92-SIP

Vendor	Model	SW/FW Version
Mitel	9143	3.3.1.4305-SIP
Mitel	9480	3.3.1.4305-SIP
Polycom	SoundPoint IP 330SIP	3.3.5.0247
Polycom	SoundPoint IP 331SIP	3.3.5.0247
Polycom	SoundPoint IP 335SIP	3.3.5.0247
Polycom	SoundPoint IP 450SIP	3.3.5.0247
Polycom	SoundPoint IP 550SIP	3.3.5.0247
Polycom	SoundPoint IP 650SIP	3.3.5.0247
Polycom	SoundPoint IP 670SIP	3.3.5.0247
Polycom	SoundStation IP 5000	3.3.5.0247
Polycom	SoundStation IP 6000	3.3.5.0247
Polycom	VVX 1500	3.3.5.0247
Polycom	VVX 300/310	4.1.7.1210
Polycom	VVX 400/410	4.1.7.1210
Polycom	VVX 500	4.1.7.1210
Polycom	VVX 600	4.1.7.1210
Yealink	CP860	37.80.0.10
Yealink	SIP-T19P	31.72.0.1
Yealink	SIP-T19P E2	53.80.0.130
Yealink	SIP-T20P	9.72.0.1
Yealink	SIP-T21P	34.72.0.1
Yealink	SIP-T21P E2	52.80.0.130
Yealink	SIP-T22P	7.72.0.1
Yealink	SIP-T23G(P)	44.80.0.130
Yealink	SIP-T26P	6.72.0.1
Yealink	SIP-T27P	45.80.0.130
Yealink	SIP-T28P	2.72.0.1
Yealink	SIP-T29G	46.80.0.130
Yealink	SIP-T32G	32.70.0.130
Yealink	SIP-T38G	38.70.0.125
Yealink	SIP-T40P	54.80.0.130
Yealink	SIP-T41P	36.80.0.130
Yealink	SIP-T41S	66.81.0.25
Yealink	SIP-T42G	29.80.0.130
Yealink	SIP-T42S	66.81.0.25
Yealink	SIP-T46G	28.80.0.130
Yealink	SIP-T46S	66.81.0.25
Yealink	SIP-T48G	35.80.0.130
Yealink	SIP-T48S	66.81.0.25
Yealink	SIP VP-T49G	51.80.0.100
Yealink	VP-530	23.70.0.40
Yealink	W52P	25.30.0.20

Table 3: Tested IP Phones

## 7 Configuring the QXFXO4, QXISDN4 and QXE1T1 Gateways in share mode

QXFXO4, QXISDN4 and QXE1T1 Gateways as a LINE expansion device does not require further configuration but the FXO, ISDN or E1T1 line sharing, if the QX IP PBX:

- is connected to the network and all network settings are done without any issues.
- still acts as a DHCP Server as it does by default.

The only required configuration for sharing the FXO lines of QXFXO4, ISDN and E1T1 trunks of the QXISDN4 and QXE1T1 Gateways respectively to the QX IP PBX is the sharing mode configuration on both devices (see details in Sharing Mode Configuration on QX IP PBX and Sharing Mode Configuration on QX Gateways).

If the QX IP PBX does not act as a DHCP server and/or does not use the default LAN IP address any more, follow instructions presented below on both the QX IP PBX and QX Gateway for incoming/outgoing calls through QX Gateway ports.

### 7.1 Enable the DHCP Server on the QX IP PBX

The QX Gateway need to have an IP address to identify itself in the QX IP PBX LAN. This IP address can be assigned manually or dynamically via the DHCP server of the QX IP PBX. The simple way from the configuration perspective is to get an IP address from the QX IP PBX dynamically. This will be done automatically, if the QX IP PBX acts as a DHCP server and the QX Gateway acts as a DHCP client.

To make sure, that the QX IP PBX will serve as a DHCP server, login to the QX IP PBX as an administrator and select **Enable DHCP Server** from the **DHCP Settings for the LAN Interface** menu.

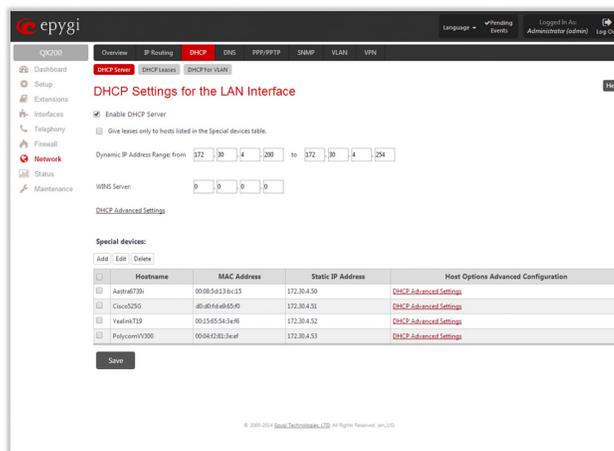


Figure 27: DHCP Settings for the LAN Interface page

Make sure the **Enable DHCP Server** checkbox is selected and the **IP Address Range** is configured.

To make sure, that the DHCP Server of the QX IP PBX assigned a valid IP address to the QX Gateway, go to the **DHCP - DHCP Leases** tab of the QX IP PBX. The table on the opened page should list the IP address with some other details of the QX Gateway.

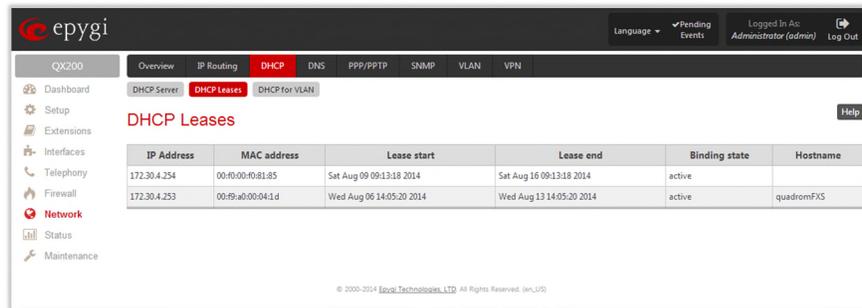


Figure 28: DHCP Leases page of the QX IP PBX

## 7.2 Sharing Mode Configuration on QX IP PBX

This configuration is required on the QX IP PBX in order to make it use the shared FXO line, ISDN or E1T1 trunks on the QX Gateways, as well as to configure the appropriate settings for the successful authorization between QX IP PBX and the QX Gateway.

1. Go to **Interfaces**→**PSTN Gateways** page.

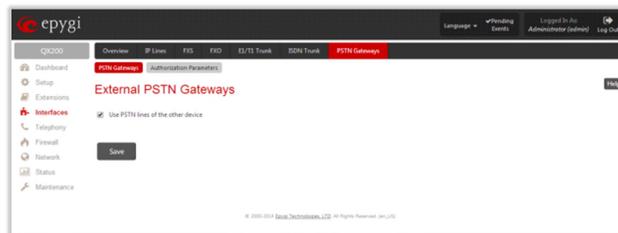


Figure 29: External PSTN Gateways page on QX IP PBX

2. Select the **Use PSTN lines of the other device** checkbox and press **Save** to apply the changes.
3. Go to the **Authorization Parameters** tab. Here, a list of authorized devices should be configured.

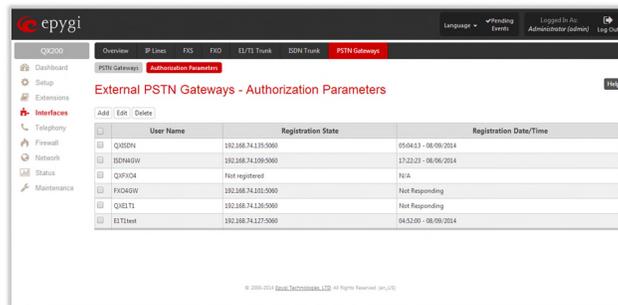


Figure 30: PSTN Gateways - Authorization Parameters page on QX IP PBX

4. Press **Add** functional link to add new **authorization parameters** for the QX Gateway.

On the opened page, insert the **User Name** and the **Password** in the corresponding text fields. These authentication parameters should match on QX IP PBX and QX Gateway. **Save** the parameters.

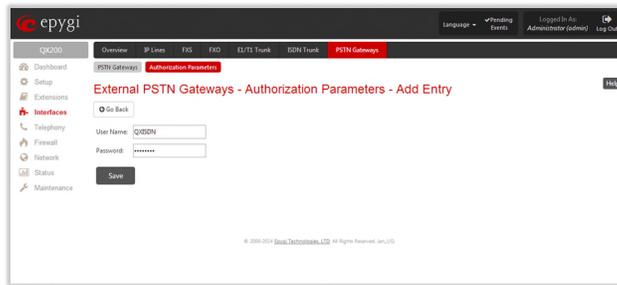


Figure 31: PSTN Gateways - Authorization Parameters - Add Entry page on QX IP PBX

## 7.3 Sharing Mode Configuration on QX Gateways

This configuration is required on the QX Gateway to share its FXO lines, ISDN or E1T1 trunks to the QX IP PBX. Open the Web Management of the QX Gateway (QXISDN4 Gateway is used in this example) in your browser (the QX Gateway IP address is 172.28.0.1 by default).

1. Go to the **Interfaces**→**PSTN Lines Sharing** page.

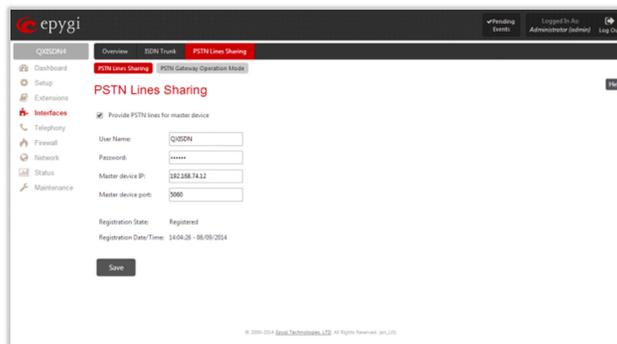


Figure 32: PSTN Lines Sharing page on QX Gateway

Select the Provide PSTN lines for master device checkbox.

Insert the **User Name** and the **Password** in the corresponding text fields. These authentication parameters should match on both master and slave QXs.

Enter the **IP address** of the QX IP PBX into the **Master device IP** text field.

Enter the **SIP Port** of the QX IP PBX into the **Master device port** text field. **Save** the inputs.

**The results:** The configuration above will cause the corresponding FXO, ISDN or E1T1 trunks of the QX Gateway to be shared to the QX IP PBX.

ISDN/E1T1 trunks and additional FXO lines appear on the QX IP PBX **ISDN Trunk**, **E1T1 Trunk** and **FXO Settings** pages respectively:

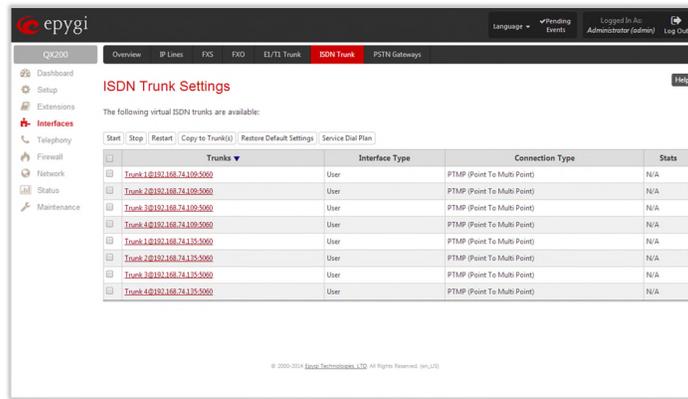


Figure 33: ISDN Trunk Settings page with shared ISDN trunks on QX IP PBX

1. A new call routing rule (#12) is automatically added to the Call Routing Table on the QX IP PBX.

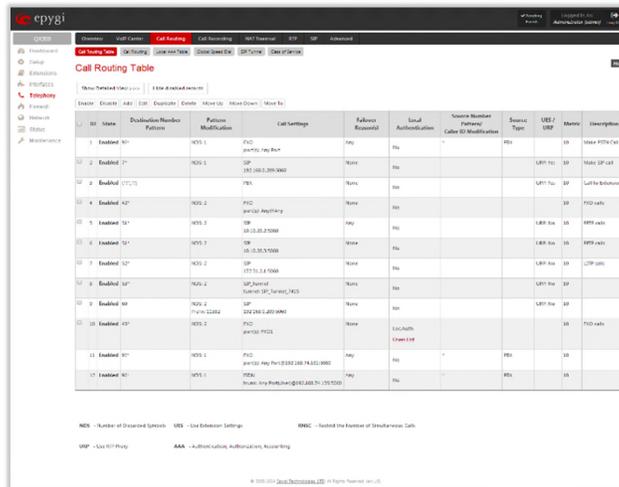


Figure 34: Call Routing Table on QX IP PBX

2. FXO, ISDN Trunk and E1T1 Settings pages become read-only on the QX Gateway.

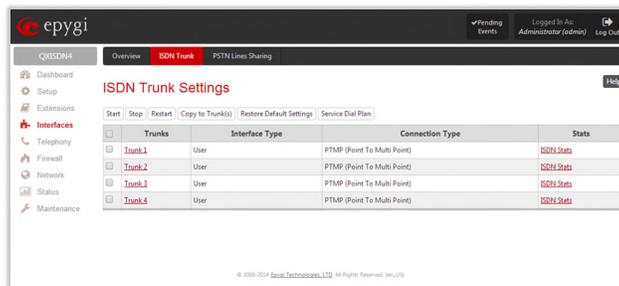
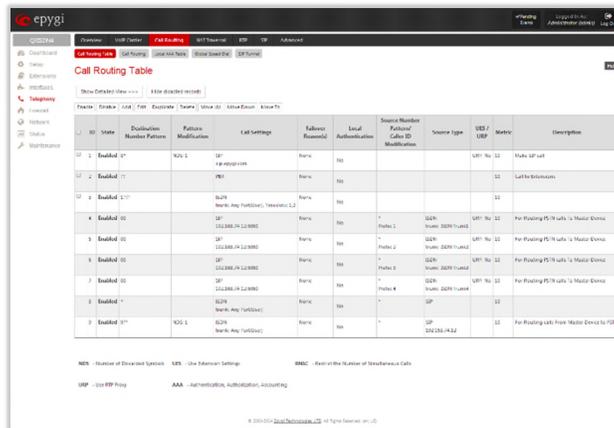


Figure 35: ISDN Trunk Settings page in read-only mode on QXISDN4

3. New routing rules (#4-7) are automatically added to the Call Routing Table on QX Gateway.



Priority	State	Duplication	Pattern	Pattern Modification	Call Settings	Followup Allowed	Local Authentication	Source Number	Pattern/Call ID Modification	Source Type	VSP / VSP	Status	Description
01	Enabled	*	N01 1	SP	98-99999999	None	Yes				VSP No 01	OK	Make SP List
02	Enabled	*		PN		None	Yes					OK	Let's Be Bilingual
03	Enabled	*		SP		None	Yes					OK	
04	Enabled	01		SP		None	Yes	7	SP	Profile 1	VSP No 01	OK	For Floating 95% Calls To Master Device
05	Enabled	01		SP	111.222.33.1234567	None	Yes	7	SP	Profile 2	VSP No 01	OK	For Floating 95% Calls To Master Device
06	Enabled	01		SP	111.222.33.1234567	None	Yes	7	SP	Profile 3	VSP No 01	OK	For Floating 95% Calls To Master Device
07	Enabled	01		SP	111.222.33.1234567	None	Yes	7	SP	Profile 4	VSP No 01	OK	For Floating 95% Calls To Master Device
08	Enabled	*		SP		None	Yes					OK	
09	Enabled	*	N01 1	SP	98-99999999	None	Yes	7	SP	Profile 4	VSP No 01	OK	For Floating Calls From Master Device to 10%

Figure 36: Call Routing Table on QX Gateway

All these routing rules cannot be edited or deleted.

**Note:** Any changes made in the **FXO**, **ISDN Trunk** or **E1T1 Trunk Settings** on the QX IP PBX will automatically be reflected in this table.

Following dependencies are used when sharing the FXO, ISDN and E1T1 lines:

- The configuration of all FXO lines, ISDN and E1T1 trunks (line state, PSTN Number, Allowed Call Type, etc.) on the QX gateway is transparent to QX IP PBX and will be displayed in the table on the FXO, ISDN and E1T1 Settings pages respectively.
- Independent of the configuration on the QX gateway, the incoming calls on all shared FXO, ISDN and E1T1 lines will be automatically routed to the default Auto Attendant (00) on QX IP PBX once FXO, ISDN or E1T1 sharing is activated. Occasionally, routed destinations can be changed on QX IP PBX by clicking on the corresponding FXO, ISDN or E1T1 line.
- Any changes applied to the configuration of shared FXO, ISDN and E1T1 lines on QX IP PBX will be automatically reflected in the FXO, ISDN and E1T1 Settings pages and Call Routing Table on the QX gateway.
- All custom Call Routing rules created on the QX IP PBX and dedicated for some advanced call routing through the shared QX gateway will be automatically deleted once the FXO line, ISDN or E1T1 trunk sharing is disabled. Those routing rules will not be recovered if the sharing is enabled again.

### How this configuration works:

When the QX IP PBX user dials **9** followed by a PSTN number (or 9+ # + PSTN number) and no FXO, ISDN or E1T1 line is available on the QX IP PBX (they are either unavailable, in use or disabled), the call will be routed to QX gateway and will go through the first available FXO, ISDN or E1T1 line port on the QXFXO4, QXISDN4 and QXE1T1 respectively.

When incoming call arrives to either of the FXO port on the QXFXO4, ISDN trunk on the QXISDN4 or E1T1 trunk on the QXE1T1 gateway, it will be automatically routed to the Auto Attendant on the QX IP PBX (unless configured otherwise from the FXO, ISDN or E1T1 Settings pages on the QX IP PBX).

## 8 Configuring the QXFXS24 Gateway as QX IP PBX Expansion device

QXFXS24 as a FXS expansion device does not require further configuration if the QX IP PBX:

- Is connected to the network and all network settings are done without any issues.
- Acts as a DHCP Server for its LAN interface.
- PnP for IP lines is enabled as it does by default.
- The LAN interface is selected for configuring the IP phones.

### Connecting the QXFXS24

- Connect the WAN port of the QXFXS24 to the LAN port of the QX IP PBX via a straight through Cat 5 cable with a RJ 45 connector.

### Two ways of QXFXS24 configuration on the QX IP PBX are available:

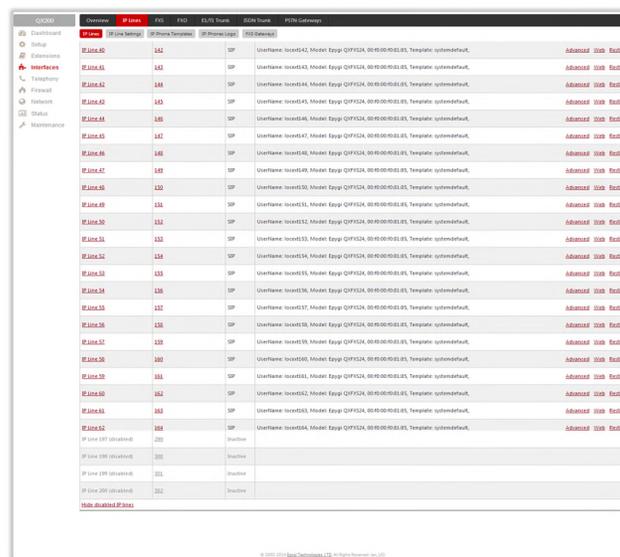
- Plug-and-Play detection
- Auto configuration

## 8.2 QXFXS24 Plug-and-Play Detection

To perform the QXFXS24 gateway Plug-and-Play detection on the QX IP PBX, only one step is required:

- Factory reset the QXFXS24 by pressing and holding the RESET button on the device for at least seven seconds. Once this is done, following changes occur on the QX IP PBX:
- 24 inactive IP lines in the IP Lines page on the QX IP PBX are automatically configured and shown as “Epygi QXFXS24” with appropriate registration usernames.

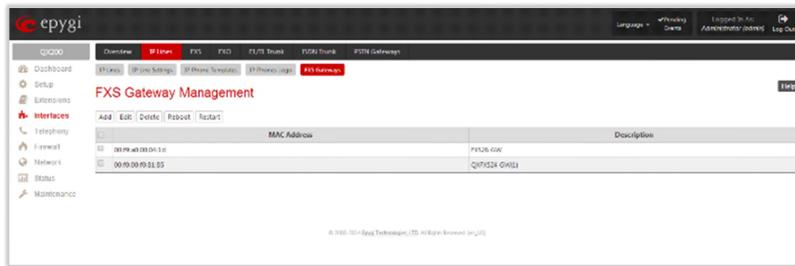
**Note:** QX IP PBX will provide a warning if no available inactive IP lines.



IP Line	FXS	FWD	FXS Type	SIP Status	P30 Gateway
IP Line 40	142		SP	Unavailable	Unavailable
IP Line 41	143		SP	Unavailable	Unavailable
IP Line 42	144		SP	Unavailable	Unavailable
IP Line 43	145		SP	Unavailable	Unavailable
IP Line 44	146		SP	Unavailable	Unavailable
IP Line 45	147		SP	Unavailable	Unavailable
IP Line 46	148		SP	Unavailable	Unavailable
IP Line 47	149		SP	Unavailable	Unavailable
IP Line 48	150		SP	Unavailable	Unavailable
IP Line 49	151		SP	Unavailable	Unavailable
IP Line 50	152		SP	Unavailable	Unavailable
IP Line 51	153		SP	Unavailable	Unavailable
IP Line 52	154		SP	Unavailable	Unavailable
IP Line 53	155		SP	Unavailable	Unavailable
IP Line 54	156		SP	Unavailable	Unavailable
IP Line 55	157		SP	Unavailable	Unavailable
IP Line 56	158		SP	Unavailable	Unavailable
IP Line 57	159		SP	Unavailable	Unavailable
IP Line 58	160		SP	Unavailable	Unavailable
IP Line 59	161		SP	Unavailable	Unavailable
IP Line 60	162		SP	Unavailable	Unavailable
IP Line 61	163		SP	Unavailable	Unavailable
IP Line 62	164		SP	Unavailable	Unavailable
IP Line 100 (disabled)	200		Inactive		
IP Line 100 (disabled)	200		Inactive		
IP Line 100 (disabled)	200		Inactive		
IP Line 200 (disabled)	202		Inactive		

Figure 37: IP Lines page on the QX IP PBX

- QXFXS24 appears in the FXS Gateway Management table (to reach it, go to the Interfaces - IP Lines - FXS Gateways page on the QX IP PBX). From these page QXFXS24 lines assignment to the IP lines on the QX IP PBX may be modified.

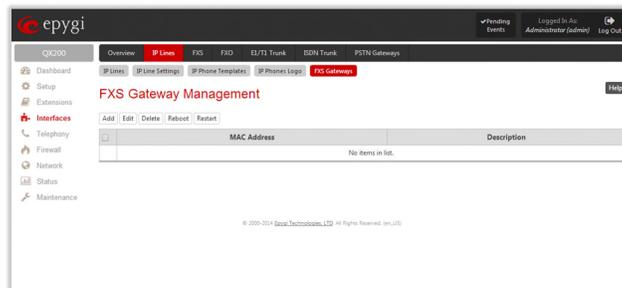


	MAC Address	Description
	00:19:00:00:00:14	QXF24-GW
	00:19:00:00:00:02	QXF24-GW2

Figure 38: FXS Gateway Management table on the QX IP PBX

## 8.3 Auto Configuration

For auto configuration of the QXFXS24 gateway on the QX IP PBX, go to the **FXS Gateway Management** table (navigate to the **Interfaces**→**IP Lines**→**FXS Gateways** page on the QX IP PBX).



	MAC Address	Description
No items in list.		

Figure 39: Empty FXS Gateway Management table on the QX IP PBX

The **FXS Gateway Management** page is used to define QX FXS Gateway devices in your network that can serve as FXS expansion modules for your QX IP PBX. Additional FXS lines provided by the FXS Gateway can be connected to the IP lines on the QX IP PBX.

**Add** functional button opens **FXS Gateway Configuration Wizard** where the FXS Gateway (QXFXS24) should be defined.

The **FXS Gateway Configuration Wizard - FXS Gateway Model** page contains following components:

- The **FXS Gateway Model** drop down list is used to select the FXS Gateway to be used as an FXS expansion device.
- The **MAC Address** text fields require the MAC Address of the FXS Gateway. Based on the selected FXS Gateway model and the inserted MAC Address, the FXS Gateway can be automatically configured by simple reset/reboot.
- The **Description** text field requires the description of the FXS Gateway to be configured.

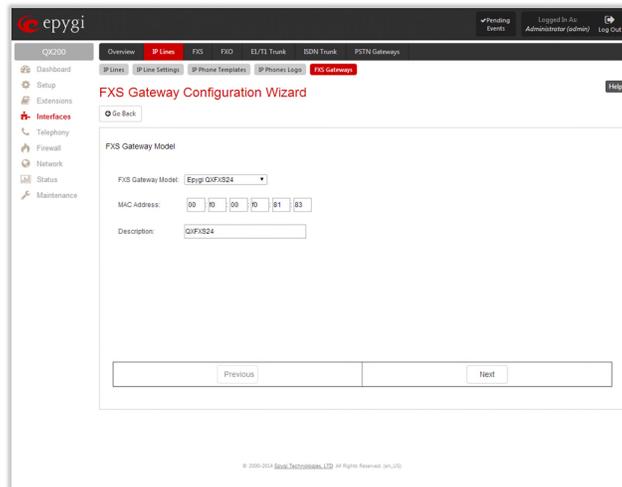


Figure 40: FXS Gateway Configuration Wizard - page 1

The next page of the wizard is **FXS Gateway Configuration Wizard - FXS Gateway Lines**. This page displays a list of FXS lines provided by the FXS Gateway and is used to assign each FXS line to an IP line on the QX IP PBX. System will automatically assign the provided FXS lines to the first available IP lines on the QX IP PBX. You may adjust the configuration from this page.

**Note:** The FXS lines can be assigned only to inactive IP lines on the QX IP PBX. If there are no enough free IP lines available on the QX IP PBX, you should first deactivate the IP line from the **IP Line Settings** page to use it in the **FXS Gateway Configuration Wizard**.

The next page of the wizard is **FXS Gateway Configuration Wizard - Summary** where the configured settings should be verified.

Once the **FXS Gateway Configuration Wizard** terminates, a new entry is added to the table and the corresponding FXS Gateway's configuration gets updated according to the settings defined in the wizard, i.e. corresponding routing rules will be added to the Call Routing table of the FXS Gateway. If you need to reboot the FXS gateway, use the **Reboot** functional button in the **FXS Gateway Management** page.



Figure 41: FXS Gateway Configuration Wizard - page 2

### How this Configuration Works:

Once QXFXS24 is detected on the QX IP PBX, regular analog phones can be connected to the FXS ports on the QX that allow users to place and receive calls using the call routing rules for the QX IP PBX. Additionally, the whole bunch of feature codes becomes available on the FXS lines. For specific features descriptions and feature codes available on the FXS lines, please refer to the Manual II - Administrator's Guide of the QX IP PBX.

## 8.4 Enable the DHCP Server on the QX IP PBX

The QXFXS24 has to have an IP address to identify itself in the QX IP PBX LAN. This IP address can be assigned to it manually or dynamically via the DHCP server of the QX IP PBX. The simple way from the configuration perspective is to dynamically get an IP address from the QX IP PBX (default IP is 172.30.0.1). This will be done automatically, if the connected QX IP PBX acts as a DHCP server and if the QXFXS24 acts as a DHCP client. Both devices will do so in their default settings.

To make sure, that the QX IP PBX will serve as a DHCP server:

1. Go to the **Network→DHCP→DHCP Server** page (on QX IP PBX).

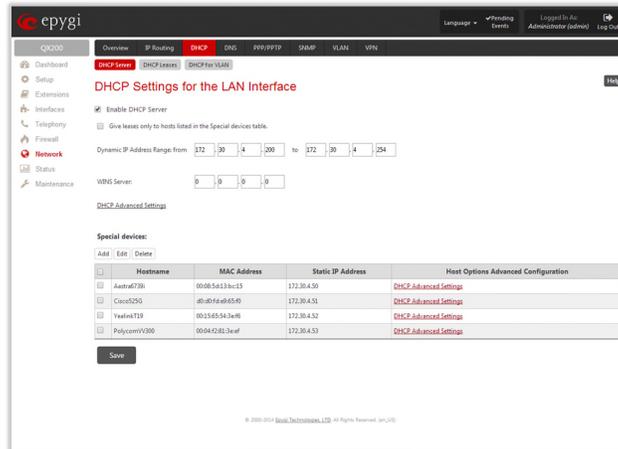


Figure 42: DHCP Settings for the LAN Interface page

2. Make sure the **Enable DHCP Server** checkbox is selected and the IP Address Range is configured.
3. To make sure, that the **DHCP Server** of the QX IP PBX assigned a valid IP address to the QXFXS24, go to the DHCP - DHCP Leases tab of the QX IP PBX. The table on the opened page should list the IP address and other details of the QXFXS24.

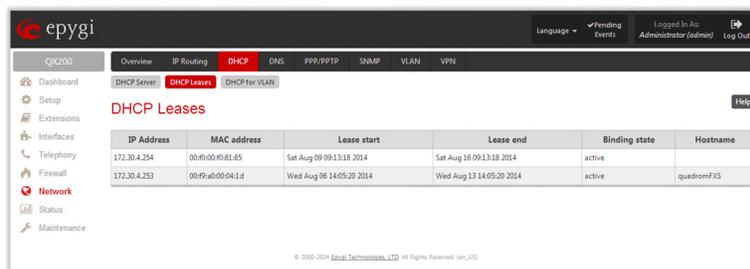


Figure 43: DHCP Leases page of the QX IP PBX

## 9 Appendix: Registering on Epygi’s Support Portal

It is recommended that you register your QX on the Epygi Technical Support Center. Registration with a QX valid serial number will give you access to the **Epygi Support Portal** to download the QX new firmware, manuals and other supplementary information. The **Epygi Support Portal** allows to submit requests concerning technical problems as well as refer to the [Epygi Forum](#) section.

Additionally, registration at **Epygi Support Portal** gives you the username and password for login to the Epygi SIP Server.

For registration, you can use the **Register Your Device in Technical Support Center** page, which appears when administrating the QX first time.



Figure 44: Device Registration page

To fill and complete the registration form (Figure 45), you need the serial number of your QX (located on a label on the bottom of QX), as well as the date of purchase. Complete all fields and record the **Username** and **Password** in a safe place. You will need it for accessing the Epygi SIP server.

**Note:** If you have any issues with registering or have questions about products and services, email [sales@epygi.com](mailto:sales@epygi.com).



Home
Terms of Use
Register
News
Forum

English (U.S.) ▼

**Login**



Remember me

[Lost password](#) [Login](#)

HINT: Use plus sign preceding each word or quotes to narrow search. SEARCH

**Create a new account**

Please fill in the fields below with the end customer's information who will be using the Quadro/QX. This will give the user access to Epygi's monthly updates and technical resources. Once registered the email address will need to be validated before the account is enabled. If you have already created an account and would like to register additional units, please login to the Channel Portal and navigate to My Profile to add multiple serial numbers.

**General Information**

Full Name:*	<input type="text"/>
Email:*	<input type="text"/>
Phone Number:*	<input type="text"/>
Password:*	<input type="password"/>
Password (repeat):*	<input type="password"/>

**Registration**

Username:*	<input type="text"/>
------------	----------------------

Required for Forum and SIP

**Location**

Country:*	<input type="text" value="- Select -"/>
City:*	<input type="text"/>
ZIP:	<input type="text"/>
Address:	<input type="text"/>

**User Type**

User Status:*	<input type="text" value="Customer"/>
---------------	---------------------------------------

Please select the type of Epygi user that best describes your relationship

Company:	<input type="text"/>
Serial Number:	<input type="text"/>

If your serial number will be valid, your user status will be higher

**Usage Terms**

**Privacy and Terms of Use**

**Privacy Statement**

Epygi respects the privacy of its customers and maintains any and all nonpublic personal information it receives from customers in confidence. Epygi only collects nonpublic personal information when customers provide it to Epygi on a voluntary basis. In such cases, the types of nonpublic personal information collected from customers may include the customer's name, address, telephone number, email address and credit card information (including account number and expiration date). Epygi maintains appropriate safeguards to

Please read above Terms of Use carefully before you Register

Check this box to release the 'Register' button:  I agree to the above terms

**CAPTCHA Verification**

Please check the checkbox below (we use this to prevent automated submissions).

I'm not a robot 

Register

Figure 45: Account Registration form

## 10 Appendix: Registering on Epygi's SIP Server

Epygi maintains a SIP Server that can be used to call between QX devices. If SIP is enabled on QX, you can make phone calls to other people owning such devices over the Internet (or local network). Calls to subscribed SIP addresses on our server can be made by anyone! You do not need to register with us to call one of our registered customers. Simply make a call to the SIP address over our server.



Figure 46: Epygi's SIP Server

**How it works:** To subscribe SIP addresses at our server you need to be the owner of one (or more) of our devices. After registering them in our Technical Support System you can login to our SIP server's customer pages. There you will find more information how to create new SIP addresses (subscriptions). This service is free of charge.

To create additional registrations, you may login directly to Epygi's SIP Server if you have registered your QX at [Epygi Support Portal](#). If you have not registered with Epygi Technical Support, you cannot login to the Epygi SIP Server.

Log in to the Epygi SIP Server at [sip.epygi.com](http://sip.epygi.com). Use the same login **username** and **password** you used for Epygi Support Portal.

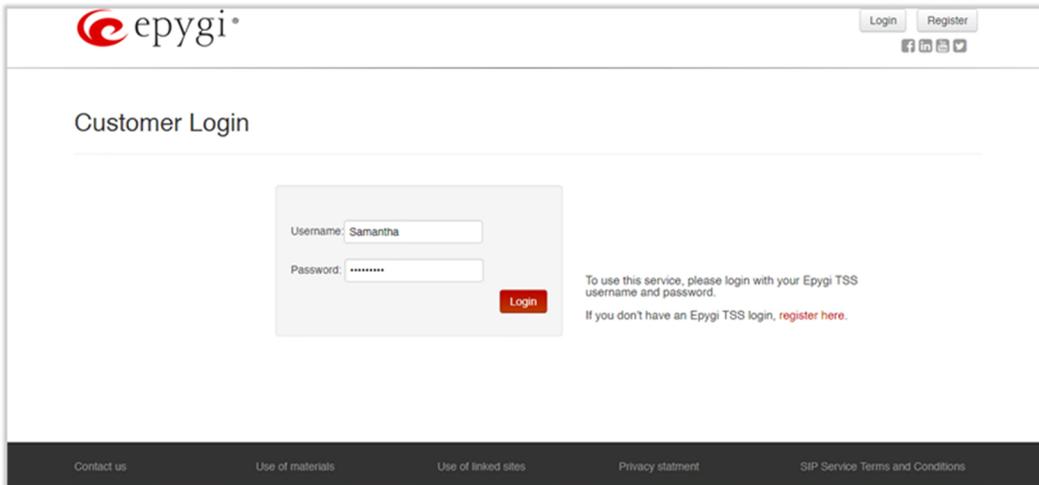


Figure 47: Customer Login page

**Add new extension** leads you to Add Record window where you can enter the user information for registering a new extension on SIP Server. The **Extension Number** 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.

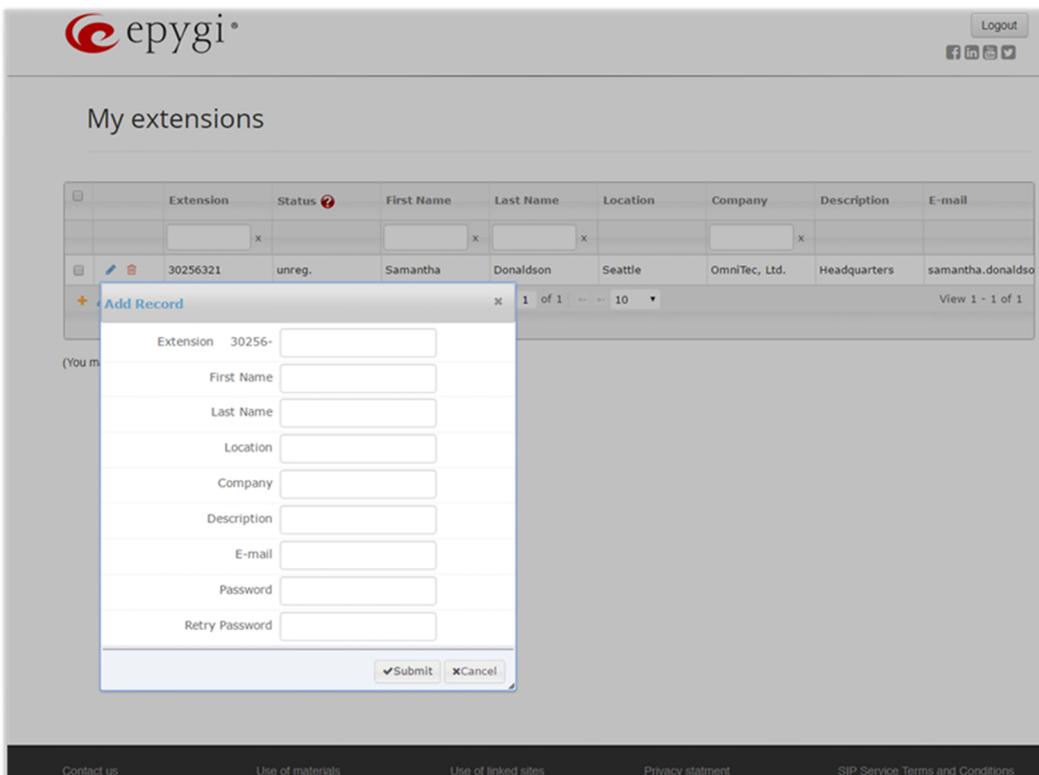


Figure 48: Add New Extension page

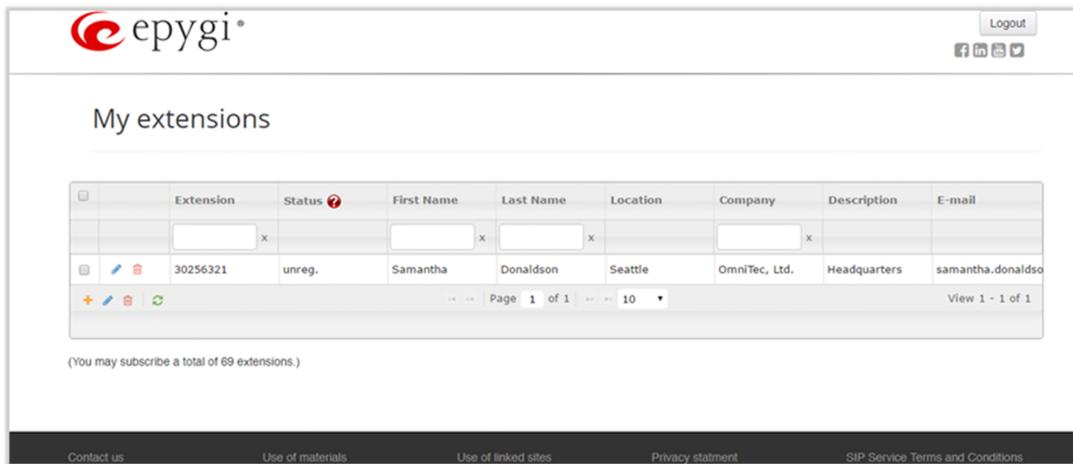


Figure 49: My extension page

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

## 11 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 **Maintenance**→**User Rights**→**Users** page.

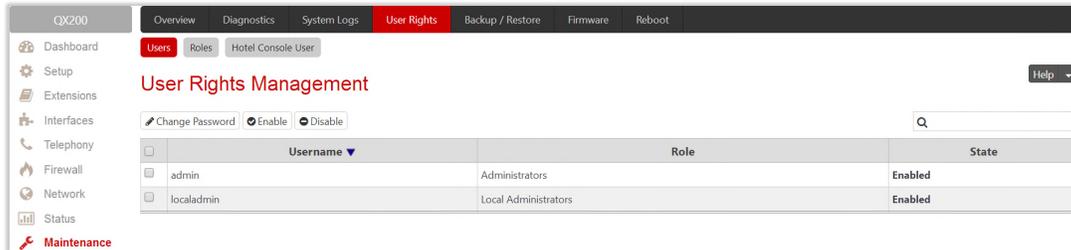


Figure 50: User Rights page

Choose **admin** from the list and press the **Change Password** functional button from the **Users** tab.

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

- The **GUI Access Password** offers the following components:
  - **Old Password** – requires the current password of the **admin**.
  - **New Password** and **Confirm New Password** are used to insert a new GUI access password for the **admin**.

**Note:** The password can consist of numeric values and symbols. Up to twenty (0-20) digits and symbols are allowed.

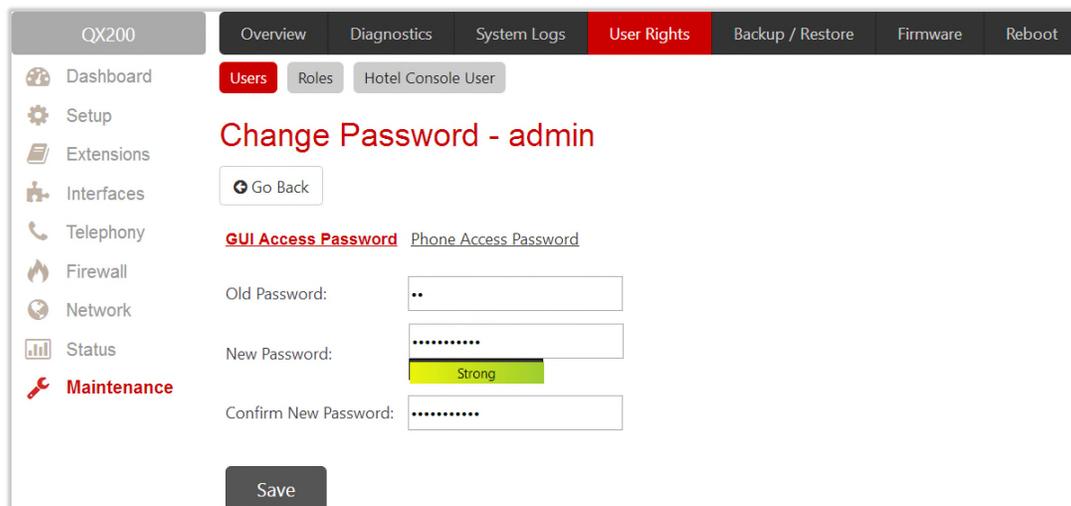


Figure 51: Change Password page

- The **Phone Access Password** offers the following components:
  - **New Password** and **Confirm New Password** are used to insert a new Phone access password for the **admin**.

**Note:** The password can consist of numeric values only. Up to twenty (0-20) digits are allowed.

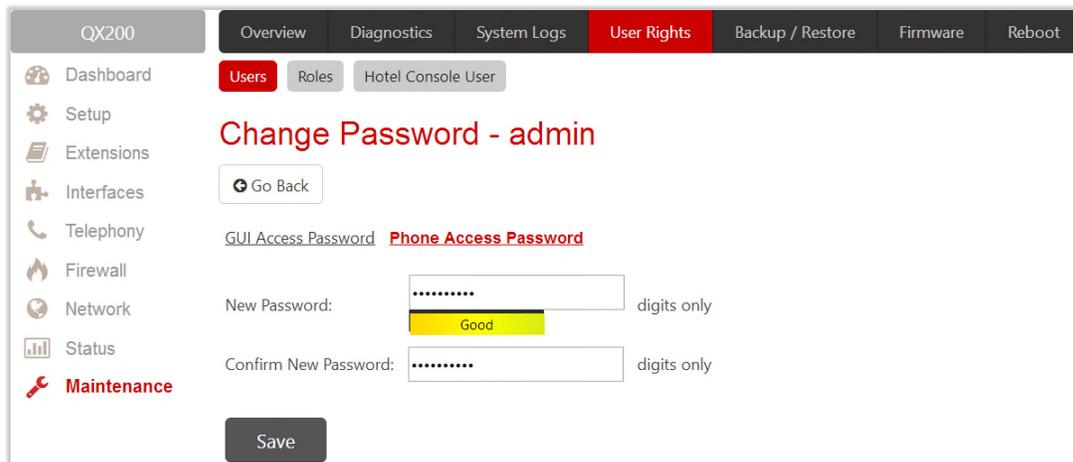


Figure 52: Change Password page

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.

## 12 Appendix: Configuring NAT Traversal

Network Address Translation (**NAT**) is a common feature to expand the use of connected PCs and other networked devices without having to use multiple public IP addresses. Most ISP's will assign one public IP address to each customer that is connected to the Internet. Third-party routers typically are providing NAT capability and creating a private network of PCs and other devices not visible from the Internet. This method offers security and also eliminates the need to assign public IP addresses to each device on the LAN.

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

### 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.
- If you have more than one router between the QX and the Internet, the same port forwarding must be configured on each of them.

### NAT Traversal Setup

Install the QX behind the router. If the QX 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 QX LAN port and power it up.

Verify the QX can connect to the Internet by opening a browser and browsing to a WEB site. If the QX cannot reach the Internet, verify the LAN/WAN LEDs and the cabling. Verify that [Assign automatically via DHCP](#) option is enabled on QX and the router has DHCP server enabled.

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 TCP port 5060, RTP/RTCP port 6000-6255 to the IP address assigned to the QX. You can see the IP address of the QX in the **Status→System Status→Network Status** page. The IP address will be listed as the WAN IP address. Your router also may indicate the IP address assigned to the QX.

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 QX Management go to the **Telephony→NAT Traversal→General** page and set the **NAT Traversal for SIP** to **Force**. **Save** the selection.

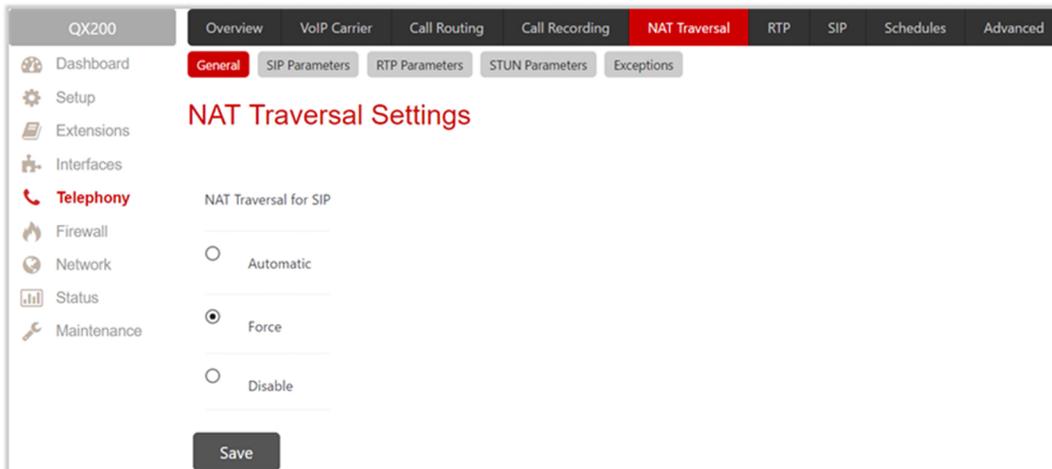


Figure 53: NAT Traversal – General Settings page

- Go to the **SIP Parameters** page.

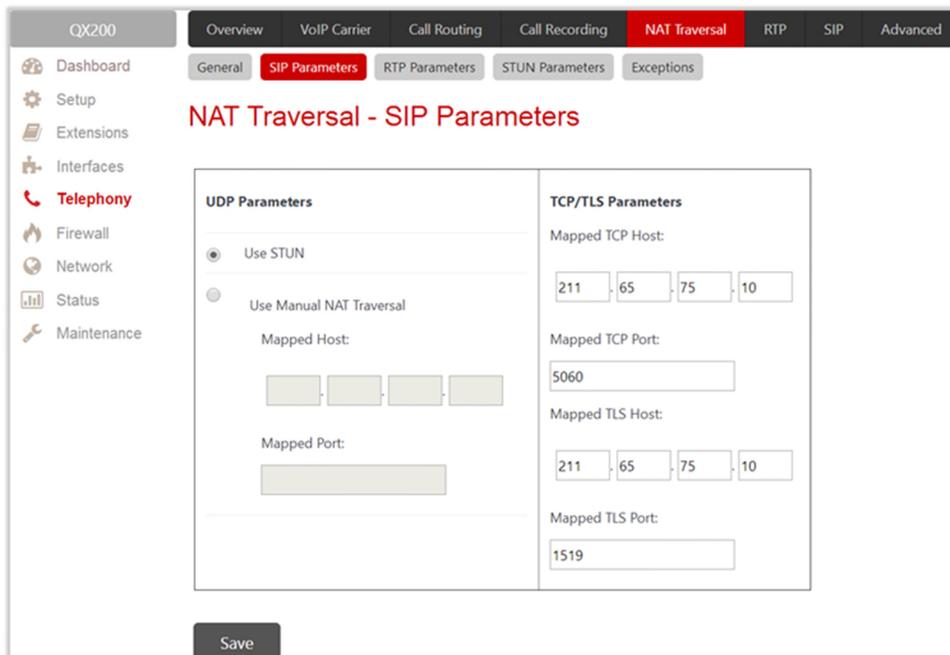


Figure 54: NAT Traversal – SIP Parameters page

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**.

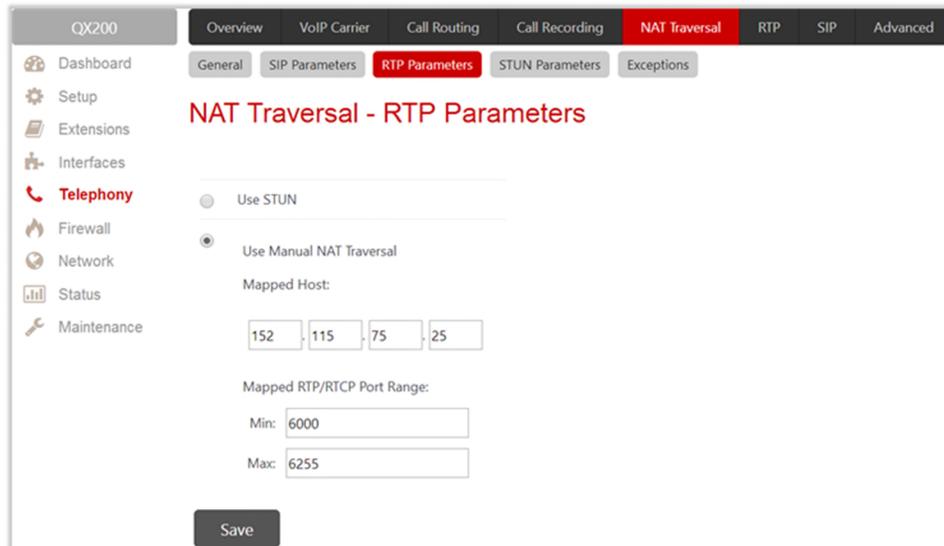


Figure 55: NAT Traversal – RTP Parameters page

- 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 **6255 (Max)**, respectively. Click the **Save** button to save the contents.

The QX will activate the settings and register the extensions on the Epygi SIP Server after a few minutes. You can verify the settings from the **Status**→**System Status**→**SIP Registration** tab.

## 13 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, go to the **Maintenance**→**Diagnostics** page and click on **Start Network Diagnostics**.

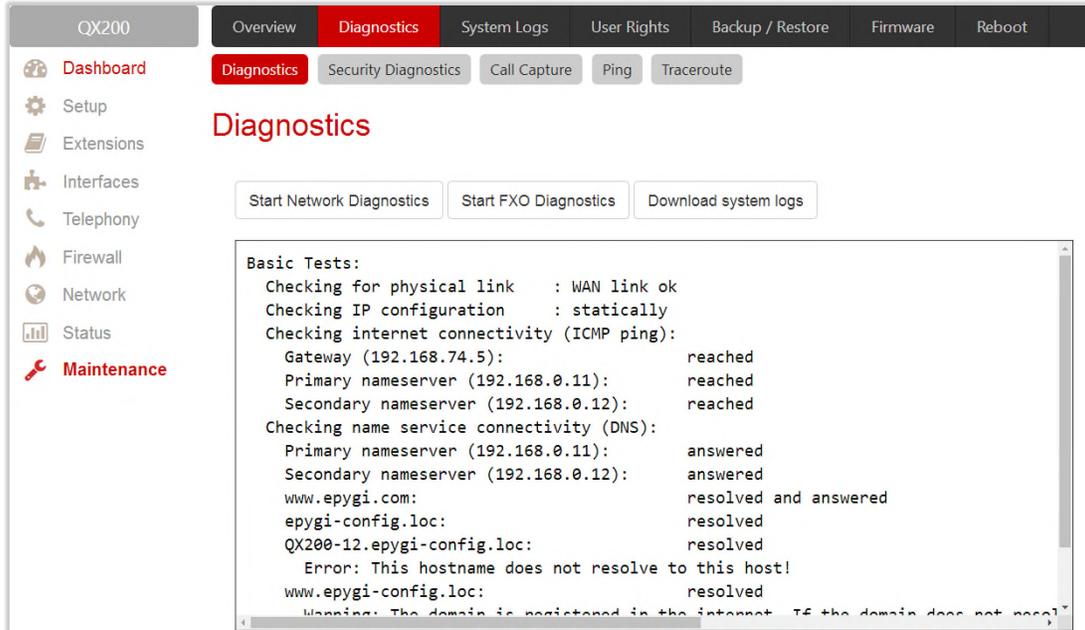
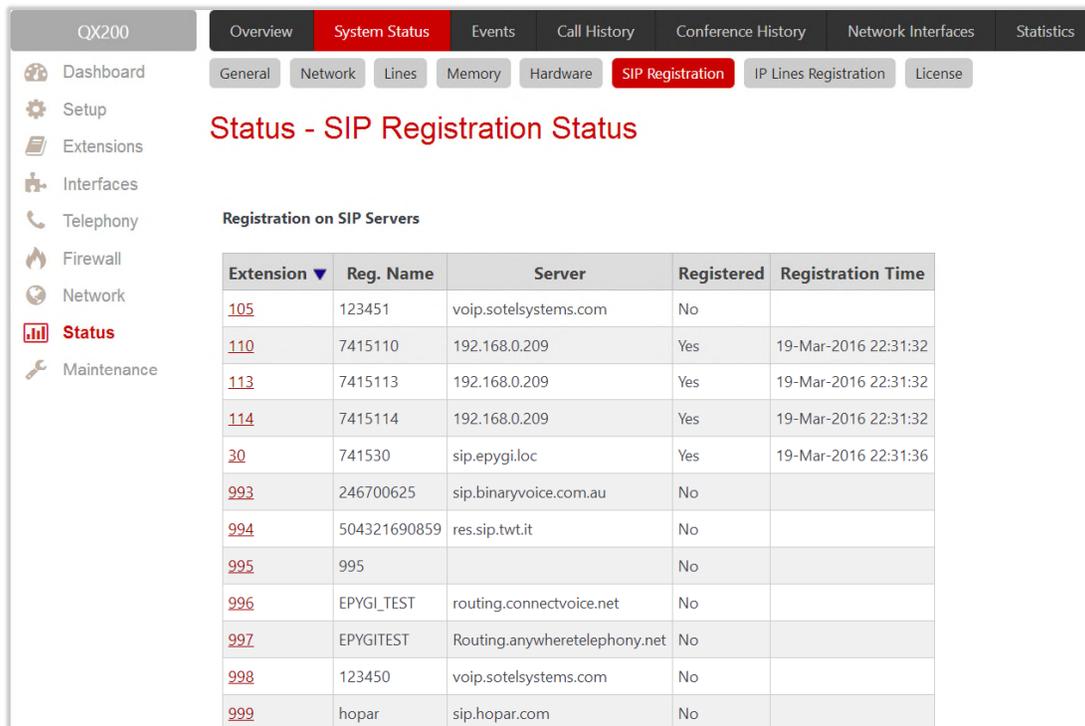


Figure 56: Diagnostics – Start Network Diagnostics page

If diagnostics are successful, but you are still unable to place a call to **88888#** then check the SIP registration status.

Go to the **Status**→**System Status**→**SIP Registration Status** page. Besides the SIP registration information for the auto attendant and each connected extension, the Detected Connection Type is shown. If QX 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.



**Status - SIP Registration Status**

Registration on SIP Servers

Extension ▼	Reg. Name	Server	Registered	Registration Time
<a href="#">105</a>	123451	voip.sotelsystems.com	No	
<a href="#">110</a>	7415110	192.168.0.209	Yes	19-Mar-2016 22:31:32
<a href="#">113</a>	7415113	192.168.0.209	Yes	19-Mar-2016 22:31:32
<a href="#">114</a>	7415114	192.168.0.209	Yes	19-Mar-2016 22:31:32
<a href="#">30</a>	741530	sip.epygi.loc	Yes	19-Mar-2016 22:31:36
<a href="#">993</a>	246700625	sip.binaryvoice.com.au	No	
<a href="#">994</a>	504321690859	res.sip.twt.it	No	
<a href="#">995</a>	995		No	
<a href="#">996</a>	EPYGI_TEST	routing.connectvoice.net	No	
<a href="#">997</a>	EPYGITEST	Routing.anywheretelephony.net	No	
<a href="#">998</a>	123450	voip.sotelsystems.com	No	
<a href="#">999</a>	hopar	sip.hopar.com	No	

Figure 57: SIP Registration Status page

QX 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 QX 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 Portal** of [www.epygi.com](http://www.epygi.com). Please prepare a system log file and attach it to your request.

To download the system logs, open the **Maintenance**→**Diagnostics** page and click on **Download system logs**.

## 14 Appendix: Pin Assignment of E1/T1

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Pin	Signal
1	RXRING
2	RXTIP
3	N.C.
4	TXRING
5	TXTIP
6	N.C.
7	N.C.
8	N.C.

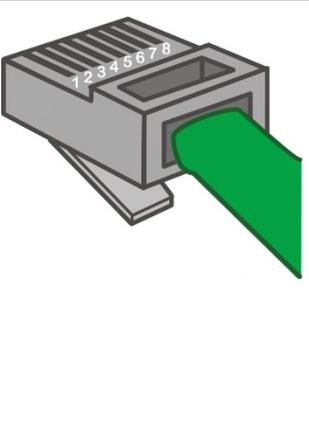


Figure 58: Pin Assignment of E1/T1

## 15 Appendix: Connecting the Hardware

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QX FXS 24 additional analog lines connections can be done using the distribution panel or multi-cable (RJ21 - RJ11).

Wires are presented in the table below:

Color	Pin (Tip)	Pin (Ring)	Color	FXS Port
White/Blue	26	1	Blue/White	3
White/Orange	27	2	Orange/White	4
White/Green	28	3	Green/White	5
White/Brown	29	4	Brown/White	6
White/Slate	30	5	Slate/White	7
Red/Blue	31	6	Blue/Red	8
Red/Orange	32	7	Orange/Red	9
Red/Green	33	8	Green/Red	10
Red/Brown	34	9	Brown/Red	11
Red/Slate	35	10	Slate/Red	12
Black/Blue	36	11	Blue/Black	13
Black/Orange	37	12	Orange/Black	14
Black/Green	38	13	Green/Black	15
Black/Brown	39	14	Brown/Black	16
Black/Slate	40	15	Slate/Black	17
Yellow/Blue	41	16	Blue/Yellow	18
Yellow/Orange	42	17	Orange/Yellow	19
Yellow/Green	43	18	Green/Yellow	20
Yellow/Brown	44	19	Brown/Yellow	21
Yellow/Slate	45	20	Slate/Yellow	22
Violet/Blue	46	21	Blue/Violet	23
Violet/Orange	47	22	Orange/Violet	24
Violet/Green	48	23	Green/Violet	25
Violet/Brown	49	24	Brown/Violet	26
Violet/Slate	50	25	Slate/Violet	Not Used

## 17 Appendix: QXE1T1 PART 68 Certification

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1. This equipment complies with Part 68 of the FCC rules and the requirements adopted by the ACTA. On the bottom of this product is a label that contains, among other information, a product identifier in the format US: AAAEQ##TXXXX. If requested, this number must be provided to the telephone company.
2. A plug and jack used to connect this equipment to the premise's wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ACTA. A compliant telephone cord and modular plug is provided with this product. It is designed to connect to a compatible and compliant modular jack. See installation instructions for details.
3. If this equipment [US: HX7DFNANH70201] causes harm to the telephone network, the telephone company will notify you in advance that 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. In addition, you will be advised of your right to file a complaint with the FCC if you believe it is necessary. The telephone company may also request that you disconnect the equipment until the problem is resolved.
4. 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 in order for you to make necessary modifications to maintain uninterrupted service.
5. If you experience trouble with this product [US: HX7DFNANH70201], warranty information and repair service can be facilitated through our office at:
  - U.S. Agent Company name: Epygi Technologies, Ltd.
  - Address: 1400 Preston Road, Suite 300, Plano, TX 75093, USA
  - Tel: 972-692-1166
  - Fax: 972-265-0081
6. Please follow instructions for repairing if any (e.g. battery replacement section); otherwise do not alter or repair any parts of device except specified. For repair procedures, follow the instructions outlined under the limited warranty.
7. Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information.
8. If your home has specially wired alarm equipment connected to the telephone line, ensure the installation of this [equipment ID] does not disable your alarm equipment. If you have questions about what will disable alarm equipment, consult your telephone company or a qualified installer.
9. If the telephone company requests information on what equipment is connected to their lines, inform them of:
10. The ringer equivalence number [NAN]
11. The USOC jack required [RJ48]
12. Facility Interface Codes ("FIC") [04DU9.1SN]
13. Service Order Codes ("SOC") [6.0Y]
14. The FCC Registration Number US: HX7DFNANH70201
15. The REN is used to determine the number of devices that may be connected to a telephone line. Excessive RENs on a telephone line may result in the devices not ringing in response to an incoming call. In most but not all areas, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company. For this product, the FCC registration number is [US: HX7DFNANH70201] and indicates the REN would be NAN.
16. If this product is equipped with a corded or cordless handset, it is hearing aid compatible.

## 18 Appendix: Software License Agreement

### EPYGI TECHNOLOGIES, LTD. Software License Agreement

**THIS IS A CONTRACT.**  
CAREFULLY READ ALL THE TERMS AND CONDITIONS CONTAINED IN THIS AGREEMENT. USE OF THE QUADRO HARDWARE AND OPERATIONAL SOFTWARE PROGRAM INDICATES YOUR ACCEPTANCE OF THESE TERMS AND CONDITIONS. IF YOU DO NOT AGREE TO THESE TERMS AND CONDITIONS, YOU MAY NOT USE THE HARDWARE OR SOFTWARE.

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