

**Edition 1, SW Release 3.0.9 and higher, August 2005**

## Table of Contents

### Manual I: see Installation Guide

Offers a Step-by-step guide to install and configure Quadro Conference Server basically.

### Manual II: Administrator's Guide

<b>About this Administrator's Guide .....</b>	<b>3</b>
<b>QuadroCS's Graphical Interface .....</b>	<b>4</b>
<b>Administrator's Main Page .....</b>	<b>4</b>
<b>Recurrent Buttons .....</b>	<b>5</b>
<b>Recurrent Functional Buttons of the GUI .....</b>	<b>5</b>
<b>Entering a SIP Addresses correctly .....</b>	<b>5</b>
<b>Administrator's Menus .....</b>	<b>6</b>
<b>System Menu .....</b>	<b>6</b>
System Configuration Wizard .....	6
Status .....	8
General Information .....	8
Network Status .....	9
Memory Status .....	11
Hardware Status .....	11
SIP Registration Status .....	11
Configuration Management .....	12
Change Password .....	12
Events .....	13
Time/Date Settings .....	15
Mail Settings .....	16
Firmware Update .....	16
Networking Tools .....	18
Diagnostics .....	19
Upload Language Pack .....	19
<b>Conference Management Menu .....</b>	<b>20</b>
Conferences .....	20
Conference Codecs .....	24
SIP Settings .....	25
RTP Settings .....	26
NAT Traversal Settings .....	28
Statistics .....	31
Call Routing Table .....	33
Recording Common Settings .....	36
Mail Default Settings .....	37
<b>Network Menu .....</b>	<b>38</b>
DNS Settings .....	38
DHCP Settings .....	38
<b>Uplink Settings Menu .....</b>	<b>39</b>
Firewall .....	40
Advanced Firewall Settings .....	40
Filtering Rules .....	41
Service Pool .....	43
IP Pool .....	44
Dynamic DNS Settings .....	46
<b>Registration Form .....</b>	<b>47</b>
<b>Logout .....</b>	<b>47</b>
<b>Appendix: System Default Values .....</b>	<b>48</b>
<b>Appendix: Software License Agreement .....</b>	<b>50</b>

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

Explains all menus that can be accessed and configured by the conference users within the QuadroCS. Further, a list of all available conference codes can be found there.

## About this Administrator's Guide

The QuadroCS Manual is divided into three parts:

- **Manual I: Installation Guide** gives step-by-step instructions to provision the Quadro Conference Server and configure the conferences with the Epygi SIP Server. After successfully configuring the Quadro, users will be able to automatically or manually initiate the call conferences between several IP peers, deal with the active conferences and record them if needed.
- **Manual II: Administrator's Guide** that explains all QuadroCS management menus available for administrators only. Further it includes a list of all System Default Values.
- **Manual III: Conference User's Guide** explains all menus that can be accessed and configured by the conference users within the QuadroCS. Further a list of all available call codes can be found here.

[QuadroCS's Graphical Interface](#) introduces to the QuadroCS's graphical user interface and explains all recurrent buttons.

[Administrator's Menus](#) explains each of the Administrator's management pages according to the menu structure shown on the main page of the Quadro management.

[Appendix: System Default Values](#) lists all factory defaults.

[Appendix: Software License Agreement](#) includes the contract for using QuadroCS's hardware and software.

# QuadroCS's Graphical Interface

## Administrator's Main Page

After logging in as an administrator, the **QuadroCS Management** page is displayed. Here the administrator may access the following settings and perform the following actions:

### 1. System Menu

- [System Configuration Wizard](#)
- [Status](#)
- [Configuration Management](#)
- [Change Password](#)
- [Events](#)
- [Time/Date Settings](#)
- [Mail Settings](#)
- [Firmware Update](#)
- [Networking Tools](#)
- [Diagnostics](#)
- [Upload Language Pack](#)

### 2. Conference Management Menu

- [Conferences](#)
- [SIP Settings](#)
- [RTP Settings](#)
- [NAT Traversal Settings](#)
- [Statistics](#)
- [Call Routing Table](#)
- [Recording Common Settings](#)
- [Mail Default Settings](#)

### 3. Network Menu

- [DNS Settings](#)
- [DHCP Settings](#)

### 4. Uplink Settings Menu

- [Firewall](#)
- [Filtering Rules](#)
- [Dynamic DNS Settings](#)

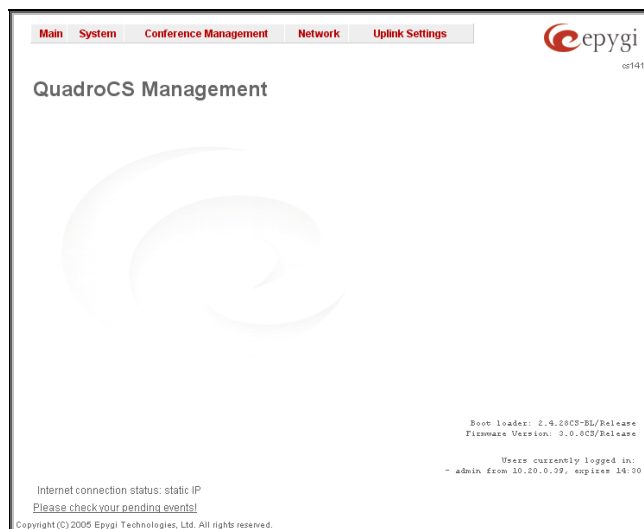
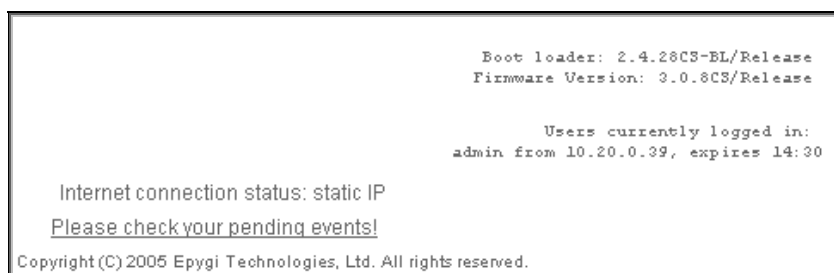


Fig. II-1: Quadro Conference Server Administrator's page

The functional button **Renew Wan IP Address** appears on the administrator's main page **Quadro Conference Server Management** if the Quadro Conference **Server** acts as a client to a DHCP server. The button **Renew WAN IP Address** is used to get a new WAN IP address, i.e., the Quadro Conference Server moves to another network.

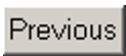
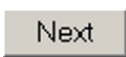



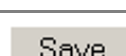
The button **Please Check Your Pending Events** will be displayed on the administrator's main menu page if any new system events exist. The link leads to the page where these new system events are listed.

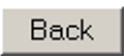




The current version of the QuadroCS's firmware and of its boot loader is shown in the lower right corner of the administrator's main menu, followed by the list of **Users currently logged into the system**. Information about the IP address users accessed QuadroCS from, the username of the logged-in user and the time until the next automatic logout is provided here. The idle session timeout is set to 20 minutes. If no action is done during that time, the user automatically will be moved to the login page and will be requested to login again.



The **Refresh** link is on some pages in the lower right corner beside the field displaying the number of seconds left until the next refresh and is used to perform a manual reload of the page.

## Recurrent Buttons

Button	Description
	This button leads back to the previous page of a fixed sequence of pages (used mainly in wizards).
	This button leads onward to the next page of a fixed sequence of pages (used mainly in wizards).
	This button discards the latest, not yet confirmed entries.
	This is the last button of a fixed sequence of pages that completes and saves the entries of the whole sequence.
	This button has the same function like the "?" in the left button bar. It opens the help page belonging to the currently active QuadroCS management page.
	This button saves the settings modified on the currently active management page.

Button	Description
	This button leads back to the page you have been on before.
	This button confirms an operation you started before.
	This button confirms an operation you chose before.
	This button discards an operation you chose before.
	This button opens a window where the last inserted IP addresses are listed. It is a clipboard that helps the user to make quick selection of an IP address in case it has been already used in the past, thus to avoid typing it again. The clipboard can hold up to 10 IP addresses, a new IP address will replace the oldest one from the list.

## Recurrent Functional Buttons of the GUI

In connection with tables, the following buttons - among others - usually occur:

Functional Button	Description
<b>Add</b>	Allows adding a new record to the displayed table. A new page will be displayed to enter the new settings.
<b>Edit</b>	Allows modifying the settings of the record selected by its checkbox. Normally only one record may be selected. A new page will be displayed to enter the modified settings.
<b>Delete</b>	Deletes the selected entry(s) of a table. A warning message will demand a confirmation before deleting an existing entry.
<b>Select All</b>	Selects all table entry(s) for example for further deletion.
<b>Inverse Selection</b>	Inverts an existing selection of table entry(s). If no entries are selected, clicking the button will select all records.
<b>Refresh in...</b>	May occur in the lower right corner of a page. It displays the number of seconds remaining until the next refresh of the page and may be used to reload the page manually.

Most of the tables offer the option to sort the entries in ascending or descending order by clicking the headings of the columns. A small arrow beside the column heading will show the direction of sorting – upward or downward.

The entries of the table can be selected by the assigned checkboxes - one at a time, for the most part - in order to edit or delete them.

## Entering a SIP Addresses correctly

Calls over IP are implemented based on Session Initiation Protocol (SIP) on the QuadroCS. When making a call to a destination that is somewhere on the Internet, SIP address must be given.

SIP addresses have to be specified in one of the following formats:

```

"display name" <username@ipaddress:port>
"display name" <username@ipaddress>
username@ipaddress:port
username@ipaddress
username
    
```

The display name and the port number are optional parameters in the SIP address. If the port is not specified, 5060 will be set up as the default one. The range of valid ports is between 1024 and 65536.

A flexible structure of wildcards is allowed. In comparison with a wildcard, the "?" character stands for only one unknown digit and the "\*" character stands for any number of any digits.

Particularly the following combinations can be used for your convenience:

- \***@ipaddress** - any user from the specified SIP server.
- **username@\*** - a specified user from any SIP server.
- \***@\*** - any user from any SIP server.

**Please Note:** Wildcards are available for caller addresses only. No wildcard characters are allowed for called party addresses. To use "\*" and "?" themselves (as non wildcard characters), use "\\*" and "\?" correspondingly

# Administrator's Menus

## System Menu

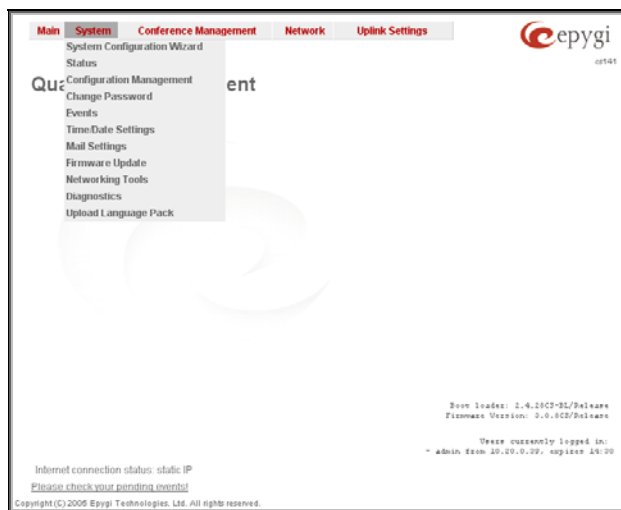


Fig. II-2: QuadroCS Management page

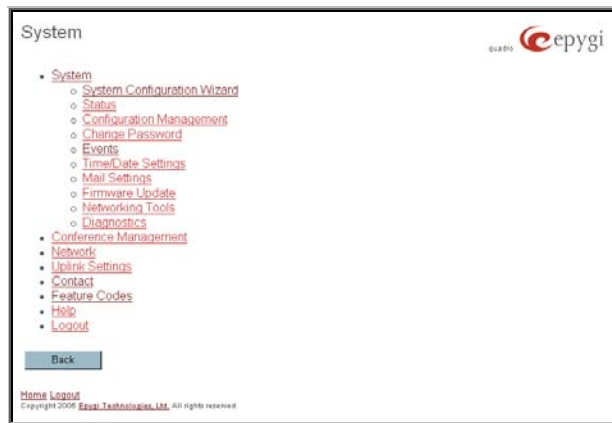


Fig. II-3: QuadroCS Management tree

## System Configuration Wizard

The **System Configuration Wizard** is a helpful tool for the administrator to define the Quadro Conference Server's LAN and WAN settings, to specify regional configuration settings and to make the Quadro operational in the global network. The **System Configuration Wizard MUST be run upon the first startup of the Quadro Conference Server**. The Wizard navigates through the following basic configuration parameters and settings:

- LAN Settings
- [DHCP Settings](#)
- Regional Settings
- WAN Settings
- [DNS Settings](#)

For a step-by-step guide of different applications of the QuadroCS, refer to the Manual I - Installation Guide:

LAN DHCP Settings and DNS Settings are described in the chapters below while LAN And WAN configuration settings and regional settings will be described in this chapter.

**Please Note:** It is strongly recommended that factory default settings are left unchanged if their meanings are not fully clear to the administrator.

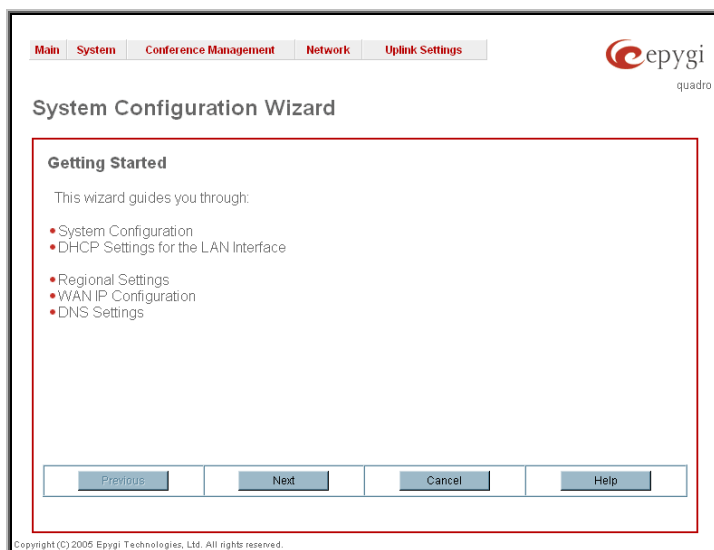


Fig.0-4: System Configuration Wizard – start page

The **LAN Settings** page contains information about the Quadro host name, its IP address and the subnet mask on the LAN side. These settings make the Quadro available to the internal network.

The **System Configuration** page contains of the following components:

**Host Name** requires a host name for the Quadro device.

**IP Address** requires the Quadro host address for the LAN interface.

**Subnet Mask** requires Quadro host subnet mask.

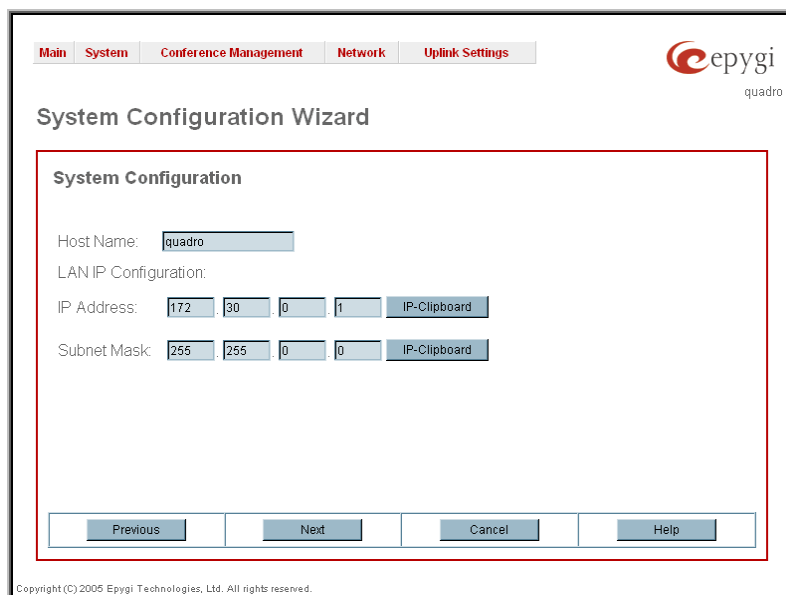


Fig.0-5: System Configuration Wizard – System Configuration page

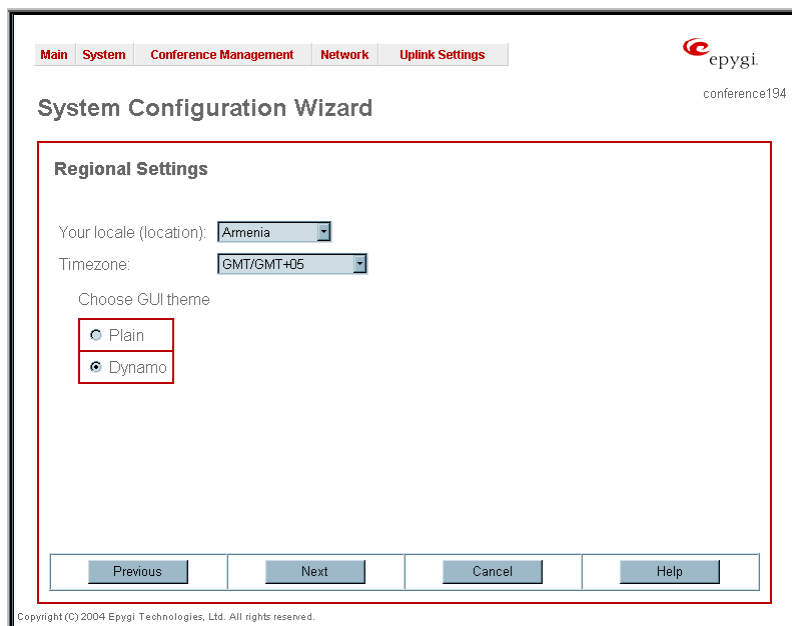


Fig. 1-5 System Configuration Wizard – Regional Settings page

The Regional Settings are used to select settings specific to the location of the Quadro. This is important for the functionality of the voice subsystem.

The **Regional Settings** page consists of two drop down lists to select the **Location** (country) and a corresponding **Timezone** and a manipulation radio button group to choose the **GUI theme** of the web based configuration pages.

The **WAN Settings** page contains of the following components:

The **Assign automatically via DHCP** radio button selection switches to automatic retrieval of the WAN IP address from a DHCP server at the ISP/uplink.

**Please Note:** DHCP referred to here is the one running on the provider's side and not the QuadroCS's personal DHCP server.

The **Assign Manually** radio button switches to the manual adjustment of IP settings. This selection requests the following parameters:

**IP Address** requires the IP address for the Quadro WAN interface.

**Subnet Mask** requires the subnet mask for the Quadro device WAN interface.

**Default Gateway** requires the IP address of the router all packets are sent to, for example the IP address of the provider's router.

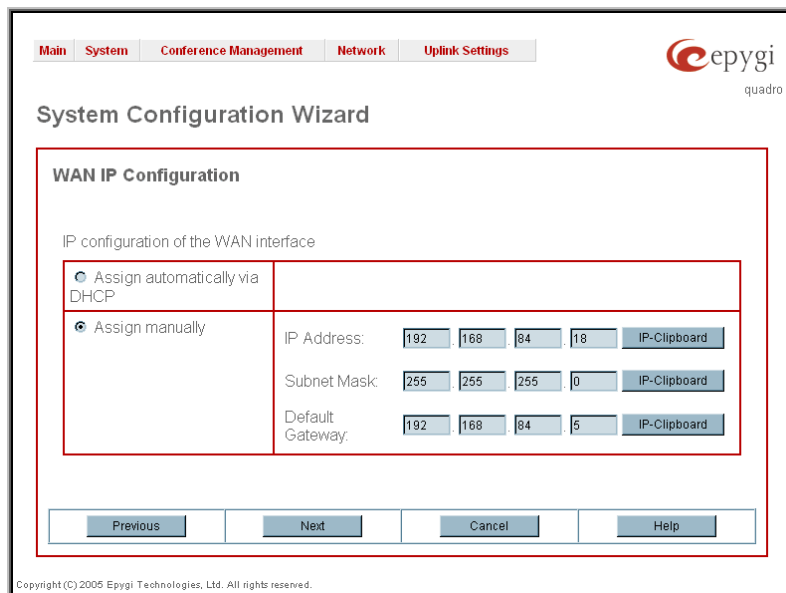


Fig.0-6: System Configuration Wizard – WAN IP Configuration page

## Status

The system status window displays non-editable tables providing extensive status information about QuadroCS: [General Information](#), [Network Status](#), [Memory Status](#) and [SIP Registration Status](#). The links on this page lead to device transfer statistics, user mailboxes and supplementary services configuration pages.

The **System Status** page consists of several tables providing system information.

## General Information

The **General Information** table includes the following information:

The **Uptime duration** since QuadroCS's last reboot.

The **Device Hostname** of QuadroCS.

The **Conference Server Operating System** version.

The **Application Software** shows QuadroCS's software and file system versions.

The **Boot Loader** version.

The **DSP Software** version and the date of build.

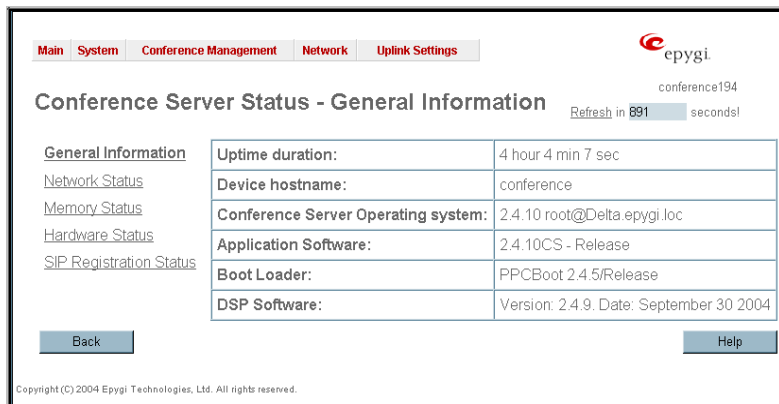


Fig. II-7: Quadro Status – General Information page

## Network Status

The **Network Status** table includes the following information about **Interfaces**:

The **Interface Name** of the LAN and WAN interfaces available on the QuadroCS

The **IP Address** corresponding to each network interface.

The **Subnet Mask** corresponding to each network interface.

The **Mac Address** corresponding to each network interface.

**Monitor** includes links to survey LAN and WAN traffic correspondingly. The selection of these links will open a new window with a table of network traffic statistics on the selected interface:

- Received Bytes
- Received Packets
- Received Errors
- Received Drop Errors
- Received Overrun Errors
- Received MultiCast Packets
- Transmitted Bytes
- Transmitted Packets
- Transmitted Errors
- Transmitted Drop Errors
- Transmitted Carrier Errors
- Transmitted Collisions

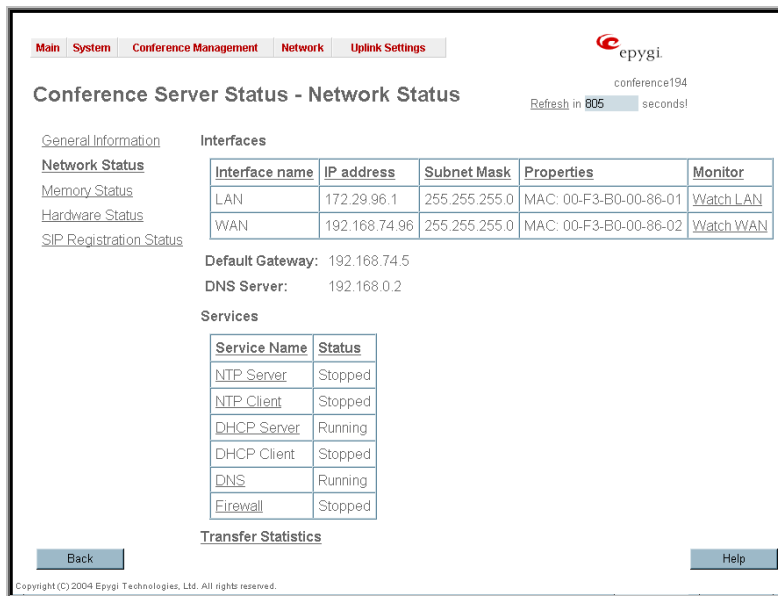


Fig. II-8: QuadroCS Status Network Status page

When opening the corresponding Interface statistics window, at first, no traffic values are displayed. Then, every one minute, traffic statistics will be updated. These tables serve as a kind of counter.

**DNS Server, Alternative DNS Server and Default Gateway** - displays the QuadroCS settings corresponding to what has been configured by the [System Configuration Wizard](#).

**Services** (NTP Server and Client, DHCP Server and Client, DNS and Firewall) **Status: stopped or running.**

**Transfer Statistics** – link to the Transfer Statistics page.

The **Transfer Statistics** page allows the administrator to compose a user defined statistic table depending on the transmit/receive value (criteria), interface type and time period. It contains the following components:

**Time Range of statistic table** - the drop down list includes the periods (days) while statistics data is to be collected and corresponding diagram charts are to be built.

**Interface** - the drop down list offer the values:

- WAN:** Wide Area Network (WAN) events only,
- LAN:** Local Area Network (LAN) events only.

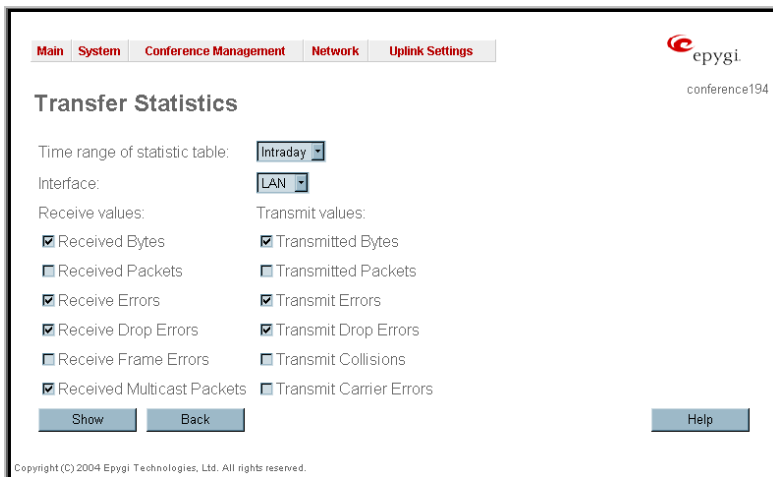


Fig. II-9: Transfer Statistics page

The area **Receive Values** displays the number of the following values:

**Received Bytes**

**Received Ethernet Packets**

**Received packets containing Errors**

**Received Drop Errors** (packets that have been discarded)

**Received Overrun Errors** that occur when the receive buffer is not large enough to hold all incoming packets. This error mostly appears because of a slow receiving system

**Received MultiCast Packets.**

The area **Transmit Values** displays the number of the following values:

**Transmitted Bytes**

**Transmitted Ethernet Packets**

**Transmitted packets containing Errors**

**Transmitted Drop Errors** (Packets that have been discarded.)

**Transmitted Carrier Errors** that occur because of a defective or lost connection on the Ethernet link

**Transmitted Collisions** (Transfer errors that occurred during a simultaneous packet transmission from both sides.)

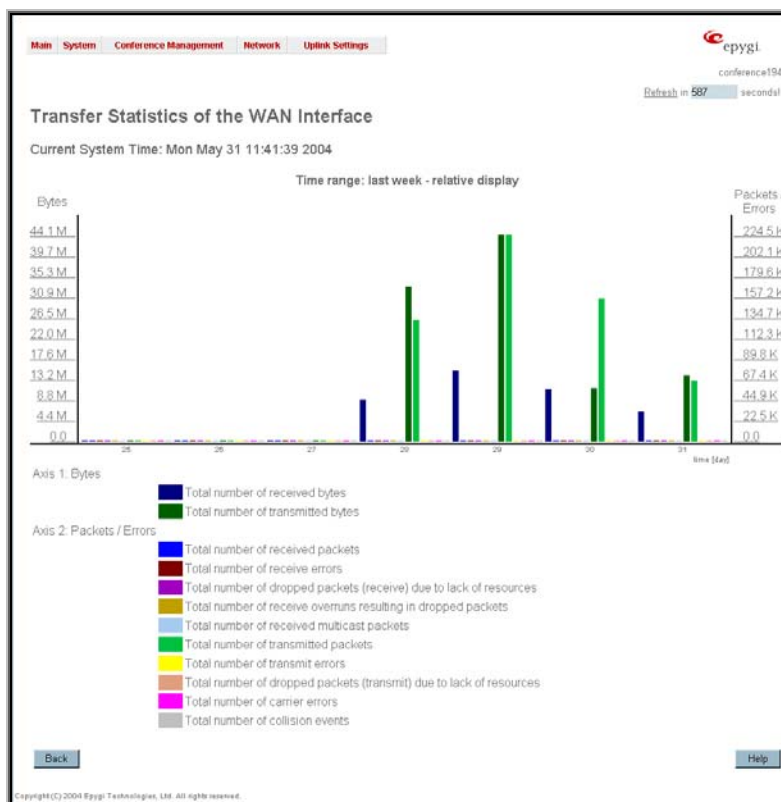


Fig. II-10: Transfer Statistics Diagram Chart

To show the **Transfer Statistics Diagram Charts**, select the desired criteria and click **Save** to create the corresponding chart.

## Memory Status

The **Memory Status** page includes a table with the available **User Space** information shown separately for each conference. The table displays the space occupied by the recording referring to the conferences and the free and total recording spaces (counted in minutes/seconds) for every conference. The page includes the following information:

**Memory Size** shows the total memory space (counted in minutes/seconds) available on the QuadroCS and assigned to all the conferences.

**Call Statistic** shows the current number of entries in the [Statistics](#) and links to it.

Conference Server Status - Memory Status

Memory size: 9791040 bytes

Conference ID	Recorded Conferences	Recording Space	Free Space	Total Space
10083	3913216 bytes	40%	3200 bytes	3916416 bytes
12145501809	0 bytes	0%	0 bytes	0 bytes
156226	0 bytes	10%	979104 bytes	979104 bytes
1562262	0 bytes	0%	0 bytes	0 bytes
166236	586752 bytes	50%	4308768 bytes	4895520 bytes
197802	0 bytes	0%	0 bytes	0 bytes
212690	0 bytes	0%	0 bytes	0 bytes
2930011	0 bytes	0%	0 bytes	0 bytes
333	0 bytes	0%	0 bytes	0 bytes
444	0 bytes	0%	0 bytes	0 bytes
733536	0 bytes	0%	0 bytes	0 bytes
epygics	0 bytes	0%	0 bytes	0 bytes
	4489968 bytes	100%	5291072 bytes	9791040 bytes

Call Statistics: 99 record(s)

Fig.0-11 Memory Status page

## Hardware Status

The **Hardware Status** table displays a list of the hardware devices present and currently available on the QuadroCS's board. The hardware device version number and additional comments about its state are indicated here.

Conference Server Status - Hardware Status

LAN Ethernet	10/100 Mbps	Link is down
WAN Ethernet	10 Mbps	Link is up ( 10 Mbps, half duplex )
USB	USB Flash Disk	Format needed

Fig. II-12: Hardware Status page

## SIP Registration Status

The **SIP registration Status** is a table displaying the SIP registration status of the conferences on the QuadroCS. The table lists all those conferences that have SIP registration enabled, as well as conferences ID and registration name, information about SIP registration states (Yes or No), addresses of SIP servers where they are registered (if so), registration date and time.

By clicking on the row heading, the table will be sorted by the selected column. Upon sorting (ascending or descending) arrows will be displayed close to the column heading.

Conference Server Status - SIP Registration Status

Conference ID	Res. Name	Server	Registered	Registration Time
11	7294400	sip.epygi.loc	Yes	04-Aug-2005 17:32:34
12	8388	sip.epygi.loc	Yes	04-Aug-2005 17:26:40
156444	729440000	sip.epygi.loc	Yes	04-Aug-2005 17:32:36
38	0	sip.epygi.loc	Yes	04-Aug-2005 17:32:36
39	399	sip.epygi.loc	Yes	04-Aug-2005 17:32:37
77	5478	sip.epygi.loc	Yes	04-Aug-2005 17:32:28
78	547811	sip.epygi.loc	Yes	04-Aug-2005 17:32:38

Fig. II-13: SIP Registration Status page

## Configuration Management

The **Configuration Management** allows the administrator to manage the system configuration settings, i.e., to backup and download them to a PC and then to upload and restore back to the QuadroCS. Additionally this page gives a possibility to restore the factory default configuration settings.

The **Backup & Download configuration** link creates a backup file with all the configuration settings and opens a file chooser window for immediate download to the user PC.

The **Upload & Restore configuration** link opens a page with the **Browse** button (that opens a file chooser to select a backed up file) and a **Configuration to Upload** field requiring the file path to upload and immediately restore the configuration. Pressing **Save** will restore the selected backup file, erase all recorded conferences and replace all configuration settings.

The **Use Default** functional button resets all configuration settings and restores the board's factory default configuration. By restoring the default configuration you will replace your current one, lose all recorded conferences and reboot the device. You will not be automatically redirected to the GUI start page. After the successful reboot you need to enter the QuadroCS's management and login again to access the QuadroCS's configuration. A warning message will ask you to confirm your selection before restoring the default configuration.

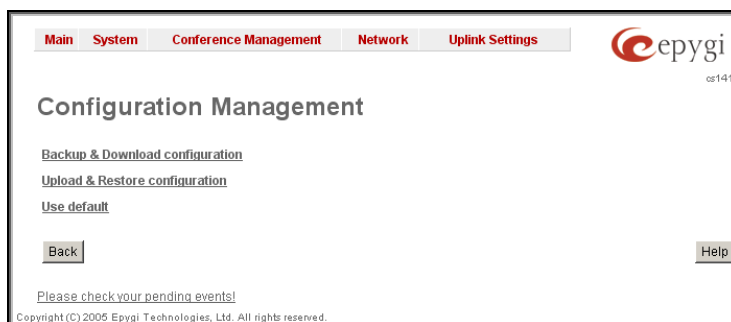


Fig. II-14: Configuration Management. page

## Change Password

The **Change Password** page provides information about the administrator account name and allows changing of the administrator password.

It contains the following components:

**Old Password** is where the current administrator password needs to be entered. If the old password is inserted here incorrectly, "Old Password is incorrect" error message is displayed.

**New Password** is used to change the administrator's password; the new password must be entered in this field.

**Confirm New Password** is used to verify the new password. If the entered **New Password** does not correspond to the one in the **Confirm Password** field, "The passwords do not match. Please try again" error message is displayed.

**Please Note:** When reloading a former configuration, the admin password specified here is still valid, as the admin password is not saved with the configuration.

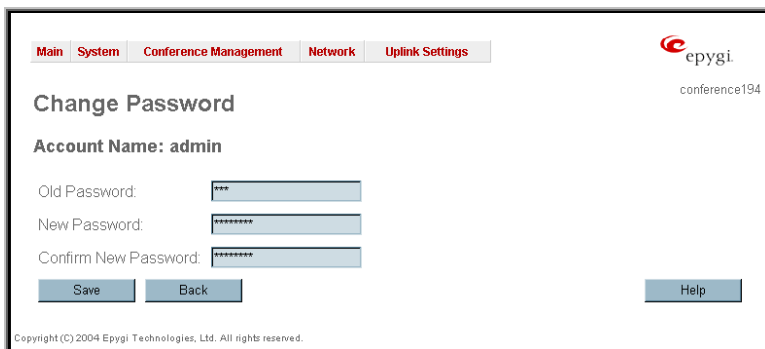


Fig. II-15: Change Password page

## Events

The **Events** page consists of two tables and displays all system events that have occurred in one table and event settings in the other.

The **System Events** page may be accessed with **Events** link from the main menu. It lists information about system events that have occurred on QuadroCS. When a new event takes place, a record is added to the System Event table and a warning "Please check your pending events!" appears at the bottom of all management pages.

The system events and the warning message are visible only for the administrator. The warning link (that leads directly to the **System Events** page) will disappear from the management pages if the administrator has marked all new events as read.

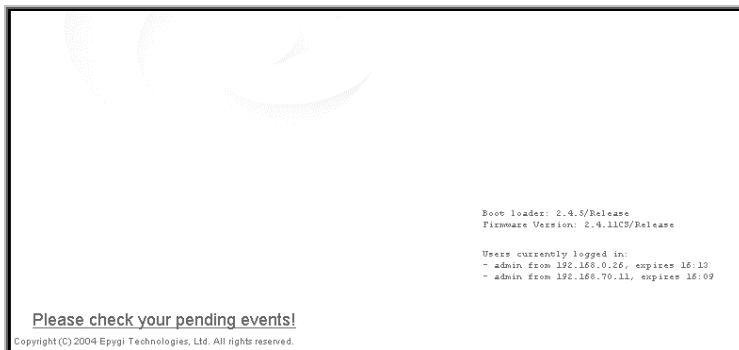


Fig. II-16: Event warning on the main menu page

The **System Events** table is the list of new and read system events. The table shows the **Status** of the event (new or read) as well as the name of the application the event refers to, event description, and the date when the event was received. For example, if the event has occurred due to incorrect mail sending or SIP registration, corresponding links will be seen in the **Reference** column of the table. There the administrator can view the detailed log for the event that has occurred.

The **System Events** page contains the following components:

**Current System Time** displays the local date and time on Quadro.

**Mark all as read** marks all newly occurred events as read.

**Disable LED** switches off the Quadro's **Info** LED flashing until a new event will take place. An LED notification may appear depending on the notification type given in the **Events** page whenever a new event occurred.

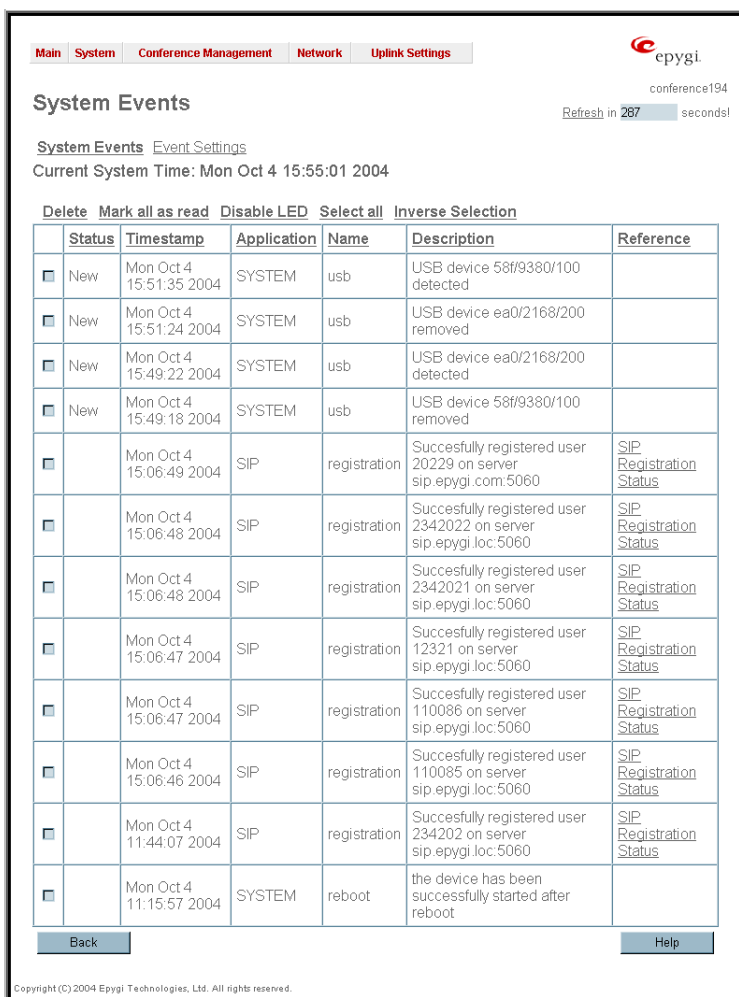


Fig. II-17: System Events list

Numerous circumstances may cause a certain application on QuadroCS to flag an event.

The page **Event Settings** lists all possible applications that cause QuadroCS to raise events and allows configuration of notification (action), should one of these events take place.

Each entry in the events table has its checkbox assigned to the row. By selecting the corresponding checkboxes, operations such as **Edit** may be done for one or more events.

**Edit** opens the page **Edit Event Settings** to modify the event action.

**Do Nothing** - Nothing will happen when the event occurs.

**Display Notification** - A notification link will be displayed on the bottom of all pages and a record is added into the **Events** table. The notification is executed as the link "Please Check you pending events!" that leads to the page **System Events**. This action also will take place if an action below (Flash LED or Send Mail) has been selected, even if not selected explicitly.

**Flash LED** - the second LED (yellow) will be blinking once a second and a notification will be displayed on the bottom of all pages. For some events the LED will start flashing after a brief delay.

**Send Mail** causes sending an e-mail with a notification about the new event and an event description in the mail body to the e-mail address specified in the [Mail Settings](#) page.

<input type="checkbox"/>	Application	Name	Description	Action
<input type="checkbox"/>	SYSTEM	default configuration	Default configuration has been created	Display notification
<input type="checkbox"/>	PPP	link down	PPP has lost the link	Do nothing
<input type="checkbox"/>	PPP	link up	PPP has established a connection	Send mail
<input type="checkbox"/>	PPP	authentication failure	password or user is wrong	Do nothing
<input type="checkbox"/>	MAIL	send failure	could not send a mail	Display notification
<input type="checkbox"/>	SNTP	time set	SNTP daemon corrected the system time	Display notification
<input type="checkbox"/>	SNTP	connect failure	SNTP daemon could not reach the time server	Send mail
<input type="checkbox"/>	SYSTEM	reboot	the device has been successfully started after reboot	Send mail
<input type="checkbox"/>	SYSTEM	rollback	the rollback mechanism restored the old system configuration	Display notification
<input type="checkbox"/>	PPP	general failure	The PPP daemon got an error	Do nothing
<input type="checkbox"/>	SYSTEM	usb	A USB device has been (un)plugged	Flash LED
<input type="checkbox"/>	SYSTEM	usb flash	USB Flash device event	Display notification
<input type="checkbox"/>	DHCP SERVER	error	DHCP Server Event	Do nothing
<input type="checkbox"/>	DHCP SERVER	distributed lease	DHCP Server Event	Display notification
<input type="checkbox"/>	DHCP CLIENT	error	DHCP Client Event	Do nothing
<input type="checkbox"/>	DHCP CLIENT	got lease	DHCP Client Event	Flash LED
<input type="checkbox"/>	SYSTEM	dyndns	DynDNS Event	Do nothing
<input type="checkbox"/>	SIP	registration	SIP Registration Event	Display notification
<input type="checkbox"/>	ROUTING	registration	Routing Registration Event	Flash LED
<input type="checkbox"/>	STUN	port detection	STUN port detection	Flash LED
<input type="checkbox"/>	STUN	nat type	STUN NAT type detection	Display notification
<input type="checkbox"/>	SYSTEM	ip routing	Could not add ip route	Send mail
<input type="checkbox"/>	FIREWALL	general failure	Firewall Problem Report	Send mail
<input type="checkbox"/>	SYSTEM	software watchdog	Executing escalation command	Send mail

Fig. II-18: Event Configuration Settings page

Actions that are not allowed for the selected event (like mail notification if the link is down or the mail server has been misconfigured) are hidden. For multiple events editing, action which does not fit at least to one of the selected events will be hidden.

If QuadroCS cannot get an IP address from the DHCP server, or cannot register an extension on the SIP or Routing servers, or cannot reach an NTP server, it raises only one event for the entire period the action has failed, but continues to try. When the required action is finally successful, QuadroCS raises an appropriate event.

The page **Edit Event Settings** offers the following input options:

**Application** displays the application the event refers to. **Multiple** is shown here, if more than one event has been selected for the action assignment.

**Name** displays the name of the event. **Multiple** is shown here, if more than one event has been selected for the action assignment.

**Description** displays additional information about the event. **Multiple** is shown here, if more than one event has been selected for the action assignment.

**Action** offers radio buttons to choose one of the actions to notify the QuadroCS's administrator whenever the selected event(s) takes place.

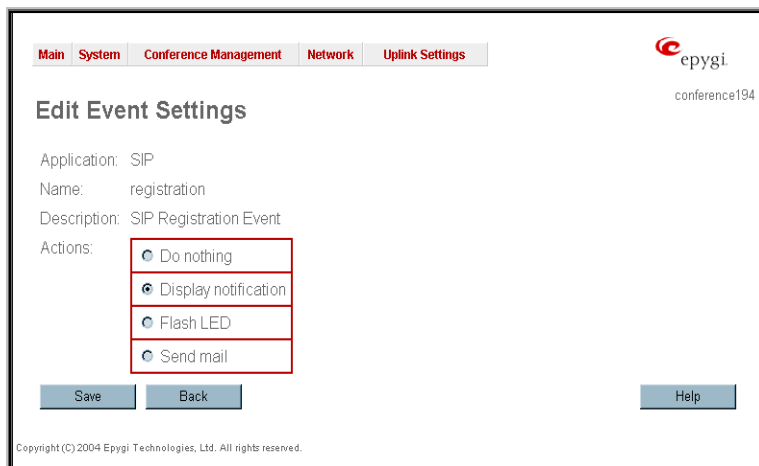


Fig. II-19: Edit Event Settings page

**To Assign an Action to the Event**

1. Select the checkbox of one or more events to assign an action to them.
2. Press the **Edit** button. The **Edit Event Settings** page appears.
3. Select an action type from the **Action** radio buttons to notify the administrator about the event in the desired way.
4. Press **Save** to submit the changes or use **Back** to abort the selected action.

**Time/Date Settings**

**Time and Date Settings** provide information about the current system time and date. The settings may be updated through the international time and date servers.

**Time** is used to set the local time (hour, minute).

**Date** is used to set the date (month, day, year).

**Timezone** provides a selection of world time zones and is used to select the local country time zone. Timezones are specified by GMT (Greenwich Mean Time) and by specific timezones for the United States and Canada.

**Enable Simple Network Time Protocol Server** enables the SNTP (Simple Network Time Protocol) server on QuadroCS, thus QuadroCS becomes the timeserver for its LAN.

**Enable Simple Network Time Protocol Client** enables the SNTP client on the QuadroCS, thus QuadroCS becomes a client to an external timeserver. The checkbox enables the following parameters:

The **SNTP Servers** table lists all defined NTP Servers.

**Add** opens an **Add NTP Server** page where new NTP server can be defined. The page contains the **NTP Server** radio buttons that are used to choose between a manual or a predefined NTP server.

**Manual** requires the NTP server's FQDN (Full Qualified Domain Name) or its IP address.

**Predefined** is used to select the NTP server IP address from the drop down list, where the most common NTP servers are listed.

**Move Up** and **Move Down** functional buttons are used to sort NTP servers in the order they need to be accessed. If the NTP server on the first position in the **SNTP Servers'** table does not answer, the NTP server on the next position then will try to be reached.

**Please Note:** Add another NTP server to the list if you feel defined NTP servers are not functional, i.e., the QuadroCS's date/time is not being automatically updated.

**Polling Interval** indicates the time interval for the periodical synchronization between timeserver and QuadroCS. It counts in hours.

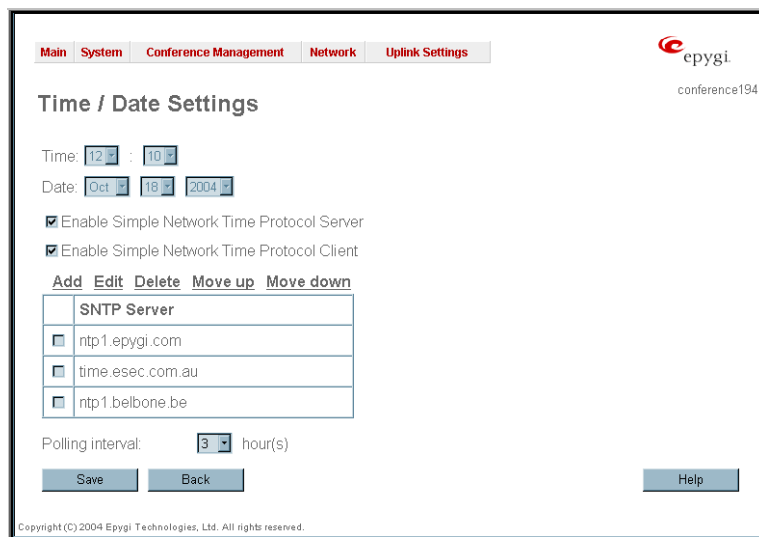


Fig. II-20: Time and Date Settings page

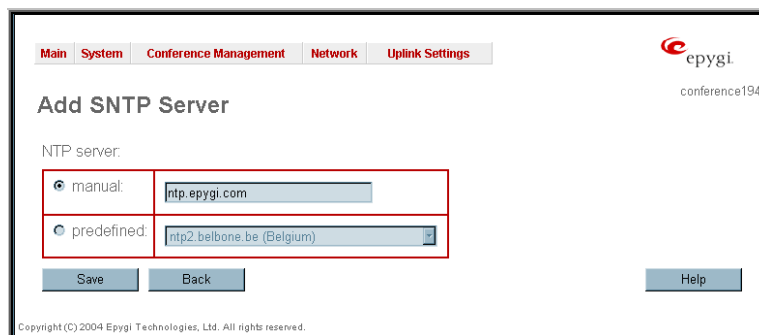


Fig. II-21: Time and Date Settings – Add Entry page

**Attention:** **Time and Date Settings** will be reset in case if QuadroCS has no battery or has lost power.

## Mail Settings

The **System Mail Settings** page gives the possibility of automatically sending warnings about the board status or other problems to the administrator. System events that require email notification are selected on the [Events](#) page. The system mail functionality must be enabled and the SMTP server needs to be configured for voice message transmission to the extension user's mailing account.

**Enable** enables the system for sending mails and transmitting voice messages to the extension user's mailbox.

**SMTP Host** requires the SMTP host IP address or domain name. The SMTP host needs to be configured to enable voice message transmission.

**Mail Sender Address** text field requires the source address for the Quadro notification emails. The email address defined here should be an existing valid email address registered on the selected SMTP server or should have permission to use that SMTP server for emails transmission.

**Mail Recipient Address** requires an active email address. The e-mail recipient here can be a Quadro administrator or someone responsible for network and system problems.

**Enable SMTP Authentication** checkbox must be selected if the specified SMTP server requires an authentication. In this case, authentication **User Name** and **Password** configured on the SMTP server should be defined in the corresponding text fields.

**Send Test Mail** is used to initiate a test e-mail transmission. This button will be enabled if correct values have been submitted and saved on this page.

Fig. II-22: System Mail Settings page

## Firmware Update

This window allows the software of QuadroCS to be updated by installing new firmware. Customers registered at Epygi will get notification of new firmware and will be able to download it from the Epygi Technical Support WEB page.

QuadroCS is provided with a battery. If the battery is low or simply absent the "There is no battery or voltage is low" warning is displayed.

**Please Note:** Installing new firmware will last about 3 minutes. During this time, QuadroCS won't operate, neither telephony nor Internet access. The firmware update will cause the loss of the following data:

- DHCP leases
- Call Statistics
- All pending events

The following main processes will be stopped during the firmware update and will be restarted afterward:

- Voice Software
- Network Time Protocol Daemon
- Network Interface Statistic Daemon
- Dynamic DNS Daemon

**Next** button will move to the second page of Firmware Update to select the image file.

Fig. II-23: Firmware Update page 1

The second page of **Firmware update** consists of the **Browse** button used to browse the image file, and the **Specify Image** text field that will display the selected image filename.

Pressing **Save** will start uploading the image file to the board. The next page will be displayed, showing the result of a verification of the image being burned.

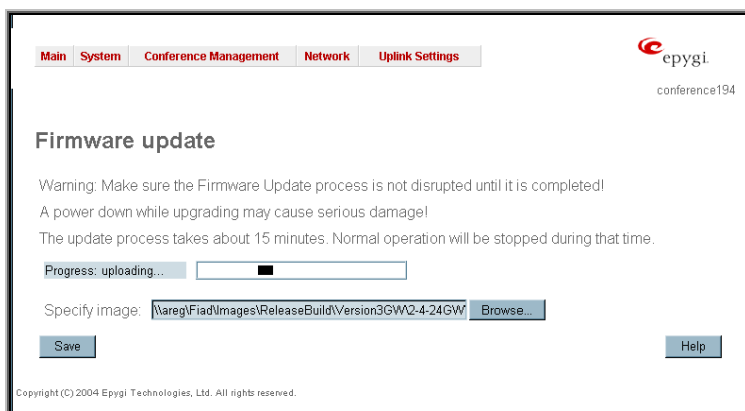


Fig. II-24 Firmware Update page 2

This page displays non-editable information about the image validity. The **Image Check** will display invalid if the image does not correspond to the hardware version.

The fields **Current Software Version** and **New Software Version** show the old software version and the version of the new image.

This page needs a confirmation to continue image updating. If you are sure that the image version is appropriate for your device press **Save**.

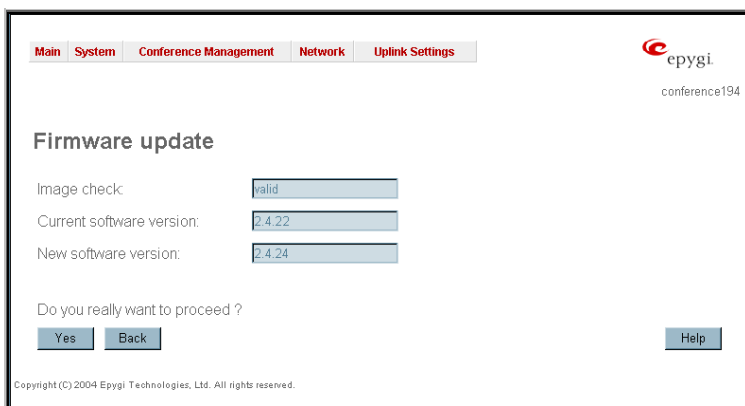


Fig. II-25: Firmware Check page

## Networking Tools

The **Networking Tools** provide the capability to check the Internet connection.

**Ping** sends four ICMP (Internet Control Message Protocol) requests with a default size of 64 bytes to the destination (IP address or host name) specified in the text field **Ping Target**. The response times are logged, and the round trip time (the time the packet needs from being sent until being received again) is measured. The results are displayed in the lower area of the page: The minimal and maximal round trip time and its average, the percentage of lost and of received frames.

**Traceroute** checks the Internet connection by triggering the routers (hops) that are passed to reach the destination specified in the text field **Traceroute Target**. Trace routing gives feedback on the routers passed by packets on the way toward the destination and the round trip delay of packets to these routers.

**Attention:** **Traceroute** is not possible if a high security Firewall has been enabled (see chapter [Firewall](#)).

For the purpose of tracerouting several IP packets are sent out. UDP (User Datagram Protocol) is used to send packets and ICMP (Internet Control Message Protocol) to receive information about the routers. In their headers, the TTL (Time To Live) value increases from 1 to 30. When the first IP frame is received by the first router, its IP address will be returned in its acknowledgement. The second frame delivers the IP address of the second router and so on and so forth. The results of **Traceroute** are displayed on the lower area of the page.

**Ping Target** requires the destination (IP address or host name) for the ICMP request.

The **Ping** button starts pinging the specified ping Target.

**Traceroute Target** is used to enter the IP address or host name of the destination to be trace routed.

The **Traceroute** button is used to process the router triggering to check the Internet connection.

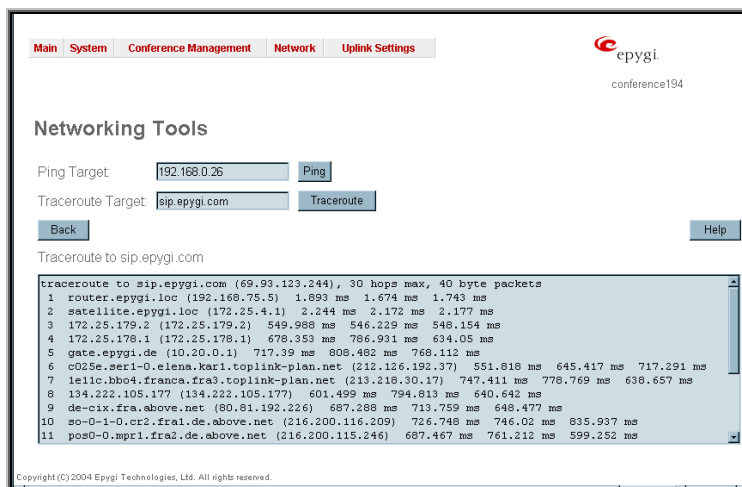


Fig. II-26: Networking Tools page

### To Check the Internet connection

1. Specify destination address for the ICMP request in the **Ping Target** text field.
2. Press the **Ping** button to process the ICMP request.
3. Specify the destination address to trace the route.
4. Press the **Traceroute** button to process the router triggering.

## Diagnostics

The **System Diagnostic** page gives a possibility to run Network and WAN protocol diagnostics, to verify QuadroCS's connectivity and to download all system logs for possible problems recovery.

The **Start Detecting WAN Protocol** button is used to initiate WAN diagnostics that will detect the WAN IP configuration: static or through DHCP server. For static WAN IP configuration, gateway availability is checked. When acting as a client, DHCP server's accessibilities are being verified.

The **Start Network Diagnostics** button is used to initiate network diagnostics, i.e., to check the WAN link and IP configuration, to verify gateway, DNS primary and secondary (if configured) servers' accessibilities.

The field below will display the diagnostics results and the connectivity conditions. The system should be reconfigured if problems occur during the diagnostics.

The **Reboot this Device** button is used to reboot the QuadroCS. Please note that the session with the QuadroCS will be closed, i.e., the QuadroCS GUI should be newly opened and a new login will be required afterward.

The **Download system logs** button is used to download all logs to the local PC as a \*.tar archive file. These logs can then be used by the Epygi Technical Support Office to determine the problem that had occurred on your QuadroCS.

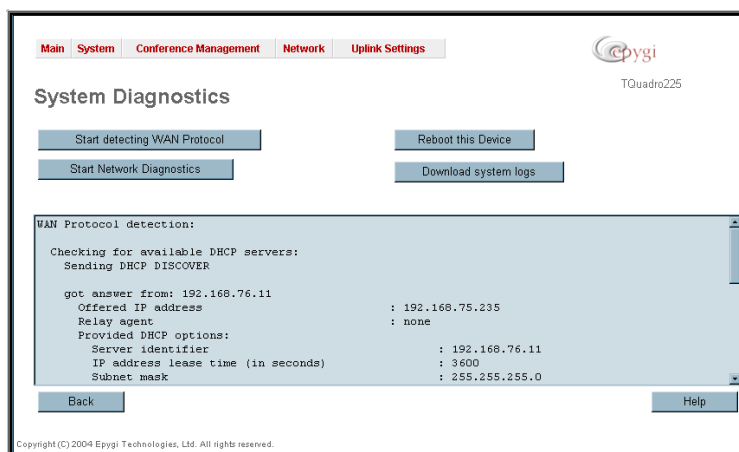


Fig. II-27: System Diagnostic page

## Upload Language Pack

**Upload Language Pack** page allows to upload a custom language for GUI and Voice Messages of the QuadroCS. The language of voice messages can be switched to the custom Language Pack language from GUI setting page at the [System Configuration Wizard](#). The language of the GUI session can be changed to the custom Language Pack language from the radio buttons on the login page.

Uploading a Language Pack will cause the loss of the following data:

- All internally stored voice mail
- DHCP leases
- Call statistics
- Pending events
- Transfer statistics

**Please Note:** Only one custom Language Pack can be uploaded at the time. Uploading a Language Pack will remove the existing one (if existing) and will reboot the QuadroCS.

**Current Language Pack** field displays a read only information about the custom language pack uploaded. When no custom language pack is uploaded, field indicates "unknown".

Below, there is a **Language Pack File to Upload** text field which displays the selected image filename. **Browse** button is used to browse the custom language pack to be uploaded.

**Remove Current Language Pack** link is seen only when custom language pack is uploaded and is used to remove it from the system.

Pressing **Save** will start uploading the custom language pack to the board. The next page will be displayed, showing the result of a verification of the language pack being uploaded and asks for confirmation to overwrite the existing custom language pack (if any).

After final confirmation, system will upload the selected custom Language Pack and will reboot.

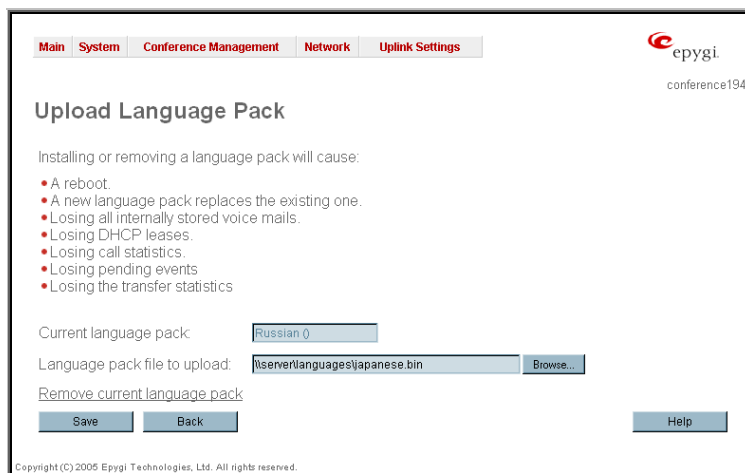


Fig. II-28: Upload Language Pack page

## Conference Management Menu



Fig. II-29: Conference Management Graphical Menu

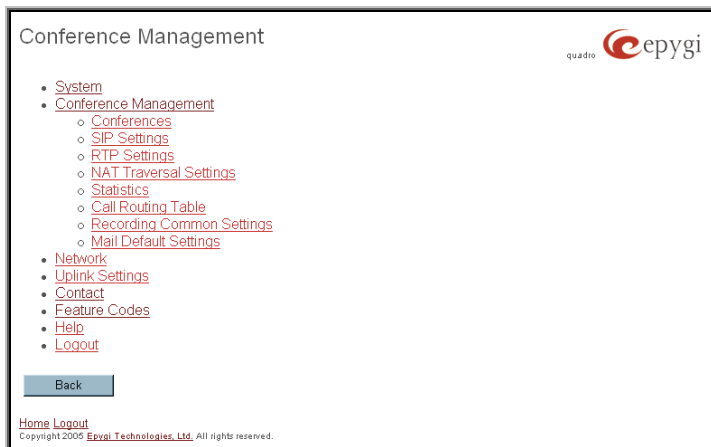


Fig. II-30: Conference Management Tree Menu

## Conferences

The **Conference Management** page is divided into two pages: **All Conferences** page where new conferences can be arranged and the **Active Conferences** page to preview or to terminate the active conferences.

The **Active Conferences** page includes a table with all active conferences on the QuadroCS and their parameters (Conference ID, Subject, Description, Status, Recording Space and Codecs). This page allows termination of the selected conference or monitoring of the conference progress.

The **All Conferences** page includes a table that lists all created conferences and their parameters. The table displays the **Conference ID**, the conference **Subject**, a **Description**, the actual **Status**, the **Recording Space** and the corresponding **Codecs**. Each column heading in the table is created as a link. By clicking on the column heading, the table will be sorted by the selected column. Each record in the table has a checkbox assigned to the row. The checkbox is used to edit, activate, duplicate and delete the corresponding record.

**Please Note:** There is a 40 conference-rooms limitation on the QuadroCS, but the amount of all participants cannot exceed 25 at the same time.

Each conference in the **Conferences** table has its specific voice **Codecs** configured, which can be accessed and modified by clicking on the link in the **Codecs** column of the corresponding conference.

Clicking on the corresponding conference ID will link you to the Moderator's page where the conference properties can be configured.

Clicking on the conference status link (which appears when conference state is Active or Waiting), displays a page with information on the conference. This page displays a list of conference participants and gives an option of dropping a participant from the conference or inviting new participants. It also allows the moderator to start/stop/resume/pause the conference recording and to terminate the conference.

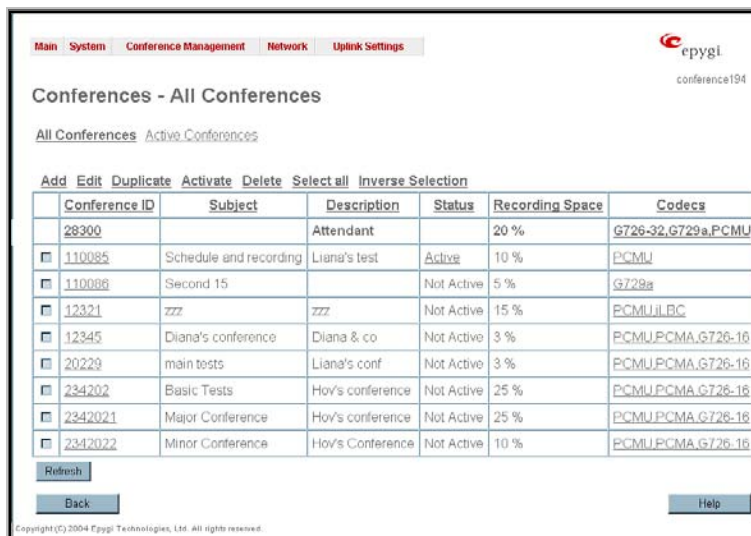


Fig. II-31: Conference Management page

The table contains a default entry that is dedicated to the Conference Server Auto Attendant. This entry can't be deleted but its settings may be modified. To do so, click the corresponding entry in the table and **Edit Entry** page for the Auto Attendant page will be displayed.

The page with the **Auto Attendant settings** requires the information necessary to configure the Quadro CS Auto Attendant:

### 1. Attendant Settings

This group consists of the **Attendant ID** text field indicates a read only information about the Conference Server's Auto Attendant number.

**Description** text field is used to insert an optional description for the Auto Attendant.

### 2. SIP Registration Settings

This group requires the Auto Attendant SIP registration settings and has the following components:

**Registration User Name** text field requires a user name for conference registration on the SIP server. The registration user name needs to be unique on the SIP server and is used to reach the Conference Server's Auto Attendant over the SIP network.

The **Registration Password** text field indicates a password for the Auto Attendant extension registration at a SIP server.

The **Confirm Registration Password** text field is used to confirm the password. If the entered password does not correspond to the one given in the **Registration Password** field, the error will appear: "The passwords do not match. Please try again".

The **Registration SIP Server** text field indicates the host address of the SIP Server. The field is not limited regarding symbol usage and length as it can be either an IP number, e.g., 192.168.0.26 or a host address, e.g., sip.epygi.com.

The **Registration SIP Port** text field indicates the Host Port number to connect to the SIP server. It only may consist of numerics, otherwise the error message "SIP Server Port is incorrect" will be displayed when attempting to save the SIP Registration Settings. If no SIP server port is specified, Quadro will access the SIP server through its default port 5060.

The **Registration on SIP Server** checkbox enables the SIP server registration option for the Auto Attendant.

**SIP Outbound Proxy Address** and **SIP Outbound Proxy Port** text fields require the settings of the SIP Outbound Proxy server which acts as a SIP server where all the SIP requests and other SIP messages are transferred. Some SIP servers use outbound proxy server to escape restrictions of NAT. e.g. Free World Dialup service uses Outbound Proxy server. If an Outbound proxy is specified here, all SIP calls originated from the Conference Server's Auto Attendant are made through that outbound proxy, i.e. all requests are sent to that outbound proxy.

The **UserID** text field requires an identification parameter to reach the SIP server. It should be provided by the SIP service provider and can be requested for some SIP servers only, for others field should be left empty.

### 3. Memory Allocation

This group includes only a drop down list that is used to specify the **User Space** (counted in percent) for the Auto Attendant welcome messages. The maximum value in the drop down list is equal to the maximal available space for voice messages on the Quadro. When decreasing the Auto Attendant memory space, the system will check for the presence of custom Auto Attendant welcome messages. If the memory required for the welcome messages exceed the defined memory size, the system will suggest either to remove the welcome message or to select a larger size so that the existing welcome messages can be stored there.

### 4. Attendant Welcome Message

This group allows updating of the active Auto Attendant welcome message, downloading it to the PC, or restoring the default one. The group offers the following components:

The **Restore Default Welcome Message** checkbox allows restoring the Auto Attendant default welcome message file if another one has been previously selected. If the checkbox is selected, the file upload will be disabled.

**Upload new welcome message** indicates the file name used to upload a new welcome message. The uploaded file needs to be in PCMU wave format, otherwise the system will prevent uploading it with the "Invalid audio file, or format is not supported" warning message. The system also prevents uploading if there is not enough memory available for the corresponding extension, which will cause the "You do not have enough space" warning.

**Browse** opens the file chooser window to browse for a new welcome message file.

The **Download Welcome Message File** link appears only if a file has been previously uploaded. The link is used to download the audio file to the PC and opens the file chooser window where the saving location can be specified.

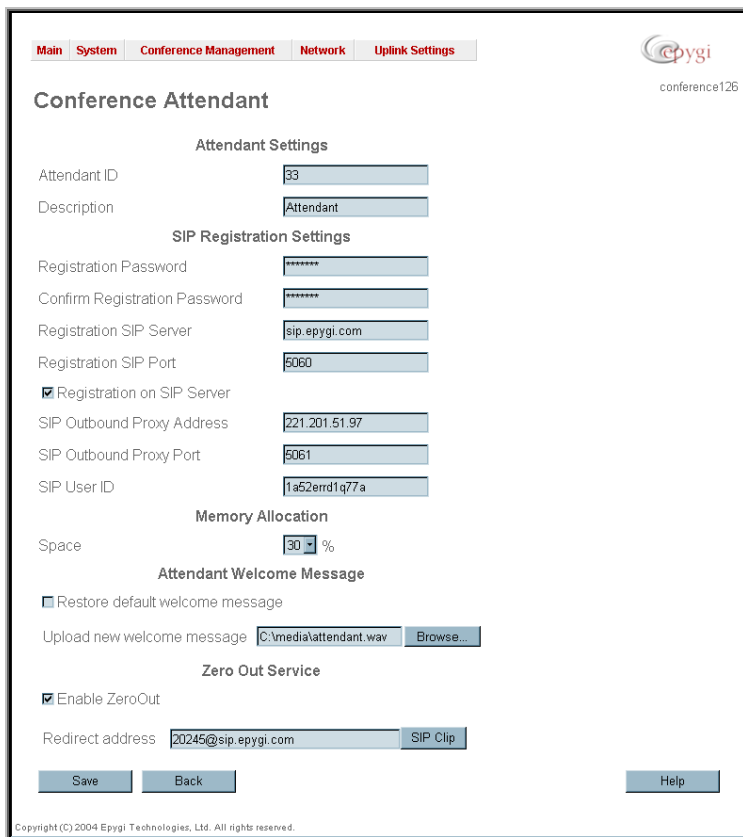


Fig. II-32: User Management - Auto Attendant Settings

### 5. Zero Out Service

**Enable Zero Out** checkbox enables **Zero Out Service** which provides a possibility to caller that has reached the Conference Server's Auto Attendant Zero Out menu (see Call Codes) to accelerate the automatic redirection feature. Entering Zero Out menu will automatically redirect call to the destination defined in the **Redirect Address** text field. If **Zero Out Service** is disabled, corresponding menu will be hidden in the Auto Attendant.

**Add** opens the **Conference Wizard** used to guide the user through the basic settings to create a new conference. The **Conference Wizard** consists of two pages – for providing general conference properties and SIP registration settings. The following settings are entered into the first page of the **Conference Wizard**:

**Conference ID** is used to enter a unique ID for the call conference. This ID will be also used in Conference Server's Auto Attendant to reach the local conference. Digits allowed only. System prevents adding a conference starting with 0 digit.

**Subject** is an optional parameter where a brief subject of the conference can be entered.

**Description** is an optional parameter used to insert additional information about the conference.

**Moderator Password** can be entered to provide moderator access to the conference. It has to be entered twice for confirmation. The password inserted here will be used by the moderator to join the conference. The moderator can dial codes during the active conference as well as access conference specific GUI pages to control the conference (view/change conference properties, activate/deactivate it, start/stop/resume record, view conference statistics).

**Participant Password** can be entered to require a password for participant access to the conference. It has to be entered twice for confirmation. The password entered here should be used by the participant to join the conference. The participant can participate in the conference only according to the rights (speaker or listener) granted by the moderator. The participant also can access the conference specific GUI to view the conference properties and the other participants.

**Max. Duration** sets the conference to be limited to a maximum duration (in minutes). Leave the field empty for unlimited conference duration.

**Conference Recording Space** is used to select the percentage of total QuadroCS's memory space that can be used for recording of this conference.

**Enable Routing Mode** checkbox enables direct access to the Quadro's internal routing tables when dialing out to a participant during a conference. When this checkbox is selected, any dialed number will be parsed through [Call Routing Table](#).

**Leave Active** checkbox will keep conference active, even if all participants have left it.

The second page of the **Conference Wizard** is where the SIP registration settings are configured:

**Registration User Name** text field requires a user name for conference registration on the SIP server. The registration user name needs to be unique on the SIP server and is used to reach the conference over the SIP network.

**Registration Password** is the password for the registration on the SIP server. It must be confirmed in the **Confirm Registration Password** text field.

**Registration SIP Server** indicates the host address of the SIP server. The field is not limited regarding symbol usage and length. It can be either an IP address (ex: 192.168.0.26) or a host address (ex: sip.epygi.com).

**Registration SIP Port** indicates the host port number to connect to the SIP server. The SIP server port may only contain digit values. If the SIP server port is not specified, the QuadroCS will access the SIP server through the default port of 5060.

**Registration on SIP Server** enables the conference ID to be registered on the SIP server.

**SIP Outbound Proxy Settings** are optional settings used for the QuadroCS's connection to the SIP server. The SIP Outbound proxy is a SIP server where all the SIP requests and other SIP messages are transferred. Some SIP servers use outbound proxy servers to avoid the restrictions of NAT. **SIP Outbound Settings** are provided by the SIP server provider and are used by QuadroCS to reach the selected SIP server. If an Outbound proxy is specified for a conference, all outbound SIP calls are made through that outbound proxy.

**SIP Outbound Proxy address** requires the IP address or the host name of the outbound proxy.

**SIP Outbound Proxy Port** requires the port number on which QuadroCS may reach the outbound proxy.

**SIP UserID** requires a user ID to for authentication on the SIP server. The UserID may be requested by some SIP servers. If not required, the field should be left blank.

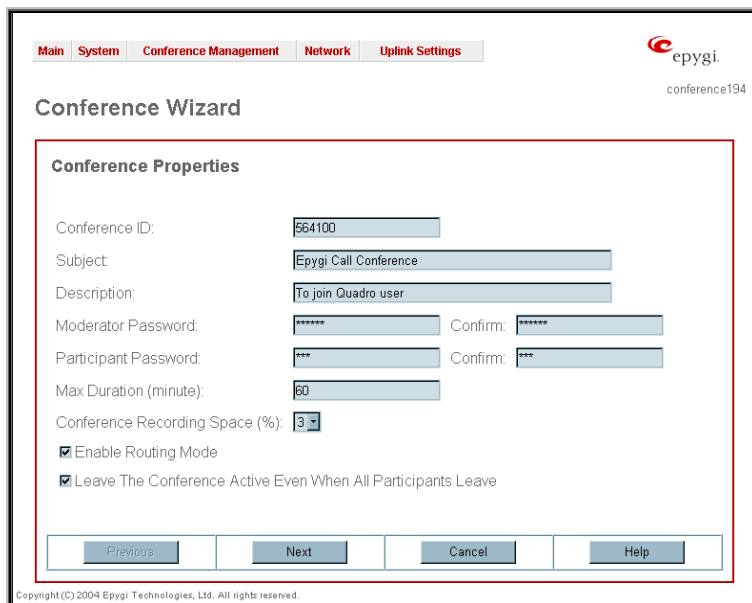


Fig. II-33: Conference Wizard - page1

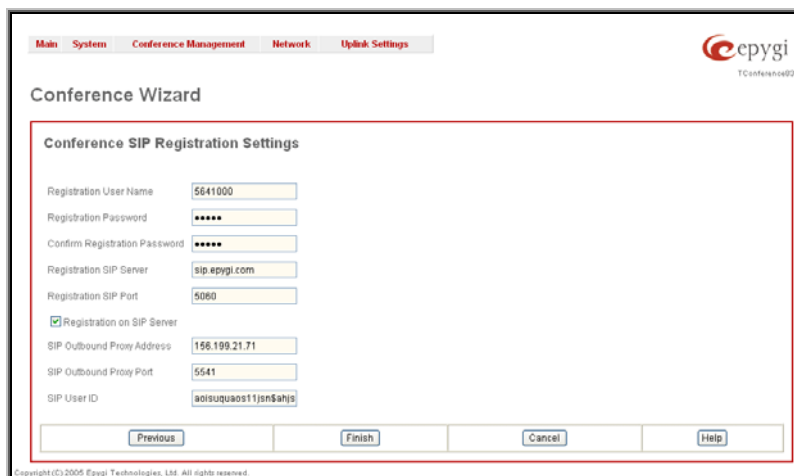


Fig. II-34: Conference Wizard - page2

**Duplicate** is used to generate a new conference with the settings of an exiting one. To use the **Duplicate** button only one record may be selected. The **Duplicate** button opens the **Conference Wizard** where some of the basic settings of the selected conference are already filled in. Basic settings for the new conference (like password or username) will still be required.

**Activate** is used to activate the selected conference(s).

#### **To Add a Conference**

1. Press the **Add** button on the **Conferences** page. The **Conference Wizard** appears in the browser window.
2. Enter the desired conference number in the **Conference ID** text field.
3. Define the conference **Subject** and **Description** in the corresponding text fields if needed.
4. Define the **Moderator** and **Participant Passwords** and confirm them.
5. Define the conference **Max. Duration** in the corresponding text field.
6. Choose a **Recording Space** from the homonymous drop down list to assign a percentage of memory to the corresponding conference.
7. Enable **Leave Active** checkbox for the conference to remain active even when all participants have left.
8. Press Next to move to the conference **SIP Registration Settings** configuration page.
9. Provide the **SIP Registration Password** and confirm it in the corresponding text fields.
10. Define the **Registration SIP Server** and **SIP Port** in the corresponding text fields.
11. Provide **SIP Outbound Proxy Address**, **SIP Outbound Proxy Port** and **SIP User ID** if needed.
12. Press **Finish** to arrange the conference with the defined settings.

#### **To Delete a Conference**

1. To remove a conference and its settings select one or more checkboxes of the corresponding conferences that should be deleted from the **Conference Management** table. Press **Select all** if all the conferences should be deleted.
2. Click the **Delete** button on the **Conference Management** page.
3. Confirm the deletion by clicking **Yes**. The conference will then be deleted. To abort the deletion and keep the conference in the list, click **No**.

## Conference Codecs

To establish IP voice communication, both parties have to use the same codec. During setup of the communication line, the codec is negotiated. If the caller does not find a matching codec, the communication won't start. If you want to be reachable by all IP callers, it is helpful to support as many codecs as possible. In this case, all codecs that Quadro supports should be added to the **Active Codecs**' table. On the other hand, some codecs require significant bandwidth- up to 64 kBit/s. If you definitely don't want to use these codecs, you must remove them from the **Active Codecs**' table.

The **Conference Codecs** page displays a list of Quadro **Active Codecs**.

The table **Active Codecs** lists active voice codecs for the selected line that are supported by Quadro. The order of records in the **Active Codecs**' table is important for transmitting and receiving. A codec placed at the top of the table will be used as the preferred codec. If the remote party does not support the preferred codec, the following codecs will be tried out strictly in the top down order given in the **Active Codecs**' table.

Each record in the table has an assigned checkbox. It is used to select the record to be deleted or moved up or down. The following error message results if no records are selected and the user activates the delete button: "No records selected". At least one codec must be attached to the line, when attempting to delete the last one the error will occur: "At least one codec should stay in the codec list".

**Add** opens the **Add Entry** page where the user may add codecs supported by QuadroCS. The voice codec defines the voice compression algorithm for the incoming and outgoing DSP packages.

**Codecs** lists all codecs supported by Quadro. If no more codecs are available (all available codecs have already been transferred to the **Active Codecs**' table), the **Add Entry** page will display the message "No Available Codecs" instead of the drop down menu.

The **Move Up/Move Down** buttons are used to move the selected codec one level up or down in the table.

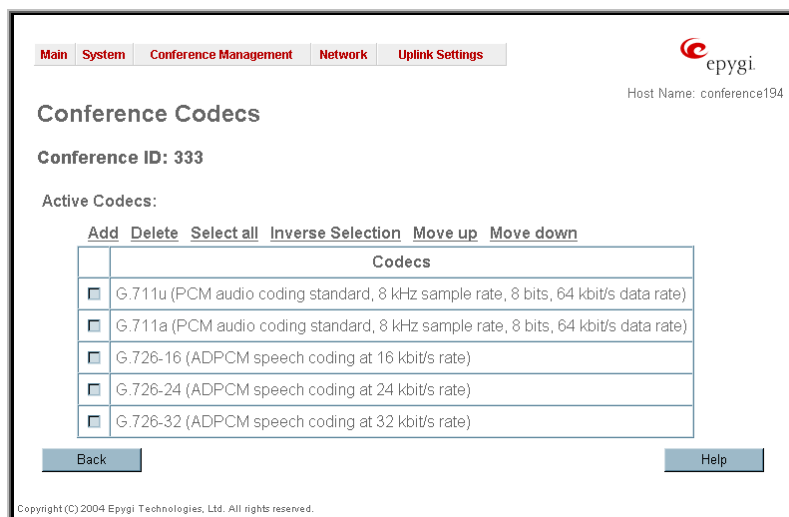


Fig. 0-35 Conference Codecs List

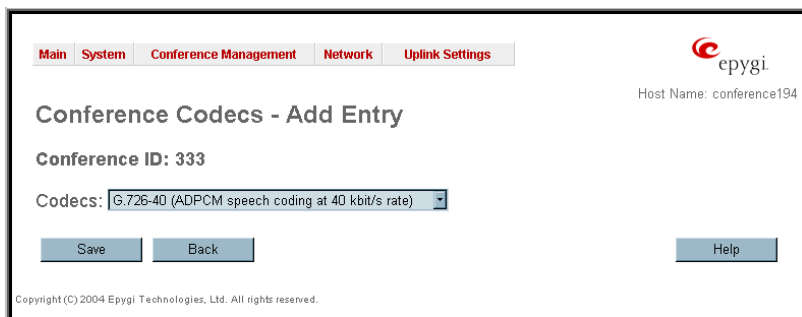


Fig.0-36 Conference Codecs – Add Codec page

## SIP Settings

The **SIP Settings** provide information on the SIP receive UDP and TCP ports and allows to select DNS server configuration for SIP and SIP timers scheme.

**UDP Port** indicates the SIP UDP (User Datagram Protocol) receive port number. By default 5060 is selected and used. The SIP UDP port cannot be in the selected RTP/RTCP port range for FXS and IP lines (see [RTP Settings](#)), otherwise the "Mapped port for SIP shouldn't be in RTP port range" error appears.

**TCP Port** indicates the SIP TCP (Transmission Control Protocol) receive port number. By default 5060 is selected and used.

**Please Note:** Quadro will not use TCP protocol as a transport for SIP messages if the **TCP Port** field is left empty.

**Enable Session Timer** enables advanced mechanisms for connection activity checking. This option allows both user agents and proxies to determine if the SIP session is still active.

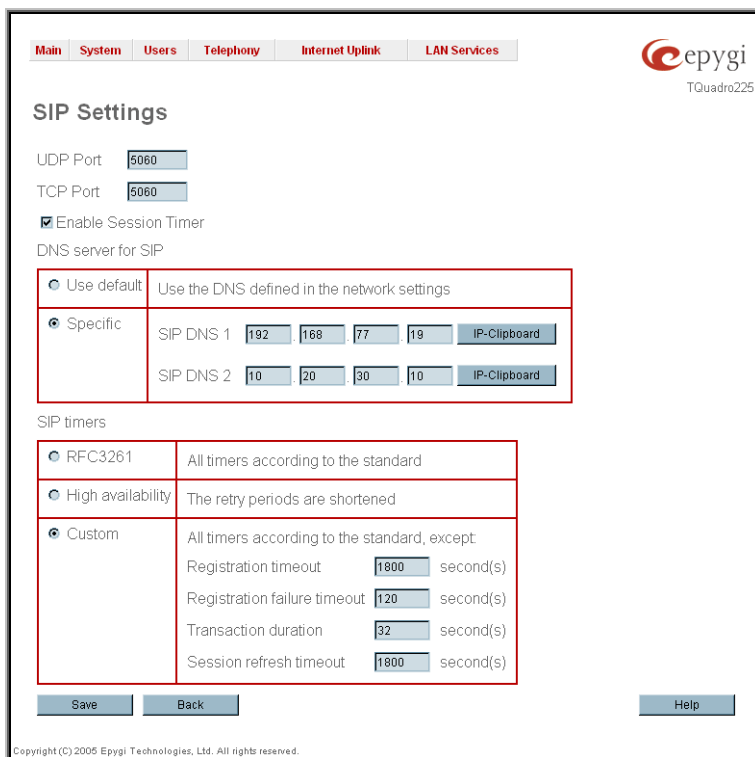


Fig. II-37: SIP Settings page

The **DNS server for SIP** radio button group allows to choose between regular DNS servers configured in the [DNS Settings](#) page and specific DNS servers for the SIP traffic.

- **Use default** is used to apply regular DNS servers for the SIP traffic.
- **Specific** is used to enable SIP specific DNS servers. For this selection, both primary and secondary SIP DNS servers should be defined in the **SIP DNS 1** and **SIP DNS 2** text fields. At the least, a primary DNS server should be inserted.

The **SIP Timers** radio button group is used to define the timeouts of the SIP messages retransmission.

- **RFC 3261** will apply standard SIP timers described in the corresponding specification.
- **High availability** will apply SIP timers to shorten the call establishment, registration confirmation and registration failure procedures. This selection provides more firmness to the SIP connection but increases the network traffic on the Quadro.
- **Custom** allows defining manually the **Registration Timeout**, **Registration Failure Timeout**, **Transaction Duration** and **Session refresh timeout** SIP timers (in seconds).

## RTP Settings

The **RTP Settings** page allows the administrator to configure the codec's packet size and silence suppression for each voice codec, to select the G726 codec standard, to define RTP/RTCP port range and to enable the RTCP support. All parameters listed on this page may be modified and submitted.

The **Codec Properties** table lists all codecs with the corresponding packetization interval and information about silence suppression.

**Edit** opens the **Edit RTP Settings** page where the codec settings can be modified. To use **Edit**, only one codec may be selected at a time, otherwise an error occurs: "One record should be selected".

The **Packetization Interval** is the time interval between two RTP packets of the same stream. If the interval is increased, the overhead is decreased but the voice quality may deteriorate as a result. If the interval is decreased, the network load is increased and the delay is reduced.

**Silence Suppression** disables RTP packet transmission in case of no voice activity. This feature helps to avoid extra traffic if the RTP stream contains no voice. It is activated after 2 seconds of silence and restarted immediately if any audio appears.

The **G.726 Standard** radio buttons are used to select the type of packaging the G.726 code words into octets. If you experience problems with G.726 voice quality having one of these packaging types selected, try the other one.

- If **Use ITU\_T specification** is selected, the ITU I.366.2 ("AAL2 type 2 service specific convergence sublayer for narrow-band services") type packaging of code words is used, where packing code words into octets is starting from the most significant rather than the least significant position in the octet.
- If **Use IETF RFC** is selected, the IETF RFC ("RTP Profile for Audio and Video Conferences with Minimal Control") type packaging of code words is used, where packing code words is starting from the least significant position in the octet.

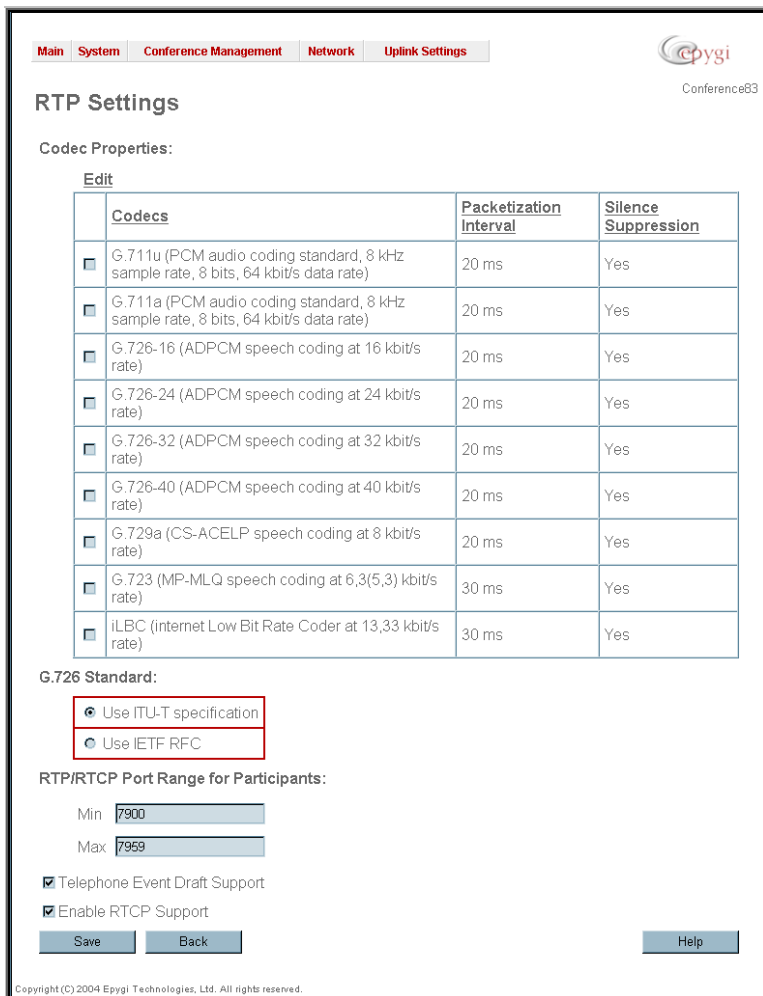


Fig. II-38: RTP Settings page

### RTP/RTCP Port Range for Participants:

**Min** – minimal port has to be higher than 1024 and lower than the maximal port range. Only even numbers are allowed.

**Max** – maximal port has to be lower than 65536 and higher than the minimal port range. Only odd numbers are allowed.

As the specified maximum port has to be higher than the minimum port, the error message "Min port number should be less than max port number" will occur if this condition is not met. The port range may consist of digits only, otherwise the error "Incorrect Port Range: only Integer values allowed" occurs. The difference between Max and Min RTP ports should be 50 ports or less (according to system capabilities) otherwise a corresponding warning appears. RTP/RTCP Port range cannot include the defined SIP UDP port. Otherwise "Mapped port for SIP shouldn't be in RTP port range" error appears.

**Telephone Event Draft Support** enables telephony events transmission according to the draft-ietf-avt-rfc2833bis-04. The checkbox needs to be toggled if the SIP destination party phone or IVR has problems recognizing DTMFs generated by the Quadro.

**Enable RTCP Support** checkbox enables Real Time Control Protocol support and allows the transmission of RTCP packets. RTCP protocol is used for monitoring the RTP streams and changing RTP characteristics depending on the Network conditions.

The **RTP Settings – Edit Entry** page contains two drop down lists and a checkbox:

**Packetization Interval** contains possible values (in milliseconds) to be configured for the selected codec.

The **Enable Silence Suppression** checkbox selection enables voice activity detection for the selected codec.

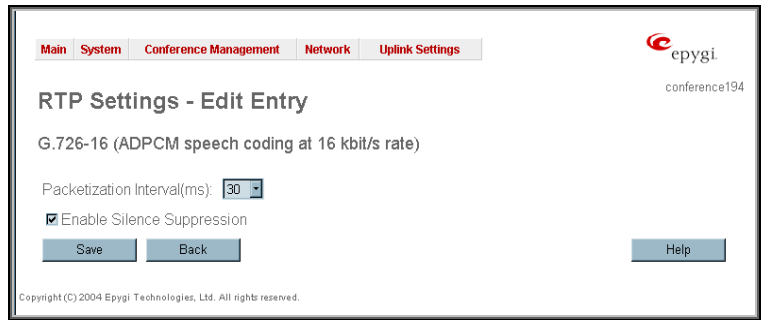


Fig. II-39: RTP Settings – Edit Entry

### To Edit Codec Parameters

1. Select the codec from the **Codecs Table** that is to be edited.
2. Press the **Edit** button on the **RTP Settings** page. The **Edit Entry** page will appear in the browser window.
3. Change values in **Packetization Interval** and/or enable/disable **Silence Suppression**.
4. To save the codec settings press **Save** or click **Back** to keep the initial data.

## NAT Traversal Settings

**NAT Traversal Settings** page consists of five separate pages to configure SIP NAT parameters, RTP and STUN parameters for NAT and a page where the NAT Exclusion table may be filled.

The **SIP Parameters** page is used to configure NAT specific settings for SIP. It consists of two independent group of settings:

### UDP Parameters:

Manipulation radio buttons allow to select the type of connection over NAT:

- Selecting **Use STUN** will switch to automatic discovery of Mapped settings for the SIP UDP traffic over NAT. STUN settings are configured in the STUN parameters page (see below).
- Selecting **Use Manual NAT Traversal** allows to define manually the mapped settings for the SIP UDP traffic over NAT:

**Mapped Host** requires the IP address of the mapped host for SIP UDP traffic over NAT.

**Mapped Port** requires the port number on the mapped host for the SIP UDP traffic over NAT.

### TCP Parameters:

**Mapped Host** requires the IP address of the mapped host for SIP TCP traffic over NAT.

**Mapped Port** requires the port number on the mapped host for the SIP TCP traffic over NAT.

The **RTP Parameters** page is used to choose between the **STUN** and **Manual NAT traversal** connection for the RTP traffic and to define the RTP/RTCP ports for the connection over NAT for each voice module.

Manipulation radio buttons allow to select the type of connection over NAT:

- Selecting **Use STUN** will switch to automatic discovery of Mapped settings for the RTP UDP traffic over NAT. STUN settings are configured in the STUN Parameters page (see below).
- Selecting **Use Manual NAT Traversal** allows to manually define the RTP/RTCP port ranges for the RTP traffic over NAT:

**Mapped Host** requires the IP address of the mapped host for RTP traffic over NAT.

### Mapped Ports:

**Min** – minimal port number has to be higher than 1024 and lower than the maximal port range. Only even numbers are allowed.

**Max** – maximal port number has to be lower than 65536 and higher than the minimal port range. Only odd numbers are allowed.

**Please Note:** RTP/RTCP Mapped Port range should be more or equal to the RTP/RTCP port range defined on the [RTP Settings](#) page.

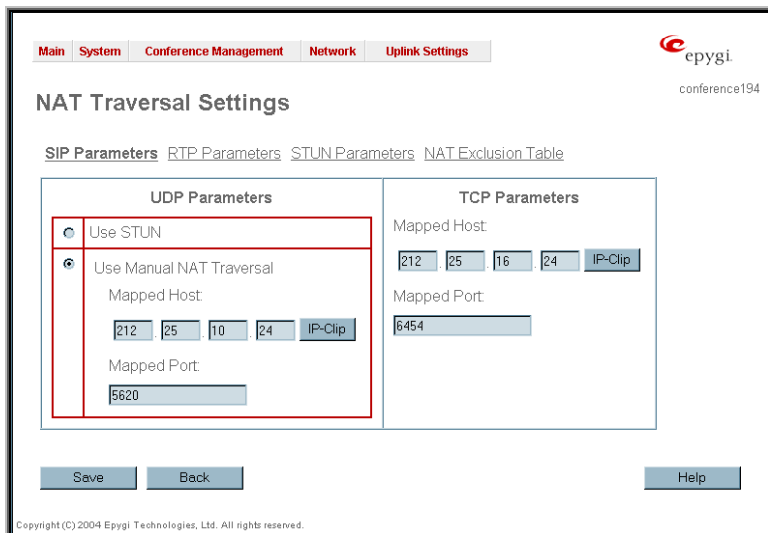


Fig.0-40 SIP Parameters page

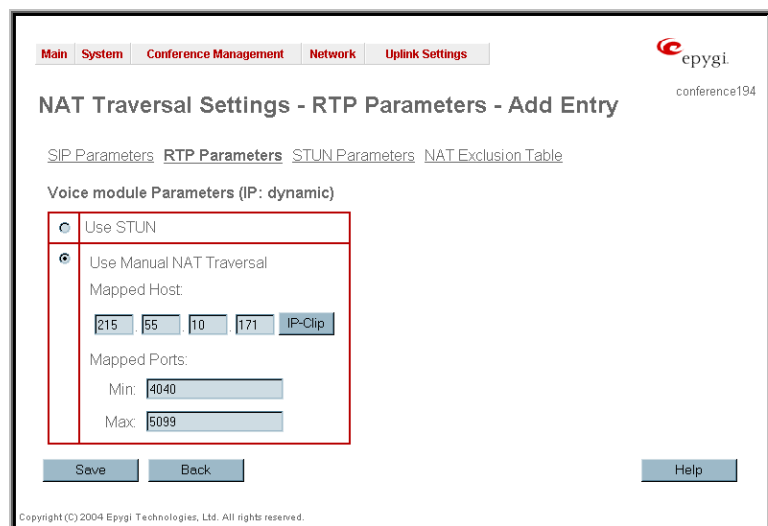


Fig.0-41 RTP Parameters page

The **STUN Parameters** page enables automatic NAT configuration through the STUN server and is used to configure the STUN (Simple Traversal of UDP over NAT) client on the Quadro. The page requires following data to be inserted:

The **STUN Server** text field requires the STUN server's hostname or IP address. The **STUN Port** text field requires the STUN server port number.

The **Polling Interval** drop down list contains the possible time intervals between referrals to the STUN server.

The **Keep-alive interval** text field gives the possibility to select the time interval (in seconds) for keeping NAT mapping alive.

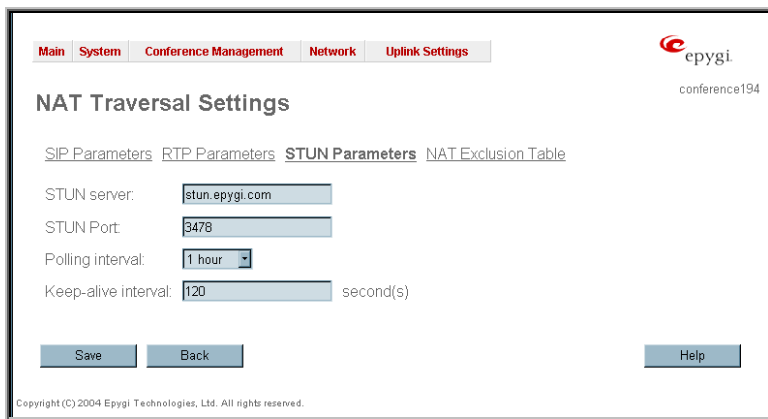


Fig.0-42 STUN Parameters page

The **NAT Exclusion Table** page includes a table where all possible LAN IP ranges are listed that allows to exclude some network addresses from being NATed. For example, if you have several Quadros with a SIP proxy server within the same local network, then NAT (Network Address Translation) should not be used for those devices. If this type of network configuration exists, and NAT traversal must be used, then this table must be filled in first before enabling NAT traversal. Otherwise, a malfunction may occur in SIP operations.

The **NAT Exclusion Table** page offers the following input options:

Each record in the table has its checkbox assigned to its row. It is used to delete or to edit the corresponding record. An error occurs if no records are selected and the user activates the delete or edit button: "No records selected." The error message "One record should be selected" is displayed, if the user tries to edit more than one record at the same time. Each column heading in the table is created as a link. By clicking on the column heading, the table will be sorted by the selected column. Upon sorting (ascending, descending), arrows will be displayed close to the column heading.

The **Add Entry** page includes the following text fields:

**Add** opens the **Add Entry** page where new LAN IP range can be added.

**Edit** opens the **Edit Entry** page where the LAN IP range can be modified. The page includes the same components as the **Add Entry** page.

The **NAT Exclusion Table** lists all possible LAN IP ranges that are not included into the NAT process, but may be accessed directly. IP addresses that are not listed in the **NAT Exclusion Table** are accessed over NAT.

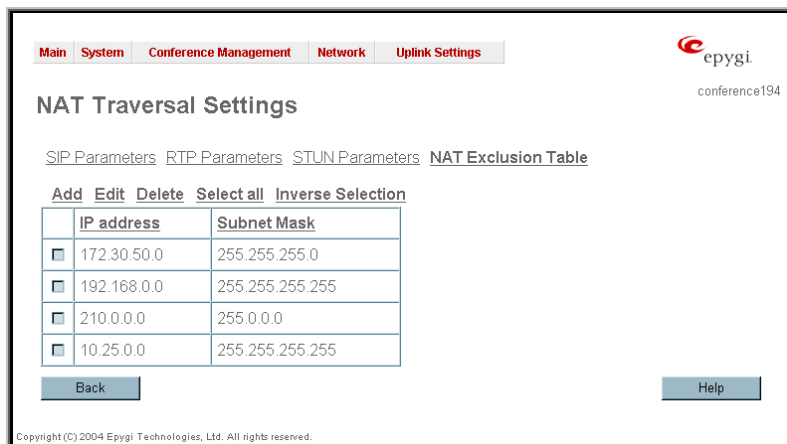


Fig.0-43 NAT Exclusion Table page

**IP address** requires the IP address that is placed behind NAT within the LAN network.

**Subnet Mask** requires the subnet Mask corresponding to the specified IP address.

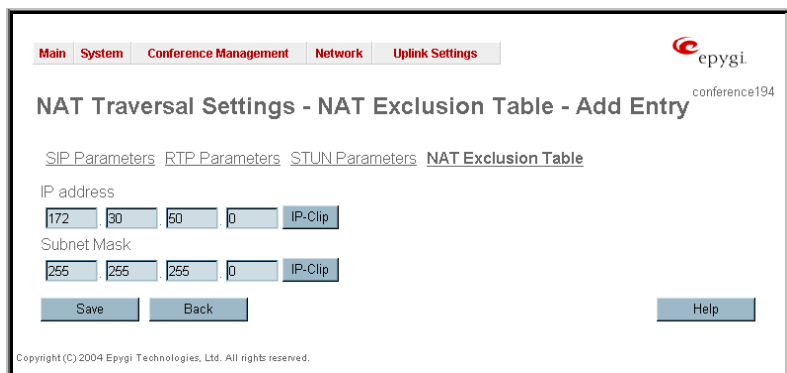


Fig.0-44 NAT Exclusion Table - Add Entry page

**Configuring the NAT Exclusion Table**

1. Press the **Add** button on the **NAT Exclusion Table** page. The **Add Entry** page will appear in the browser window.
2. Specify an **IP Address** and its **Subnet Mask** in the corresponding text fields.
3. Press **Save** on the **Add Entry** page to add the selected IP range to the **NAT Exclusion Table** list.

**To Delete an IP Range from the NAT Exclusion Table**

1. Select the checkboxes of the corresponding IP range(s) that ought to be deleted from the **NAT Exclusion Table**. Press **Select all** if all IP ranges ought to be deleted.
2. Press the **Delete** button on the **NAT Exclusion Table** page.
3. Confirm the deletion with **Yes**. The IP range will be deleted. To abort the deletion and keep the IP range in the list, press **No**.

## Statistics

The **Statistics** page consists of three pages with conference statistics on the first page, successful call statistics on the second page and the statistics settings on the third page. Statistics allows collecting conference call events on the QuadroCS with their parameters and to search them by various criteria.

The **Statistics Settings** page contains the following components:

The **Enable Call Reporting** checkbox enables conference calls statistics reporting.

The **Maximal Number of Conference Call Records** drop down list is used to select the maximum number of statistics records to be collected and shown in the **Statistics** table.

If the record number exceeds the numbers specified in this drop down list, the oldest record will be deleted automatically.

The **Download Call Statistics** link is used to download all statistics in a file that can be viewed with the simple text editor.

**Please Note:** If you consider the statistics entries in the displayed tables to be important, it is recommended to download the statistics prior to Firmware Update which will clear all statistics on the QuadroCS.

The **Clear all Records** button is used to clear all displayed statistics.

The **Conferences** page displays a table with detailed information (Activation Time, Conference Duration, Participants Count, Activation Reason and Activation Details) about the established conferences and gives the possibility to view the component calls of a particular conference.

To do so, click on the corresponding conference ID. To view all calls directed to or dialed out of the QuadroCS, move to the **Successful Calls** page where the call details table (Activation Time, Conference Duration, Participant, Call Start Time and Call Duration) is displayed.

Each column heading in the aforementioned tables is made as a link. By clicking on the column heading, the tables will be sorted by the selected column. Upon sorting (ascending or descending), arrows will be displayed close to the column heading.

For both **Conferences** and **Successful Calls** pages, the statistics summary and the search components are present.

The statistics summary contains the **Number or (Call) Records** that displays the total number of conference entries or successful calls in the corresponding tables. Additionally **Conf Total Duration, Conf Maximum Duration, Conf Average Duration and Conf Minimum Duration** columns provide information about the total, maximum, average and minimum durations of the conferences.

Search components allow to filter the **Conferences** or **Successful Calls** tables:

The **ConfID** text field requires the ID of the conference call. Only numeric values are allowed for this field.

The **From** and **To** text fields above the **Activation Time** column are used to search conferences by its activation date and time. This data must be entered in the following format: dd-mm-yyyy hh:mm:ss. However, the time criteria are optional. **From** requires an earlier date and time than the **To** date and time. If the entered data does not meet this condition, the error message "Minimal date should be less than maximal date" is displayed and statistics filtering is aborted.

The **From** and **To** drop down lists above the **Conference Duration** column are used to search by conference duration. The duration has to be selected from the listed values. The **From** field has to indicate a smaller value than the **To** field. If the inserted data does not meet this condition, the error message "Minimal duration should be less than maximal duration" prevents statistics filtering.

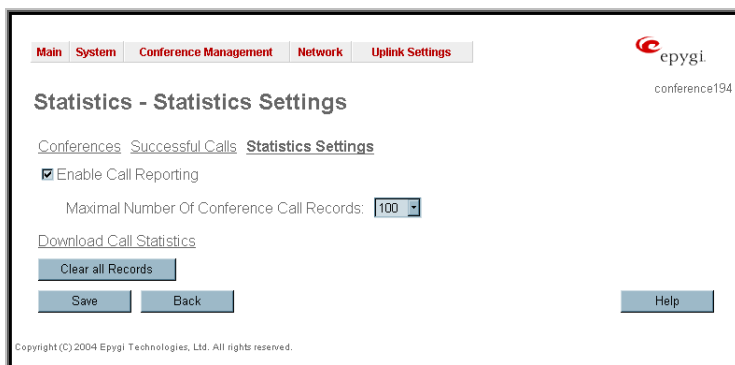


Fig. II-45: Call Statistics Settings page

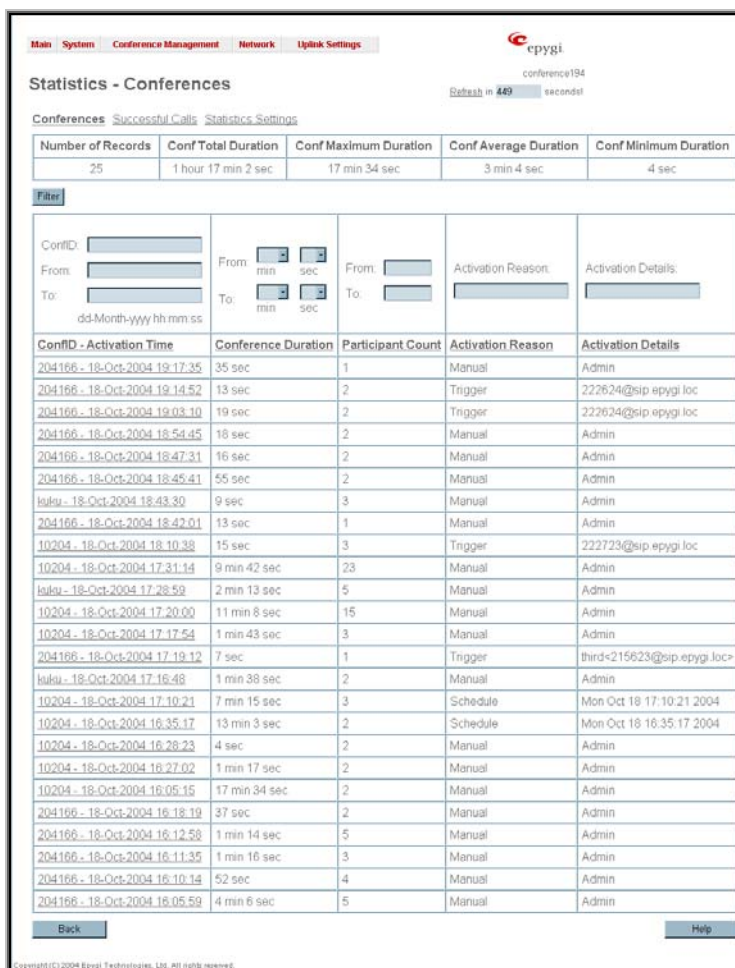


Fig. II-46: Call Statistics page

The **From** and **To** text fields above the **Participant Count** column are used to search by the number of participants in the conference. You can perform manual, trigger or scheduled searches of conferences by using the **Activation Reason** text field.

Conferences can be searched by their activation details by using the **Activation Details** text field. The following options are available:

For **Manual**, the **Admin** or **Moderator**; for **Trigger**, the callers' address; and for **Schedule**, date and time.

Call participants can be searched by their SIP addresses (see chapter [Entering a SIP Addresses correctly](#)) by using the **Participant** text field located in the **Successful Calls** table. If the defined SIP address is inserted incorrectly, the error "Participant address is incorrect" will prevent filtering.

The **From** and **To** text fields above the **Call Start Time** column in the **Successful Calls** table are used to search incoming or outgoing calls by the call start date and time. The data has to be entered in the following format: dd-mm-yyyy hh:mm:ss. The time criteria are optional. **From** requires an earlier date and time than the **To** field. If the entered data does not meet this condition, the error message "Minimal date should be less than maximal date" prevents statistics filtering.

The **From** and **To** drop down lists above the **Call Duration** column in the **Successful Calls** table are used to search by the call duration. The duration has to be selected from the listed values. The **From** field has to indicate a shorter duration than the **To** field. If the inserted data does not meet this condition, the error message "Minimal duration should be less than maximal duration" prevents statistics filtering.

**Filter** performs a search procedure by the selected criteria. The search may be done with several criteria at once.

#### **To Enable/Disable the Statistics**

1. Enter the **Statistics Settings** page.
2. Select/deselect the **Enable Call Reporting** checkbox to enable/disable conference statistics recording.
3. If enabling the statistics, the maximum number of records to be stored in the statistics table should be selected from the corresponding drop down list.
4. Press **Save** to apply the new configuration.

#### **To Filter the Statistics**

1. Enter the desired criteria fields.
  2. Press the **Filter** button to search the call reports within the **Statistics** table.
- Please Note:** To return to the complete **Statistics Table** clear all search criteria and press **Filter**.

#### **To Reset the Statistics**

1. Press the **Clear All Records** button in the **Statistics Settings** page.
2. Confirm the deletion by clicking **Yes**. The conference statistics will be deleted. To abort the deletion and keep the statistics information, click **No**.

## Call Routing Table

The **Call Routing** service simplifies the calling procedure for Quadro users, i.e., SIP or IP-PSTN can be accomplished in the same way. With **Local Routing**, each Quadro uses its routing resources set by the Quadro administrator in the **Local Routing Table**. No SIP registration is needed to make routing calls.

Defining patterns in the **Local Routing Table** avoids registering Quadro at the routing management server and gives a possibility to establish a direct connection to the destination or to use a SIP server for call routing.

The **Local Routing Table** lists manually created routing patterns with their parameters (pattern number, state, routing settings, metric and description).

	ID	State	Pattern	NDD	Prefix	Call Type	Destination Address	CEP	ML	Fail Reason	Metric	Description
<input type="checkbox"/>	1	Enabled	5654001	4	09	IP-PSTN	10.20.3.15:5641		Yes	Wrong Number	10	Epygi Tech Support
<input type="checkbox"/>	2	Disabled	8*	1		SIP	sip.epygi.com	Yes		None	10	Make SIP call
<input type="checkbox"/>	3	Enabled	22		2128	SIP	192.168.75.138:5090	Yes		None	1	
<input type="checkbox"/>	4	Enabled	10442168	2	9	IP-PSTN	sip.epygi.com:6120		Yes	Busy	7	To Global Net

NDD - Number of Discarded Digits  
 CEP - Call End Point  
 ML - Multiple Logons

Back Help

Copyright (C) 2004 Epygi Technologies, Ltd. All rights reserved.

Fig. 0-47 Local Routing Table

Since **Local Routing Table** may have multiple entries that could match to same pattern, the table will be internally rearranged according to the rules with these consequences:

- The pattern matching best to the Best Matching algorithm will have the higher position in the rearranged list
- If multiple patterns equally match to the Best Matching algorithm, the pattern with the lower metric will get the higher position in the rearranged list
- If the multiple patterns with the same metric have been matched to the Best Matching algorithm, the pattern in the higher position in the table will get the higher position in the rearranged list.

The pattern in the highest position of the rearranged list will be considered as the preferred one. Second and subsequent matching patterns will be used, if the destination refused the call due to the configured Fail Reason.

The **Enable/Disable** functional buttons are used to enable/disable the selected route(s). Disabled routes will take no effect while enabled routes will be parsed when initiating routing calls. The **State** column in the **Local Routing Table** displays the current state of the routes (enabled/disabled).

**Add** starts the **Local Call Routing Wizard** where a new routing pattern may be defined. The **Local Call Routing Wizard** is divided into several pages: Page 1 displays the following components:

The **Pattern** text field requires entering the routing pattern identification. To make a specified call, the appropriate routing pattern should be dialed. Error message prevents saving a routing pattern, when pattern starts with the 0. Wildcard symbols are allowed here. '[', ']', '{', '}', '!', '!' are used to define a range or a quantity of numbers, '!' symbol is used for exclusion ("!5a" inserted in Pattern field means all patterns except those equal to 5a). For example, 2{13-17, ww, a-c} means that the dialed number may be 213, 214, 215, 216, or 217, 2ww, 2a, 2b and 2c to match the specified pattern; in the case of 2[3,7], the dialed number may be 23 or 27 to match the specified pattern.

**Number of Discarded Symbols (NDS)** requires the number of symbols that should be discarded from the beginning of the routing pattern. The field should be empty if no digits need to be discarded. Only numeric values are allowed for this field, otherwise an error message occurs: "Error: Number of Discarded Symbols is incorrect - digits allowed only".

**Prefix** requires entering the symbols (letters, digits and any characters supported in the SIP username) that will be placed in front of the routing pattern instead of the discarded digits.

**Suffix** requires entering the symbols (letters, digits and any characters supported in the SIP username) that will be placed in the end of the routing pattern. (For example, if the routing **Pattern** is 12345, the **Number of Discarded Symbols** is two, and the **Prefix** is 909 and **Suffix** is 0a, the final phone number will be 9093450a.)

**Call Type** gives a possibility to select the call type (SIP or IP-PSTN).

**Metric** allows entering a rating for the selected route in a range from 0 to 20. If no value is inserted to this field, 10 will be taken as the default. If two route entries match a user's dial string, the route with the lower metric will be chosen.

The **Description** text field requires an optional description of the routing pattern.

The second page of the **Local Routing Wizard** contains different components depending on the **Call Type** selected on the previous page.

**Use Conference Settings** allows to select the conference on behalf of the call that will be placed. The SIP settings of the selected conference will be used as the caller information. If no entry is selected in this list, the original caller information will be kept. When **Keep original DID** checkbox is selected, called destination will receive the original caller's information, rather than the information of conference selected from the **Use Conference Settings** list.

The **Destination IP Address** text field requires the IP address of the destination (for a direct call) or the SIP server (for calls through the SIP server).

The **Destination Port** text field requires the port number of either the destination or the SIP server.

The **User Name** and **Password** text fields require the identification settings for the public SIP server or servers requiring authentication.

The **Call End Point (CEP)** checkbox defines whether the destination is the end point (the specified user phone will ring) or a remote destination routing table that should be parsed for matching patterns to continue the call routing.

The **Multiple Logons (ML)** checkbox is available for IP-PSTN call type only and allows or denies multiple logon to the public SIP server with the same username at the same time.

**Fail Reason** offers a list of failure reasons (cannot establish connection, wrong number, busy, none and any). If the destination you wish to call is unavailable, busy, or the dialed number was incorrect (depending on the selected Failure Reason), the local routing table will be parsed for the next.

The **Move Up/Move Down** buttons are used to move the local routing patterns one level up or down within the **Local Routing** table. The sequence of the routing patterns is important as the **Local Routing** table is parsed from the top down and routing will take place according to the first pattern that matches the dialed number. The **Move To** button is used to move the selected entry to a different position in the Local Routing Table, which will increase or decrease the selected pattern's priority. Pressing this button will open a page to specify the row number and the desired position of the selected entry (before or after the defined row).

**To create Local Routing pattern**

1. Click on the **Local Routing Table** link on the **Call Routing** page.
2. Press the **Add** button on the **Local Routing** page.
3. Select the **Call Type** from the drop down list.
4. Specify the **Pattern** in the corresponding field.
5. Select the **Number of Discarded Digits** and **Prefix** if required.
6. Enter a **Description** if needed.
7. Click **Next**.

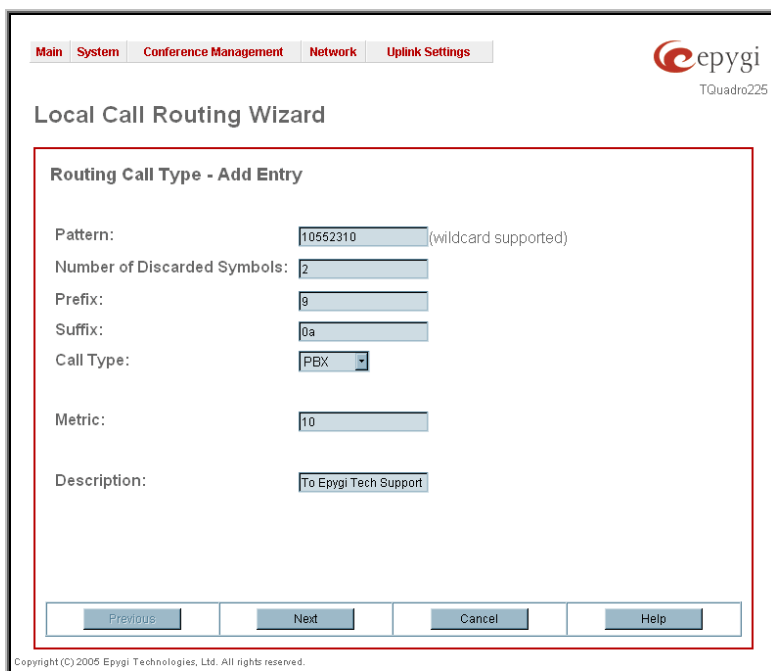


Fig. 0-48 Local Routing Wizard – Page 1

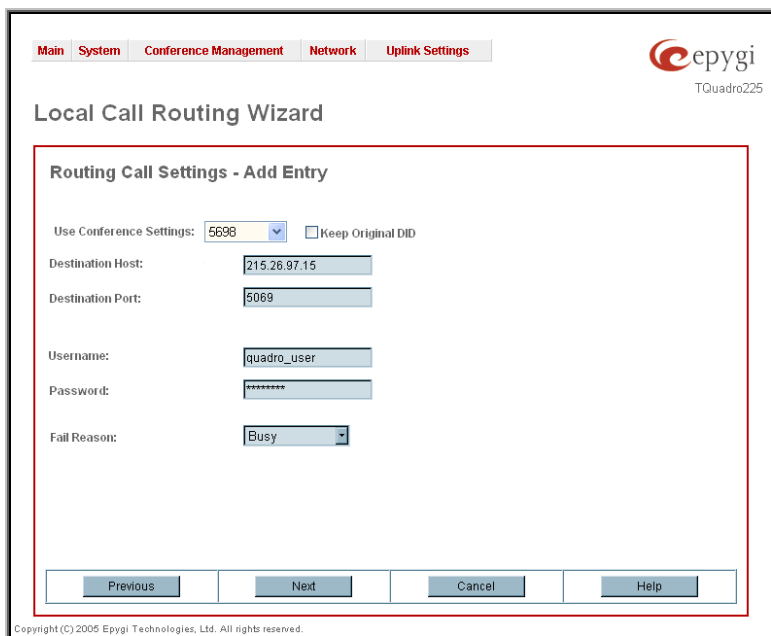


Fig. 0-49 Local Routing Wizard – Page 2

8. Specify the **Destination IP Address**, the **Port Number**, the **Username**, the **Password** and the **Call End Point** if required. For **IP-PSTN** calls enable **Multiple Logons** if necessary.
9. Choose a **Fail Reason** from the corresponding drop down list.
10. Press **Next**.
11. Press **Finish** to create a local route with the inserted settings.

## Recording Common Settings

The **Recording Common Settings** page is used to configure the memory allocations for recorded conferences. QuadroCS allows USB Flash Memory for conference voice data file storage. USB Flash Memory is basically a portable hard drive. Using flash memory, the USB Flash Disk is compact, lightweight, durable and easy to use. USB Flash Disk can be plugged into the available USB port on the QuadroCS.

The **Memory Allocation** manipulation radio buttons give you a choice between embedded memory or external USB storage.

- Selecting **Embedded Memory Storage** will save recorded conferences internally.
- Selecting **External USB Flash Memory** allows to save recorded conferences on the external USB device attached to the QuadroCS. This will save the space on the QuadroCS. Selecting the External USB Flash and saving the page settings will start the USB Flash Memory automatic configuration.

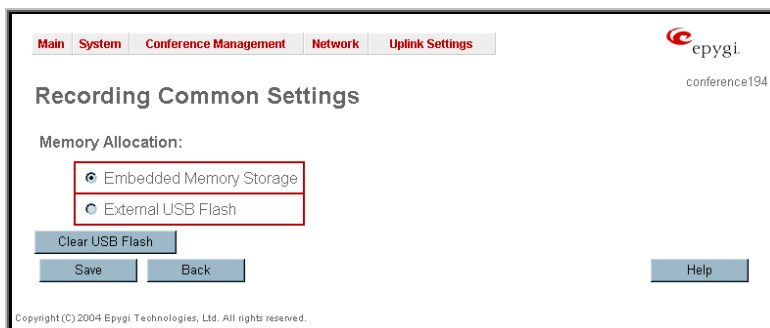


Fig. II-50: Voice Mail Coming Settings page

The USB Flash Memory must be formatted to be available on the QuadroCS. Confirmation message will ask for the USB Flash Memory formatting verification.

**Attention:** Formatting will erase all data on your USB Flash Disk.

Once the USB Flash Memory has been formatted, it can be used by QuadroCS again and again. Every time plugging the USB Flash Memory to the QuadroCS, it will be automatically available. For safely remove the USB Flash Memory will be automatically unmounted first. Error messages appear either when formatting, mounting and unmounting procedures were unsuccessful and when USB Flash Memory is either write protected or undetected.

**Attention:** It is highly recommended to select the Embedded Memory Storage prior to unplugging the USB Flash Memory. Otherwise data stored on the USB Flash Memory may be corrupted or lost. It is recommended to wait at least ten seconds after removing USB Flash before inserting a different one, otherwise the system may not detect the new device.

When attaching the USB Flash Memory to the QuadroCS, its voice data (if any) will automatically be moved from the QuadroCS's flash to the USB Flash Memory. If the USB Flash Memory is too small to fit the recorded conferences on the QuadroCS, the administrator is allowed to choose between removing the recorded conferences from the QuadroCS's Flash and switching to the External USB Flash mode or to leave the recorded conferences on the QuadroCS and continue using the Embedded Memory Storage mode.

**Please Note:** As QuadroCS allows the use of both its local flash space and the External USB Flash Memory, recorded conferences can be stored in both locations depending on the selected Memory Allocation mode. So if a user complains about the loss of a specific conference that was to be recorded, please verify the memory allocation mode the QuadroCS was in at the time the conference was to have been recorded.

The **Clear USB Flash** button appears only when the USB Flash Memory Stick is attached to the Quadro and is used for erasing the USB Flash Memory.

Below is the list of USB Flash Memory devices tested and functional with the QuadroCS.

1. San Disk Cruzer mini 256MB
2. JMTEk 128MB
3. JMTEk USB Drive 32MB
4. Apacer 64MB
5. Pen Drive 64MB
6. Seitec 256MB
7. Lexar JumpDrive 128MB
8. Orange 128MB
9. QuickDrive 128MB
10. Kingston 128MB
11. LinkSys Instant USB Disk 128MB
12. DiskGo Edge Digital Media 128MB

**Attention:** It is strongly recommended to use one USB Flash Memory. Two sticks cannot be used simultaneously.

## Mail Default Settings

**Mail Default Settings** page is used to define the email templates used in the automatically generated emails from the Quadro Conference Server to the conference participants. Two email templates can be defined on this page: for the conference invitation email and for the conference activation email.

Each template should be defined in the corresponding text field. Additionally, functional tokens can be used to automatically insert the Conference ID, Subject, Description, Participants, Password, Scheduling information, as well as a possibility to display the time remained until the conference will start, etc.

All these tokens can be inserted by using the links on the right side of the page.

**Please Note:** Changing the body of the token will disable the token function and will be implied as a simple text.

The **Restore Defaults** button is used to restore the default mail templates. Using this button, all user defined mail templates will be lost.

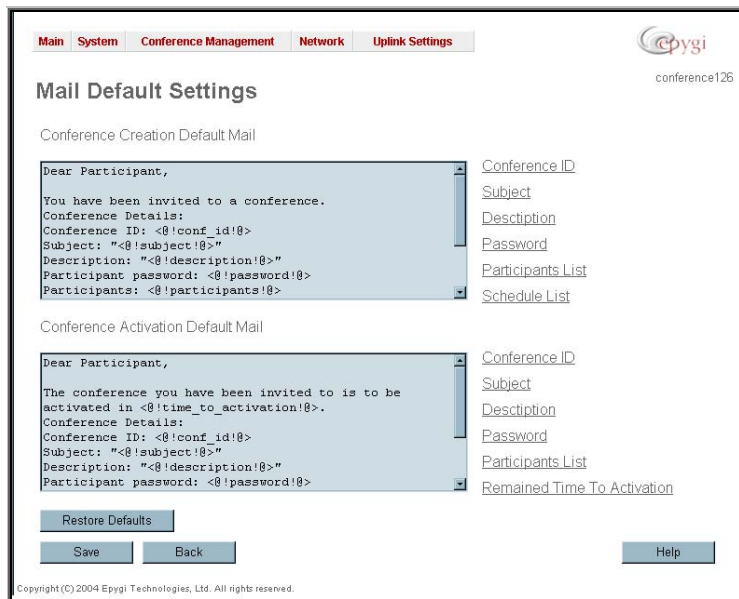


Fig. II-51: Email Default Settings page

## Network Menu



Fig. II-52 Network Dynamo Menu

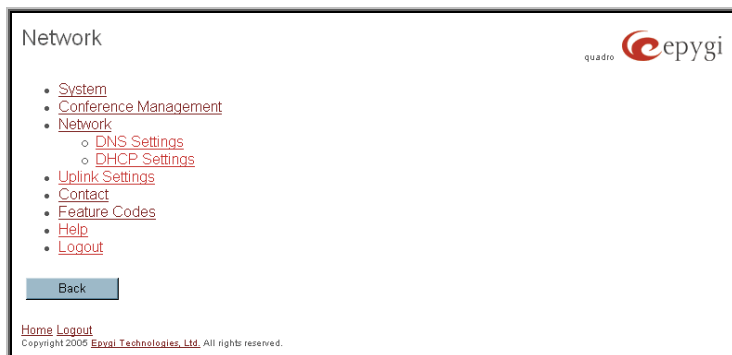


Fig. II-53: Network Tree Menu

## DNS Settings

The **DNS Settings** page gives the possibility to setup a name server for the QuadroCS. It consists of the following components:

**NameserverAssignment** radio buttons:

- **Dynamically by provider** automatically configures the assignment of the name server address from the provider party.
- **Fixed Nameserver address** - manually selected name server. The **Nameserver** text field requires the IP address of an external name server. The **Alternative Nameserver** text field requires the IP address of the secondary name server. The **Alternative Nameserver** is used if the main name server cannot be accessed.

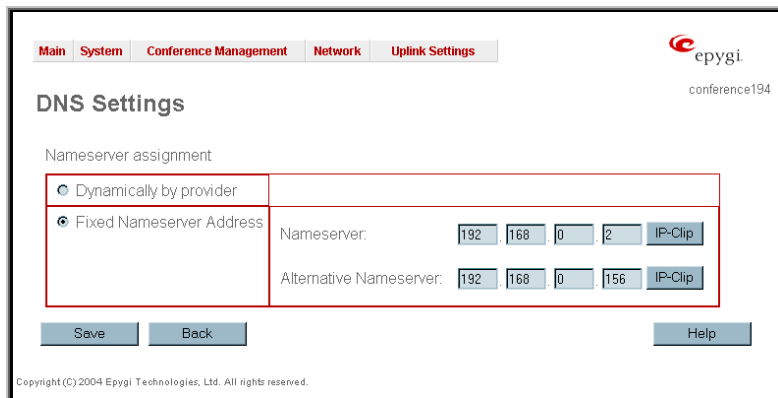


Fig. II-54: DNS Settings page

## DHCP Settings

The **DHCP Settings** page gives the possibility to enable a DHCP server and control the QuadroCS user's LAN settings. Thus QuadroCS LAN users will be provided automatically with the following settings using the configured parameters:

- IP addresses
- NTP (corresponds to the QuadroCS's IP address)
- WINS server
- Nameserver (corresponds to the QuadroCS's IP address)
- Domain name

The page **DHCP Settings** offers the following input options:

**Enable DHCP Server** activates the DHCP server on QuadroCS.

**IP Address Range** defines a range of IP addresses that will be assigned to the QuadroCS's LAN users. The IP range must be at least 6, otherwise the "Address Range too small" error will prevent saving. The "Address Range too large" error occurs if the IP range is greater than 254.

**WINS Server** defines a WINS server IP address for the QuadroCS's LAN users.

**View DHCP Leases** leads to the page where the DHCP leased LAN IP addresses are listed.

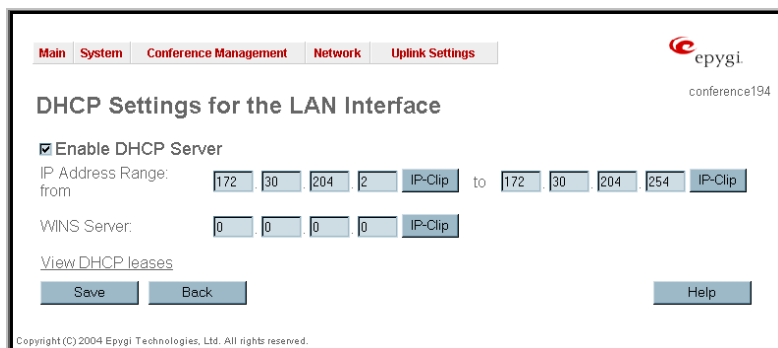


Fig. II-55: DHCP Settings page for LAN interface

The **DHCP Leased IP Addresses** page includes a list of the leased host addresses that are part of the QuadroCS's LAN. For these hosts QuadroCS acts as a server supplying them with a unique IP address. It consists of a non-editable table describing all the leased IP hosts and their parameters. The table contains the following columns:

- IP address** - host IP address, assigned by QuadroCS.
- MAC address** - host MAC address, provided by the host itself.
- Lease Start** - date and time when the leased IP address has been activated.
- Lease End** - date and time when the leased IP address has been deactivated.
- Hostname** - hostname, provided by the host itself.

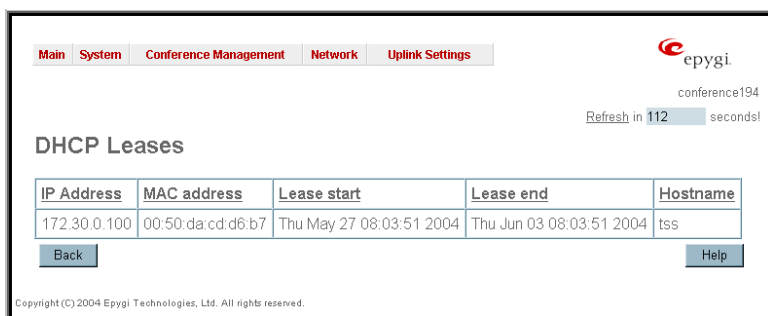


Fig. II-56: DHCP Leases page for LAN interface

## Uplink Settings Menu



Fig. II-57 Uplink Settings Dynamo Menu

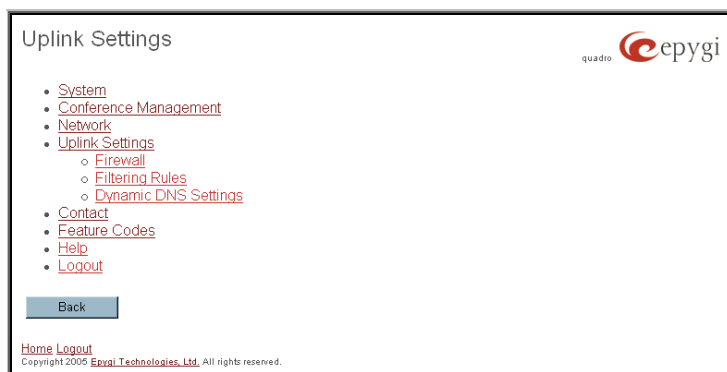


Fig. II-58: Uplink Settings Tree Menu

## Firewall

The **Firewall Configuration** page allows setting up a firewall, configuring the security level of QuadroCS.

A **Firewall** is a security service configured by the QuadroCS administrator based on various criteria. The firewall allows or blocks traffic based on policies, services and/or IP addresses. The firewall has several levels of security policies (low, medium, high). The administrator may add additional service-based rules. Filtering rules will take effect only if the Firewall has been enabled and are independent from the selected firewall security level.

The **Firewall Configuration** page consists of the following components:

The **Enable Firewall** checkbox selection enables the firewall security service. The firewall security level has to be selected, otherwise the firewall cannot be enabled.

The **Firewall Security** radio buttons are:

- **Low Security** - Everything that is not explicitly forbidden is allowed. This security level doesn't block anything by default. It is recommended if the device is already located behind another firewall or if every filter has been configured correctly.
- **Medium Security** - Traffic originating from the LAN side may pass and traffic from the WAN side will be blocked by default. This is the recommended security level.
- **High Security** - Everything that is not explicitly allowed will be blocked, **including traffic from the LAN side.**

[Advanced Firewall Settings](#) link refers to page where QuadroCS privacy can be configured.

The **View Filter Rules** link opens the [Filtering Rules](#) page.

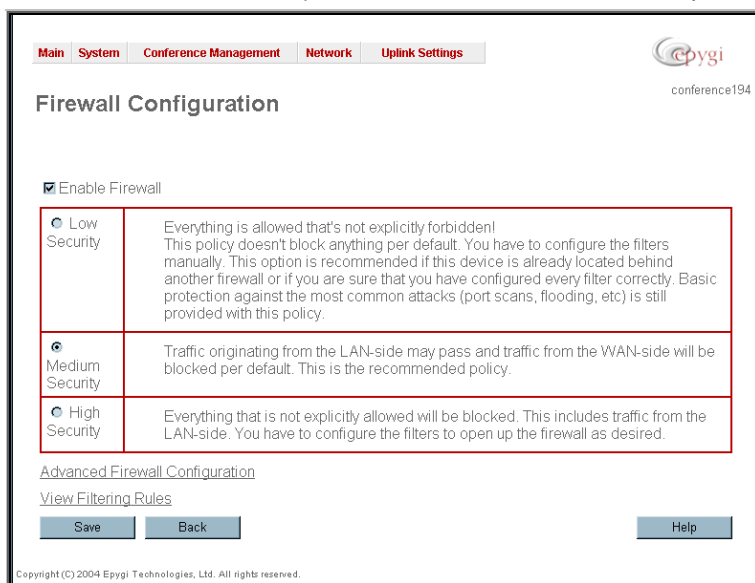


Fig. II-59: Firewall and NAT Settings page

## Advanced Firewall Settings

**Advanced Firewall Settings** are used to deny Ping and Portscanning operations addressed toward the device. With these features enabled QuadroCS will answer with irritating message to the Ping and Portscanning operations. Page consists of the following components:

The **Ping Stealth** checkbox selection prohibits Ping operation toward QuadroCS from its WAN.

The **Fool Portscanner** checkbox selection prohibits QuadroCS portscanning from its WAN. As a reply to Portscanning operation, "network unreachable" or "host unreachable" feedback messages will be sent.

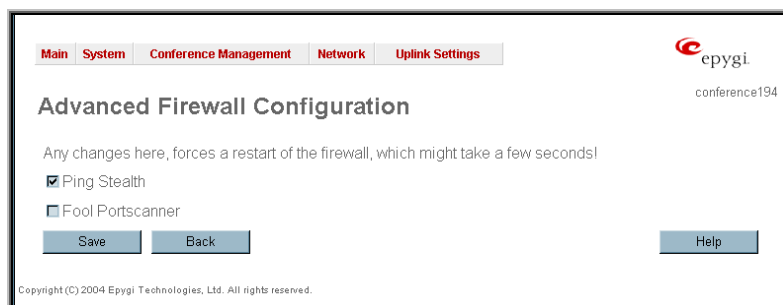


Fig. II-60: Advanced Firewall Settings page

## Filtering Rules

The **Filtering Rules** page allows the configuration of filters for the incoming and outgoing traffic.

To prevent misconfiguration, only one rule per service is allowed. The user may use IP groups to include several IP addresses for this rule. As the filtering rules specify the operation mode of the firewall, they only take effect if the firewall has been enabled (additionally NAT should be enabled to use the **Port Forwarding** function in the **Incoming Traffic / Port Forwarding** filtering rules). The filtering rules are independent from the security level, so they will work if enabled, no matter what security level has been selected.

**Please Note:** Applying firewall rules will just prevent the establishment of new connections that violate the rules. Applying rules does not kill existing connections that violate the rule.

**View All** displays all configured filters specified by their **State** (enabled or disabled), the selected **Service**, the set **Action** (allowed or blocked), the IP addresses the filters apply to (if **Restricted**) and the destination of port forwarding (**Redirect to**, in case of **Incoming Traffic/Port Forwarding**). As it is read-only, no modifications are allowed and no functional buttons are available.

The **Incoming Traffic/Port Forwarding** filter is for incoming traffic. The rules here allow or deny systems on the Internet to reach the services of Quadro's LAN. NAT service should be enabled on the Quadro to provide the possibility of **Port Forwarding** in the **Incoming Traffic/Port Forwarding** filtering rules. The **Port Forwarding** function will be unavailable if NAT is disabled on the Quadro.

The **Outgoing Traffic** filter is for outgoing traffic. The rules here allow or deny Quadro's LAN users to reach external services.

**Management Access** is used to enable management access to the Quadro from the Internet. A host on the Internet can be allowed to reach the Quadro.

**SIP Access** is to allow or deny the SIP access to or from the particular SIP servers, SIP hosts or a group of them. The **SIP Access** filtering rule may prevent or allow incoming or outgoing SIP calls to or from specified SIP server(s) or host(s).

When **Blocked IP List** is used, traffic from specific hosts may be blocked, no matter what services are opened in the other filters. NO traffic will be allowed to the specified hosts. The **Blocked IP List** service has a higher priority if the same host is also listed in the **Allowed IP List** table.

**Allowed IP List** allows trusted hosts to reach your network and vice versa. It is an exception to other rules and only all services may be allowed for a single host.

The **Filtering Rules** page provides several links. Each link opens its specific parameters on the same page. Only **Change Policy** (see chapter **Firewall and NAT**), **Manage user Defined Services** (see chapter **Service Pool**) and **Manage IP Pool Groups** (see chapter **IP Pool**) are leading to separate pages. The **Filtering Rules** page also includes the currently selected firewall security (**Policy**) level and its description.

The table displayed on the bottom of the page shows the filters selected above, specified by their **State** (enabled or disabled), the selected **Service**, the set **Action** (allowed or blocked), the IP addresses the filters apply to (if **Restricted**) and the destination of port forwarding (**Redirect to**, in case of **Incoming Traffic/Port Forwarding**). With the exception of View All, the table offers the following functional buttons:

- **Enable** is used to enable the rule. If no records are selected the "No record(s) selected" error occurs.
- **Disable** is used to disable the rule. If no records are selected the "No record(s) selected" error occurs.
- **Add** opens a filter specific page where new rules may be defined by a **Service**, an **Action**, a **Restriction** to certain IP address(es) or IP groups, and if adding a rule for **Incoming Traffic/Port Forwarding**, the destination IP address for **Forwarding**:

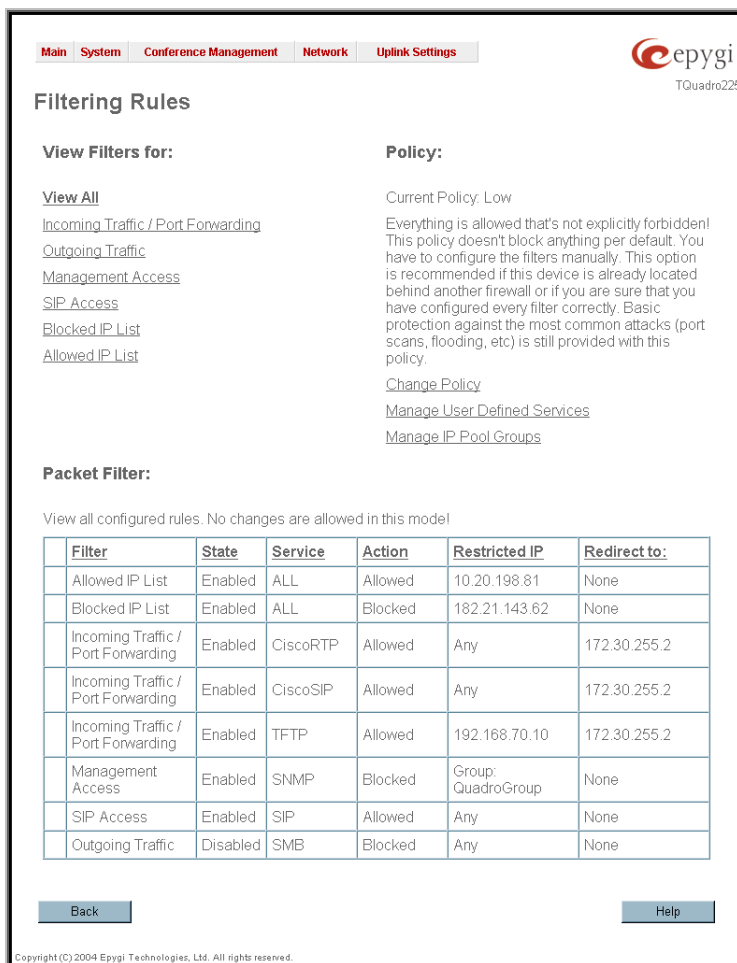


Fig. II-61: Filtering Rules page

For example, the page to add a rule for **Incoming Traffic/Port Forwarding** offers the following input options:

**Service** includes a list of possible services to be configured. All user defined services also will be displayed in this list.

**Action** includes possible actions to setup the rule.

**Forward to IP** requires the destination IP address where traffic should be transferred to, if it comes from the restricted host. The IP address defined in this field will be ignored for blocked action of the **Incoming Traffic/Port Forwarding** rule.

**Note:** It is not allowed to forward incoming packets when NAT service is disabled on the Quadro.

**Port Translation** text field is available for "Allowed" action only and optionally requires the port number that will stand instead of original port number when incoming packet is being forwarded. If this field is left empty, original port number will be used upon forwarding the packet.

**Restriction** radio buttons:

- Selecting **Any** blocks or allows all host IP addresses. This selection is not present for the **Management Access, Blocked and Allowed IP List** rules.
- Selecting **Single IP** will require the IP address of the allowed or blocked host.
- Selecting **IP/Mask** will require the subnet to be allowed or blocked, specified by an IP address and the Maskbits. **Maskbit** examples:  
 255.0.0.0= /8,  
 255.255.0.0 = /16,  
 255.255.255.0 = /24,  
 255.255.255.255= /32
- **Group** indicates the user defined groups that include IP addresses that ought to be allowed or blocked.

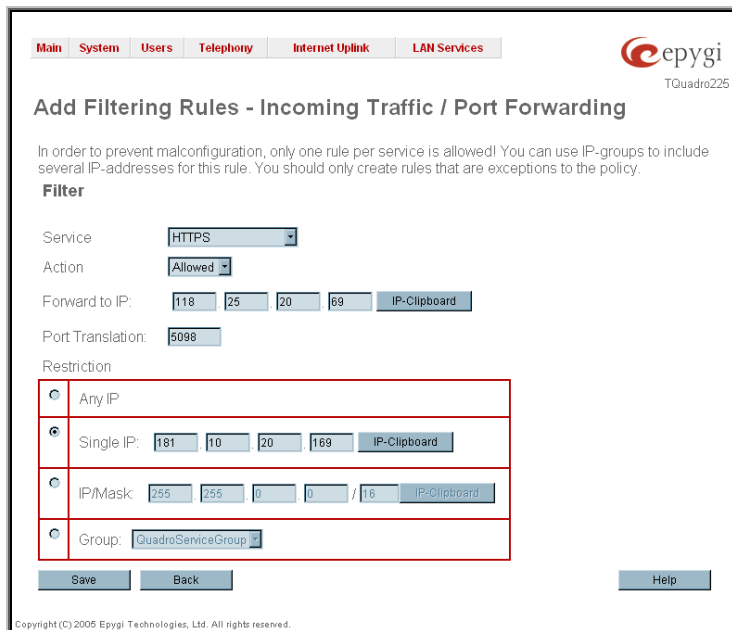


Fig. II-62: Filtering Rules - Page to add a rule for Incoming Traffic

**To Add a Filtering Rule**

1. Select the **Filter** link (Incoming Traffic/Port Forwarding, Outgoing Traffic, Management Access, SIP Access, Blocked IP List or Allowed IP List) to add a rule for it. The corresponding **Filter** table will appear in the same window.
2. Click **Add** on the **Filtering Rules** page. A page where a new rule may be added will appear in the browser window. The page will be named corresponding to the selected filter.
3. Select a service name from the **Service** list to configure a rule for it. If the list has a default value, leave it as is.
4. Select an action from the **Action** list that is used in the rule. If the list has a default value, leave it as is.
5. Enter the IP address in the **Forward to IP** field if an **Incoming Traffic Rule** is to be added.
6. Choose the restriction type by selecting **Any**, **SingleIP** or **IP/Mask** and enter the required information in the text fields or select a group.
7. To add a rule with these parameters press **Save**.

**To Delete Filtering Rules**

1. Select the **Filter** link to delete a rule from its table. The appropriate **Filter** table will appear in the same window.
2. Check one or more checkboxes of the corresponding rules that ought to be deleted from the rules table. Press **Select all** if all rules ought to be deleted.
3. Press the **Delete** button on the **Filtering Rules** page.
4. Confirm the deletion with **Yes**, or cancel it with **No**.

## Service Pool

The **Service Pool** table is a list of all created services and their parameters. It is used to add new services with the appropriate settings (protocol type and port range). New services can be used to add a restriction or permission by defining a new filtering rule:

**Add** opens the **Add New Service** page where new services may be added.

**Edit** opens the **Edit Service** page where the service parameters (except for the service name) can be modified. This page includes the same components as the **Add New Service** page. To operate with **Edit** only one record may be selected, otherwise an error will occur: "One row must be selected".

The **Add** page is used to add new services and includes the following text fields and buttons:

**Service Name** requires a name for the service that ought to be added.

**Protocol** includes a list of possible protocols to be selected.

**Port Range** requires a port range for the defined service.

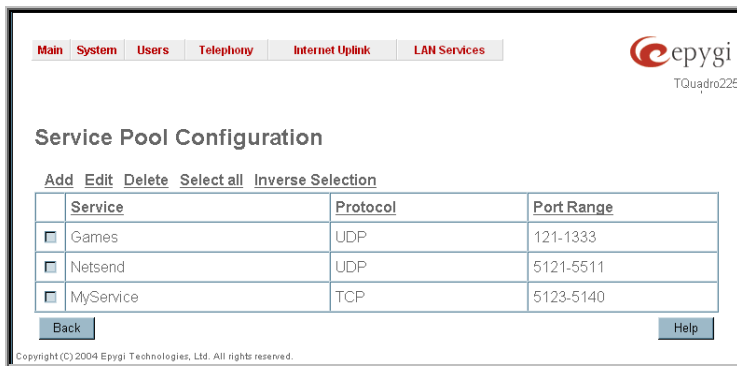


Fig. II-63: Service Pool page

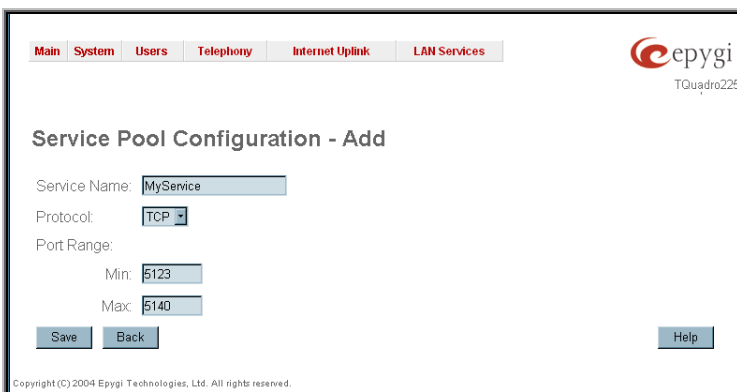


Fig. II-64: Service Pool - Page to add a new Service

### To Add a new Service

1. Select the **Manage User Defined Services** link on the **Filtering Rules** page.
2. Click on the **Add** button on the **Service Pool Configuration** page. A page where a new service may be added will appear in the browser window.
3. Define a service name in the **Service Name** text field.
4. Select the protocol type for the service from the **Protocol** drop down list.
5. Enter the port range in the **Port Range** text fields or leave one of them empty to define a particular port for the service.
6. To add a service with these parameters click on **Save**.

### To Delete a Service

1. Select the **Manage User Defined Services** link. The **Service Pool Configuration** page appears with the table of services (if any).
2. Check one or more checkboxes of the corresponding services that ought to be deleted from the **Service Pool** table. Press **Select all** if all services ought to be deleted.
3. Click on the **Delete** button on the **Service Pool Configuration** page.
4. Confirm the deletion with **Yes**, or cancel it with **No**.

## IP Pool

The **Manage IP Pool Groups** link opens the **IP Pool Configuration** page.

The **IP Pool** table is the list of all created groups and the members assigned to these groups. If a group is empty, **EMPTY** will be indicated in the **Members** column. If hidden, group members will still remain active but a **HIDDEN** will be displayed in the **Members** column.

The **IP Pool Configuration** is used to create groups of IP addresses, which have the same restriction criteria. Whenever creating a new filtering rule groups may be used instead of several IP addresses. It consists of the following components:

**View** makes hidden groups visible.

**Hide** makes group members hidden and adds the **HIDDEN** comment in the member column.

**Add** opens the **Add Group** page where a new group may be created. This page consists only of the **New Group** text field (requiring the group name) and the standard **Save** and **Back** buttons to apply or abort changes.

**Edit** opens the **Edit Group** page where the service parameters can be modified. It consists of the same components as the **Add Group** page. To operate with **Edit**, only one record may be selected, otherwise an error will occur: "One row must be selected".

**Please Note:** Changing a group name will also change the references to this group, including groups where this group is a member of and all affected filter rules (enabled and disabled ones, in all chains).

Clicking on the **Group** name will display an **IP Pool Group Configuration** page with the **Members** list for the current group.

The **IP Pool Group Configuration** page displays a list of all created member IP addresses for the selected group. It consists of the following components:

**Current Group** provides read-only information about the current group name the members are listed for.

**Add** opens the **Add Member** page where a new member may be created.

**Edit** opens the **Edit Members** page where the service parameters can be modified. This page includes the same components as the **Add Member** page. To operate with **Edit**, only one record may be selected, otherwise an error will occur: "One row must be selected".

The **Add Members** page consists of the following radio buttons: **IP Address** requires the member IP address that is to be added to the group.

**IP Subnet** requires the subnet specified by the IP address and the Maskbits. See above for more information about **Maskbits**.

The **User-defined Group** includes previously created groups that may also be added as a member to another group.

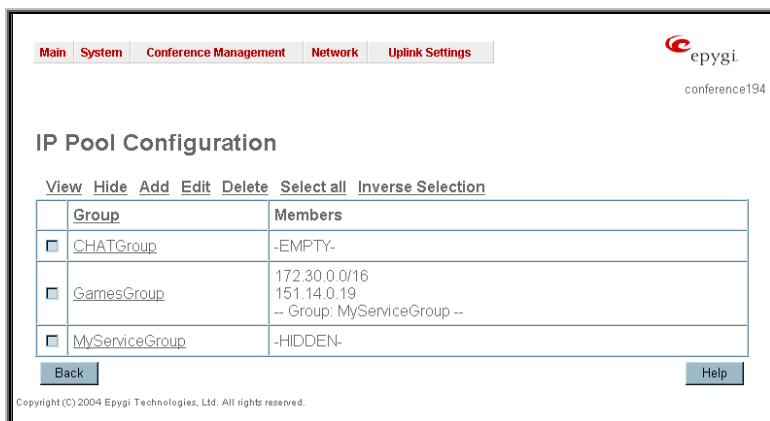


Fig. II-65: IP Pool Configuration page

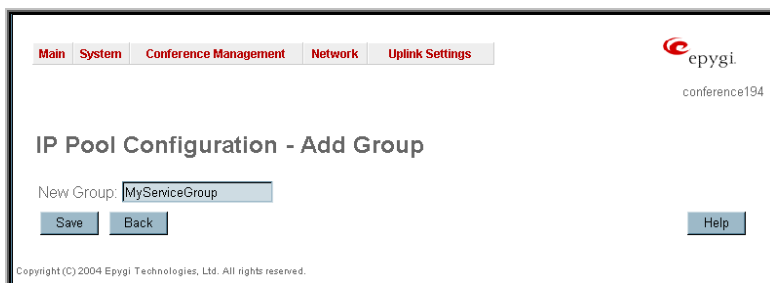


Fig. II-66: Page to create a new IP Pool group

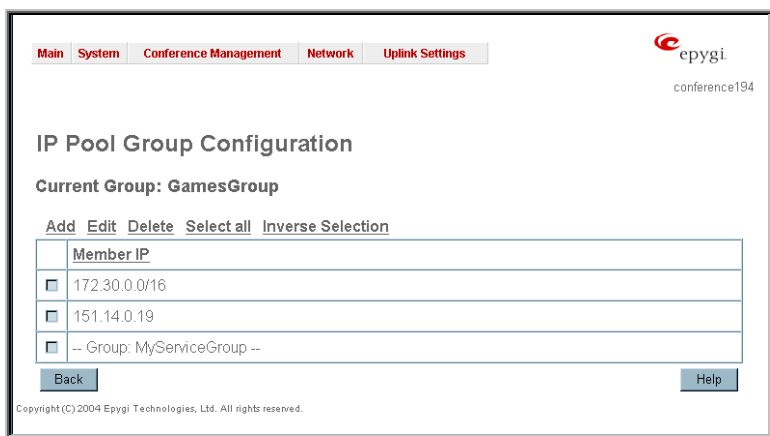


Fig. II-67: IP Pool Group members list

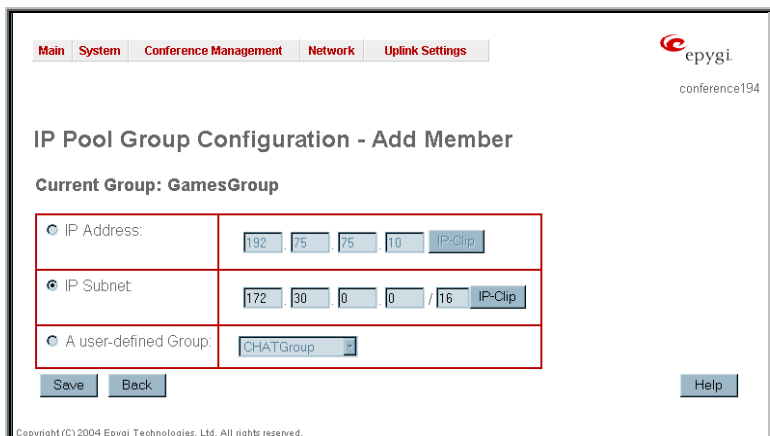


Fig. II-68: Page to add a new member to the IP Pool group

### To Create a new Group with Members

1. Select the **Manage IP Pool Groups** link on the **Filtering Rules** page.
2. Click on the **Add** button on the **IP Pool Configuration** page. A page where a new group may be added will appear in the browser window.
3. Define a group name in the **New Group** text field.
4. To create a group with given parameters press **Save**.
5. Open the **IP Pool Group Configuration** page by clicking on the group name.
6. Select the **Add** button on the **IP Pool Group Configuration** page. A page opens where new members may be added to the group.
7. Enter an IP address for the member in the **IP Address** text fields or select a group from the **User defined Group** drop down list to assign it to the currently selected group.
8. To add a member with these parameters to the selected group press **Save**.

### To Delete a Member

1. Select the **Manage IP Pool Groups** link. The **IP Pool Configuration** page appears with the table of groups (if any).
2. Click on the desired group the members are needed to be deleted for. The **IP Pool Group Configuration** list appears.
3. Check the one or more checkboxes of the corresponding members that ought to be deleted from the **Members** table. Press **Select all** if all members ought to be deleted.
4. Press the **Delete** button on the **IP Pool Group Configuration** page.
5. Confirm the deletion with **Yes** or quit with **No**.

### To Delete a Group

1. Select the **Manage IP Pool Groups** link. The **IP Pool Configuration** page appears with the table of groups (if any).
2. Check the one or more checkboxes of the corresponding groups that ought to be deleted from the groups table. Press **Select all** if all groups ought to be deleted.
3. Press the **Delete** button on the **IP Pool Configuration** page.
4. Confirm the deletion with **Yes** or quit with **No**.

## Dynamic DNS Settings

The **Dynamic DNS** (DynDNS) is a service that is used to map a dynamic IP address to a host name. Thus this service is only makes sense if you are connected to the Internet with a dynamic IP address (and DHCP client) and want to allow access from the Internet to a device behind the firewall. For example, if you want to run your own WEB server.

To enable the DynDNS service on Quadro you first have to choose a DynDNS provider and register at his WEB site.

The **Dynamic DNS Settings** page consists of the following components:

The **Enable Dynamic DNS** checkbox selection enables the dynamic DNS service.

The **User** text field requires the username specified during the registration at the DynDNS provider.

The **Password** text field requires the password specified during the registration at the DynDNS provider.

The **Max time between updates** text field requires entering the period between two updates (in hours). The values entered in this field should be greater than 24, otherwise an error occurs: "Update interval times smaller than 24 hour are too small". Normally, whenever you set up a connection to the Internet the DynDNS is updated at least once in the period indicated in this field.

The **Use predefined service** radio button leads to the manual configuration of the DynDNS service. The selection enables the following optional settings:

The **Service** drop down list contains the provider list where the administrator needs to select the one to which he has subscribed.

The **Host** text field requires the name of the host in the Internet.

The **TZO Connection Type** text field is used for a special parameter required by the DynDNS provider TZO.

The **DHS Cloak-Title** text field is used for a special parameter required by the DynDNS provider DHS.

The **Mail Exchange** text field requires the address of the e-mail server, to which the DynDNS service provider will relay your e-mails.

**Attention:** If this service is used, make sure, that there is port forwarding configured for SMTP (port 25) to the internal e-mail server.

The **easyDNS Partner** text field is used for a special parameter required by the DynDNS provider easyDNS.

Selected the **Create Custom HTTP GET Request** radio button switches to the custom settings of the DynDNS service. Normally, the DynDNS provider uses HTTP get requests to map dynamic IP addresses to host names. If the user knows this HTTP get request exactly, the radio button **Create Custom HTTP GET Request** together with the text field **URL** allows to enter it directly.

The selection enables the following optional settings:

The **URL** text field requires the complete request to be sent to the DynDNS server. Normally it has the format:

[http://www.server.domain:port/scriptpath/scriptname?param1=value1&param2=value2

The request modifies the nameserver database so that the hostname will be resolved to the new IP address.

The **Basic Authentication** checkbox enables the encoding of the username and password entered in the text fields above and then uses the **Basic Authentication** method to notify the provider about the user authentication settings.

Most of the DynDNS providers require an authentication for safety reasons. The user can do that either together with the HTTP get request in the text field **URL** or select the checkbox **Basic Authentication**.

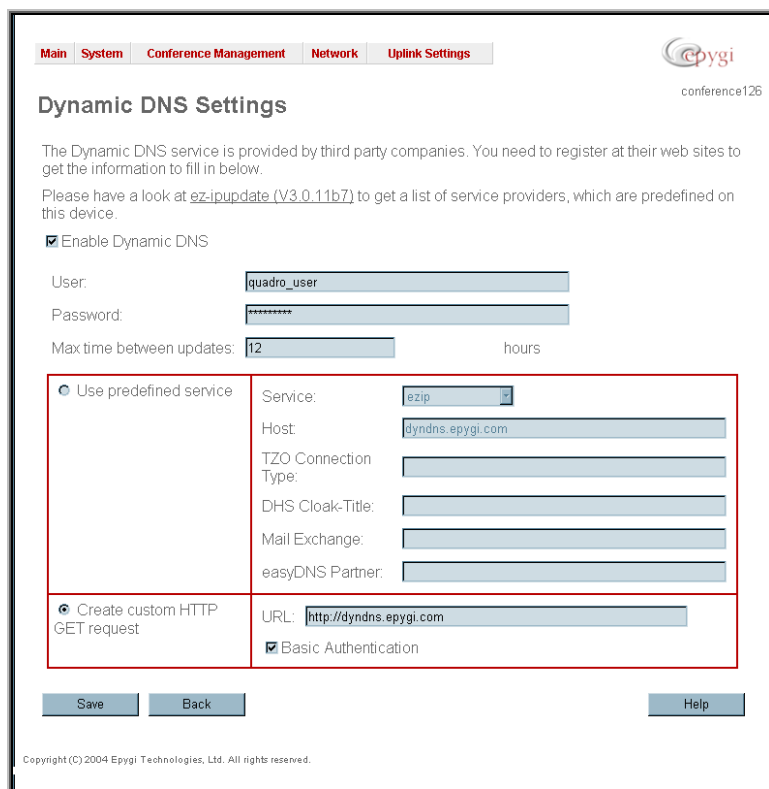


Fig.0-69 Dynamic DNS Settings page

## Registration Form

The **Registration Form** page appears if unregistered users login and has been created for customer support purposes. The page requires customer registration at the Epygi Technical Support Center. It consists of several links offering registration options:

**Register now** leads to the Epygi Technical Support System Registration page and requires customer's information to submit the registration form.

**Remind me later** hides the registration notification until the next startup.

**Don't remind me more** hides the registration notification forever.



Fig. II-70: Device Registration page

## Logout

This option is used to close the session between the user PC and QuadroCS and to leave the Web Management or to enter the management with another login. By selecting the button **Logout**, the startup page will be displayed and the user needs to login again.

## Appendix: System Default Values

Issue	System Default Value	Comments
Admin Settings	Login name – admin Password – 19	
Quadro Hostname	Conference	
LAN IP Address	172.30.0.1	Subnet Mask - 255.255.0.0
DHCP Server	Enabled	IP Range - 172.30.0.100 -172.30.0.254 WINS - 0.0.0.0
Regional Settings	Your locale - US, Time Zone - US/Central, Theme - Dynamo.	
WAN IP	Automatically through DHCP	
DNS Server	Dynamically	
Time/Date Settings	NTP Client – Enabled, NTP server - disabled Predefined NTP Server - np1.epygi.com	Polling interval - 6 hours
Event Settings	DynDNS, DHCP client and DHCP server error events are noted. Display notification for others.	
Mail Settings	Disabled	
Firewall	Enabled, Medium level (NAT is internally enabled by default)	Ping Stealth - enabled Fool Portscanner - disabled
Filtering Rules	SIP Access (Allowed for all).	No user-defined IP pool groups.
Dynamic DNS	Disabled	
Statistics	Enabled	100 entries to display
Conference	One default conference and 00 attendant in the list: Conference ID - 11 Moderator and Participant passwords - none Recording Space - 0% Routing Mode and Leave Active - disabled SIP User Name – automatically generated SIP Registration server - sip.epygi.com SIP server port - 5060 SIP Registration - enabled Outbound SIP server – undefined	Moderator's settings for default conference: Max 10 new participants allowed to join New participant type - speaker Confirmation type - none New participant can activate the conference - enabled New participant indication - enabled Participants - none Scheduling - none Mail notifications - disabled Codecs - G.711u (preferred), G.711a, G.726/16, G.726/24, G.726/32, G.726/40, G.729a, G.723, iLBC Out of band transport - enabled
Attendant settings	Attendant ID – 00 Description - Attendant SIP User Name – automatically generated SIP Registration server - sip.epygi.com SIP server port - 5060 SIP Registration - enabled Outbound SIP server – undefined	Space – 0% Welcome message - default ZeroOut - disabled
SIP Settings	UDP and TCP Port - 5060, NAT Traversal - enabled	
RTP Settings	RTP/RTCP port range for Participants - 6000-6079 G276 Standard - ITU-T specification Telephone Event Draft Support - enabled RTCP Support - disabled	Properties for all Codecs except G723 and iLBC: Packetization - 20ms Silence Suppression - no G723 and iLBC properties: Packetization -30ms Silence Suppression - yes for iLBC only
NAT Traversal Settings	SIP and RTP Parameters - Use STUN SIP TCP Port - 5060	STUN Parameters: STUN Server - stun.epygi.com Port - 3478 Polling Interval: 1 hour Keep-alive interval: 120 seconds No entries in NAT Exclusion table

Issue	System Default Value	Comments
Call Routing	No entries	
Recording Common Settings	Memory Allocation - Embedded Memory Storage	

# 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.

1. **License.** Epygi Technologies, Ltd. (the "Licensor"), hereby grants to you a non-exclusive right to use the Quadro Operational Software program, the documentation for the software and such revisions for the software and documentation as the Licensor may make available to you from time to time (collectively, the "Licensed Materials"). You may use the Licensed Materials only in connection with your operation of your Quadro. You may not use, copy, modify or transfer the Licensed Materials, in whole or in part, except as expressly provided for by this Agreement.
2. **Ownership.** By paying the purchase price for the Licensed Materials, you are entitled to use the Licensed Materials according to the terms of this Agreement. The Licensor, however, retains sole and exclusive title to, and ownership of, the Licensed Materials, regardless of the form or media in or on which the original Licensed Materials and other copies may exist. You acknowledge that the Licensed Materials are not your property and understand that any and all use and/or the transfer of the Licensed Materials is subject to the terms of this Agreement.
3. **Term.** This license is effective until terminated. This license will terminate if you fail to comply with any terms or conditions of this Agreement or you transfer possession of the Licensed Materials to a third party in violation of this Agreement. You agree that upon such termination, you will return the Licensed Materials to the Licensor, at its request.
4. **No Unauthorized Copying or Modification.** The Licensed Materials are copyrighted and contain proprietary information and trade secrets of the Licensor. Unauthorized copying, modification or reproduction of the Licensed Materials is expressly forbidden. Further, you may not reverse engineer, decompile, disassemble or electronically transfer the Licensed Materials, or translate the Licensed Materials into another language under penalty of law.
5. **Transfer.** You may sell your license rights in the Licensed Materials to another party that also acquires your Quadro-4x or any Quadro SIP Gateway product. If you sell your license rights in the Licensed Materials you must at the same time transfer the documentation to the acquirer. Also, you cannot sell your license rights in the Licensed Materials to another party unless that party also agrees to the terms and conditions of this Agreement. Except as expressly permitted by this section, you may not transfer the Licensed Materials to a third party.
6. **Protection And Security.** Except as permitted under Section 5 of this Agreement, you agree not to deliver or otherwise make available the Licensed Materials or any part thereof to any person other than the Licensor or its employees, without the prior written consent of the Licensor. You agree to use your best efforts and take all reasonable steps to safeguard the Licensed Materials to ensure that no unauthorized person shall have access thereto and that no unauthorized copy, publication, disclosure or distribution thereof, in whole or in part, in any form, shall be made.
7. **Limited Warranty.** The only warranty the Licensor makes to you in connection with this license is that the media on which the Licensed Materials are recorded will be free from defects in materials and workmanship under normal use for a period of one (1) year from the date of purchase (the "Warranty Period"). If you determine within the Warranty Period that the media on which the Licensed Materials are recorded are defective, the Licensor will replace the media without charge, as long as the original media are returned to the Licensor, with satisfactory proof of purchase and date of purchase, within the Warranty Period. This warranty is limited to you as the licensee and is not transferable. The foregoing warranty does not extend to any Licensed Materials that have been damaged as a result of accident, misuse or abuse.

EXCEPT FOR THE LIMITED WARRANTY DESCRIBED ABOVE, THE LICENSED MATERIALS ARE PROVIDED ON AN "AS IS" BASIS. EXCEPT AS DESCRIBED ABOVE, THE LICENSOR MAKES NO REPRESENTATIONS OR WARRANTIES THAT THE LICENSED MATERIALS ARE, OR WILL BE, FREE FROM ERRORS, DEFECTS, OMISSIONS, INACCURACIES, FAILURES, DELAYS OR INTERRUPTIONS INCLUDING, WITHOUT LIMITATION, TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, LACK OF VIRUSES AND ACCURACY OR COMPLETENESS OF RESPONSES, CORRESPONDENCE TO DESCRIPTION OR NON-INFRINGEMENT. THE ENTIRE RISK ARISING OUT OF THE USE OR PERFORMANCE OF THE LICENSED MATERIALS REMAINS WITH YOU.

8. **LIMITATION OF LIABILITY AND REMEDIES.** IN NO EVENT SHALL THE LICENSOR OR ANY OTHER PARTY WHO HAS BEEN INVOLVED IN THE CREATION, PRODUCTION OR DELIVERY OF THE LICENSED MATERIALS BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, DIRECT, INDIRECT, SPECIAL, PUNITIVE OR OTHER DAMAGES, INCLUDING, WITHOUT LIMITATION, LOSS OF DATA, LOSS OF BUSINESS PROFITS, BUSINESS INTERRUPTION, LOSS OF BUSINESS INFORMATION, OR OTHER PECUNIARY LOSS, ARISING OUT OF THE USE OF OR INABILITY TO USE THE LICENSED MATERIALS, EVEN IF THE LICENSOR OR SUCH OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. YOU AGREE THAT YOUR EXCLUSIVE REMEDIES, AND THE LICENSOR'S OR SUCH OTHER PARTY'S ENTIRE LIABILITY WITH RESPECT TO THE LICENSED MATERIALS, SHALL BE AS SET FORTH HEREIN, AND IN NO EVENT SHALL THE LICENSOR'S OR SUCH OTHER PARTY'S LIABILITY FOR ANY DAMAGES OR LOSS TO YOU EXCEED THE LICENSE FEE PAID FOR THE LICENSE MATERIALS.

The foregoing limitation, exclusion and disclaimers apply to the maximum extent permitted by applicable law.

9. **Compliance With Laws.** You may not use the Licensed Materials for any illegal purpose or in any manner that violates applicable domestic or foreign law. You are responsible for compliance with all domestic and foreign laws governing Voice over Internet Protocol (VoIP) calls.
10. **U.S. Government Restricted Rights.** The Licensed Materials are provided with RESTRICTED RIGHTS. Use, duplication or disclosure by the Government is subject to restrictions as set forth in subparagraphs (c)(1) and (2) of the Commercial Computer Software—Restricted Rights clause at 48 C.F.R. section 52.227-19, or subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.227.7013, as applicable.
11. **Entire Agreement.** It is understood that this Agreement, along with the Quadro Installation Guide and User's Manual, constitute the complete and exclusive agreement between you and the Licensor and supersede any proposal or prior agreement or license, oral or written, and any other communications related to the subject matter hereof. If one or more of the provisions of this Agreement is found to be illegal or unenforceable, this Agreement shall not be rendered inoperative but the remaining provisions shall continue in full force and effect.
12. **No Waiver.** Failure by either you or the Licensor to enforce any of the provisions of this Agreement or any rights with respect hereto shall in no way be considered to be a waiver of such provisions or rights, or to in any way affect the validity of this Agreement. If one or more of the provisions contained in this Agreement are found to be invalid or unenforceable in any respect, the validity and enforceability of the remaining provisions shall not be affected.
13. **Governing Law.** This Agreement shall be governed by and construed in accordance with the laws of the state of Texas, without regard to choice of law provisions that would cause the application of the law of another jurisdiction.
14. **Attorneys' Fees.** In the event of any litigation or other dispute arising as a result of or by reason of this Agreement, the prevailing party in any such litigation or other dispute shall be entitled to, in addition to any other damages assessed, its reasonable attorneys' fees, and all other costs and expenses incurred in connection with settling or resolving such dispute.

If you have any questions about this Agreement, please write to Epygi at 6900 North Dallas Parkway, Suite 850, Plano, Texas 75024 or call Epygi at (972) 692-1166.