
Configuring Grandstream IP Phones on Quadro LAN



Revision: 1.0

Abstract: This document describes the steps required for Auto-configuration of the Grandstream IP phones on Quadro LAN.

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Document Revision History

Revision	Date	Revision	Valid for SW	Valid for models
1.0	27-09-07	Initial version	4.1.x	IP PBXs

1 Introduction

Quadro IP PBXs provide the option of using SIP phones along with standard analogue phones. IP phones are connected to the Quadro LAN interface via Ethernet and serve as additional extensions similar to onboard FXS extensions (see Figure 1).

This document describes how to configure the Grandstream SIP phones connected to the Quadro LAN using **Auto-configuration** option of the Quadro.

Started with Quadro software 3.1.x, an **Auto-configuration** option is available for a number of SIP phones particularly the Grandstream IP Phones. This option simplifies SIP phone configuration procedure eliminating the necessity of manual configuration of the phones. The user only needs to configure an IP line attached to a desired extension on the Quadro and then reset the SIP phone to factory defaults. For more information on the **Auto-configuration** option, please refer to Section [3](#).

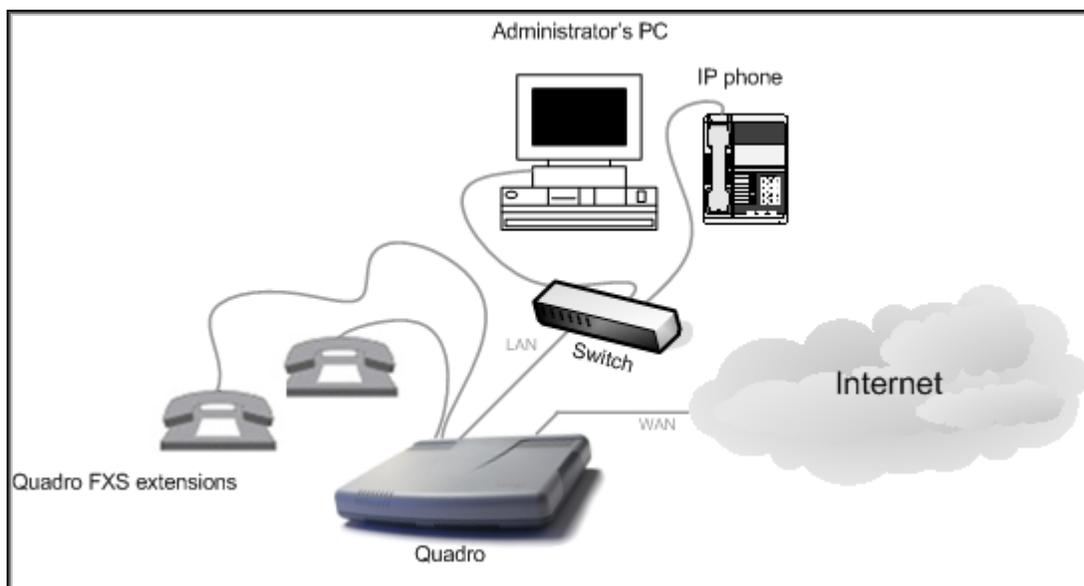


Figure 1-IP phone connected to the Quadro LAN

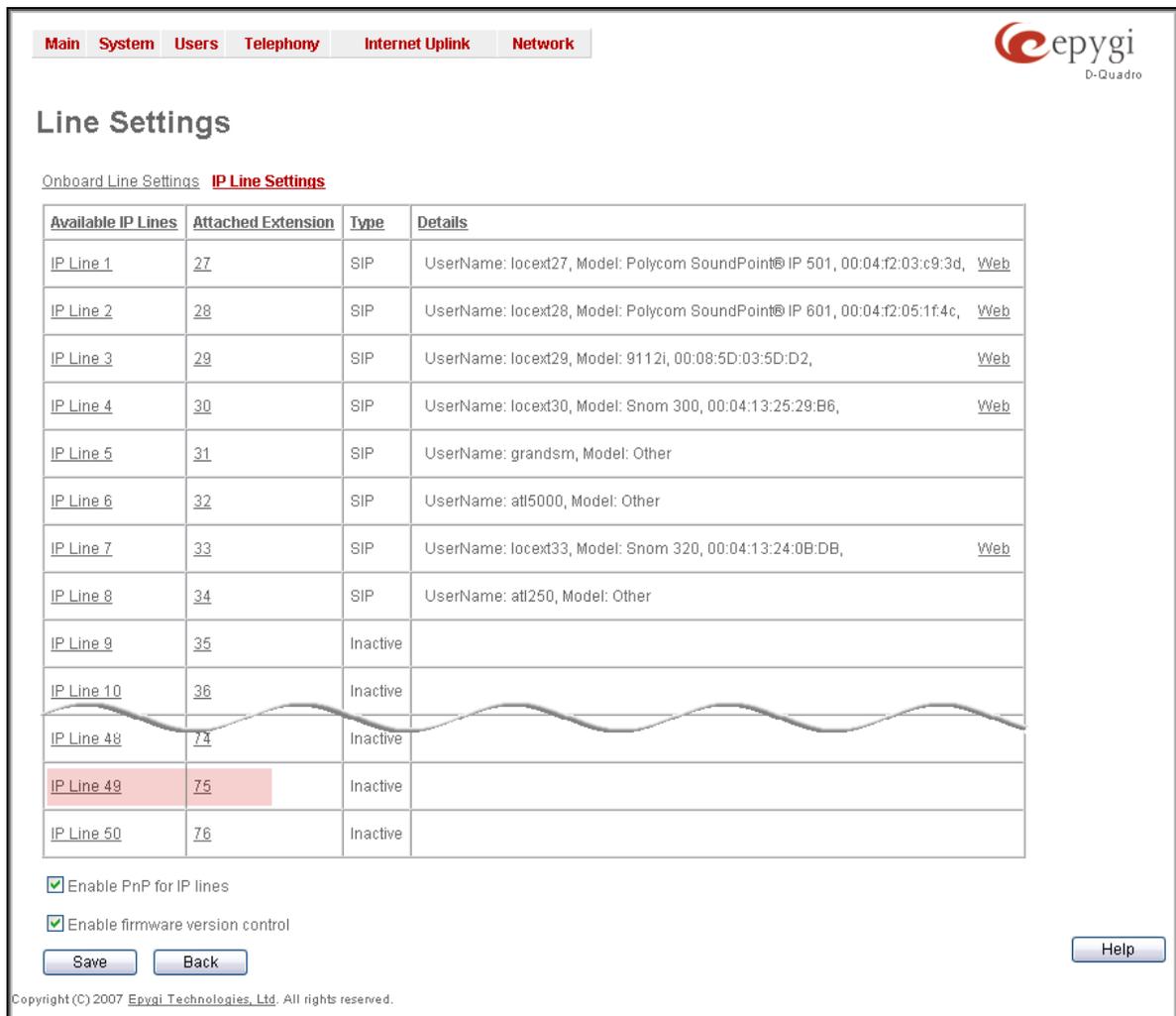
2 Requirements and Preparations

- Software image 4.1.x running on the Quadro IP PBX.
- Quadro is connected to the network and all network settings are correctly configured.
- SIP phones connected to the Quadro LAN

3 Auto-Configuration on Grandstream IP Phones

The following step-by-step instructions describe how to configure an IP line to allow Grandstream SIP phones to be auto-configured.

1. Log into the Quadro as an administrator.
2. Open the **Telephony→Line Settings→IP Line Settings** page (see Figure 2).



Main System Users **Telephony** Internet Uplink Network

epyki
D-Quadro

Line Settings

Onboard Line Settings **IP Line Settings**

Available IP Lines	Attached Extension	Type	Details
IP Line 1	27	SIP	UserName: locext27, Model: Polycom SoundPoint® IP 501, 00:04:f2:03:c9:3d, Web
IP Line 2	28	SIP	UserName: locext28, Model: Polycom SoundPoint® IP 601, 00:04:f2:05:1f:4c, Web
IP Line 3	29	SIP	UserName: locext29, Model: 9112i, 00:08:5D:03:5D:D2, Web
IP Line 4	30	SIP	UserName: locext30, Model: Snom 300, 00:04:13:25:29:B6, Web
IP Line 5	31	SIP	UserName: grandsm, Model: Other
IP Line 6	32	SIP	UserName: atl5000, Model: Other
IP Line 7	33	SIP	UserName: locext33, Model: Snom 320, 00:04:13:24:0B:DB, Web
IP Line 8	34	SIP	UserName: atl250, Model: Other
IP Line 9	35	Inactive	
IP Line 10	36	Inactive	
IP Line 48	74	Inactive	
IP Line 49	75	Inactive	
IP Line 50	76	Inactive	

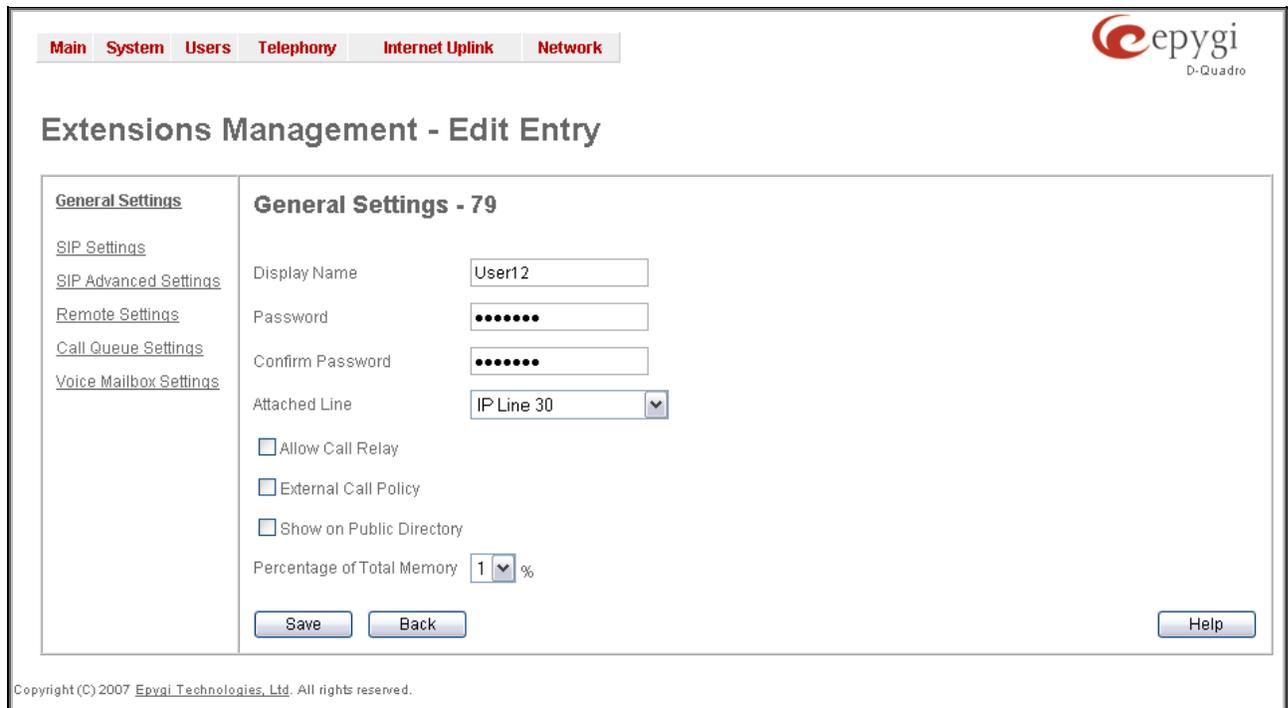
Enable PnP for IP lines

Enable firmware version control

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Figure 2-Line Settings page

3. From the **Attached Extension** column, choose an extension to be assigned to the SIP phone and click on the corresponding IP line link. Note that the table lists only the extensions attached to IP lines. If the extension is not listed on this page, open **Users→Extensions Settings** page and attach an IP line to the extension by editing the extension settings (see Figure 3).



Extensions Management - Edit Entry

General Settings - 79

Display Name: User12

Password:

Confirm Password:

Attached Line: IP Line 30

Allow Call Relay

External Call Policy

Show on Public Directory

Percentage of Total Memory: 1 %

Save Back Help

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Figure 3- Attaching an IP line to an extension

4. On the **IP Line Settings** page (see Figure 4), select the **SIP** phone radio button to activate the line.
5. Select the model of the SIP phone from the **Phone Model** drop-down list.

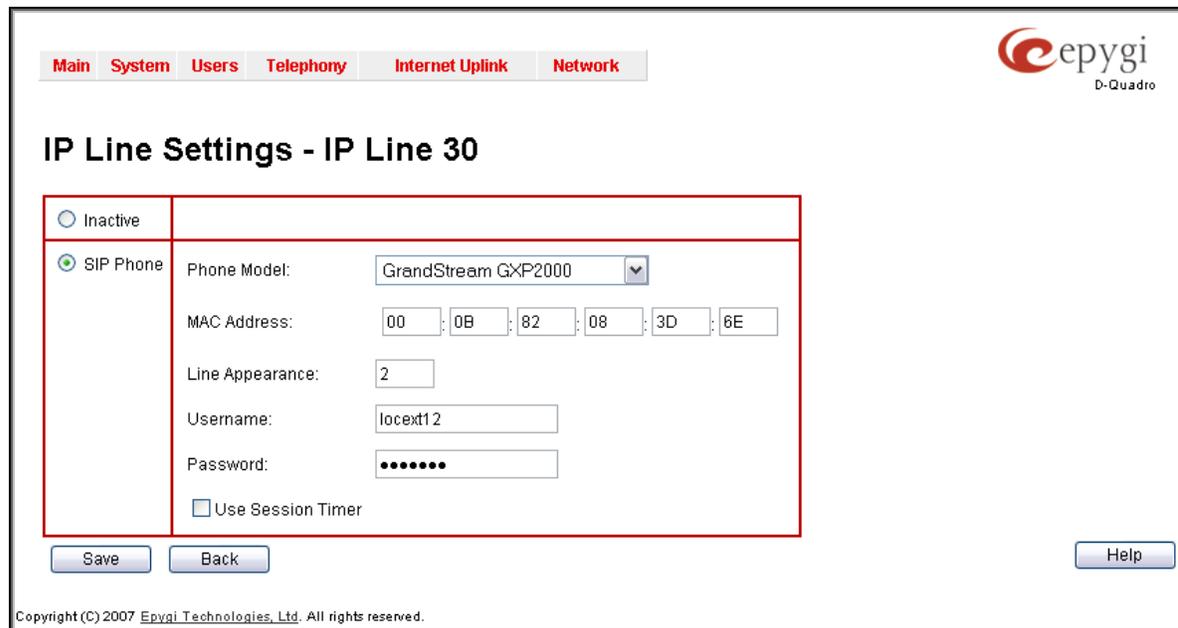
Please Note: If the phone model is not included in the **Phone Model** drop-down list, select **Other** and specify a **Username** and a **Password** in the respective fields (the same values should be used when configuring the phone manually).

6. Enter the MAC address of the phone into the appropriate text fields. MAC addresses of IP phones are usually printed on the back of the phone base unit.
7. Enter the number for simultaneous calls – the total number of active and held calls, in the **Line Appearances** text box. If this field is set to **1**, only one active call will be possible to have on the phone. Making or accepting a second call while the other is on hold will not be allowed.

Please Note: This number cannot exceed the number of simultaneous calls supported by the phone. For Grandstream GXP2000 it is 11, for Grandstream BT 100/200 it is 2.

8. The Quadro identifies each SIP phone located on its LAN by a unique username and a password specified on the **IP Line Settings Page** (see Figure 4). In case of auto-configuration, they are specified on the Quadro and are automatically included in the phone's configuration file generated by the Quadro. By default the Quadro assigns a unique username and password to each IP line. The user may either keep these values or specify new ones.
9. Check the **Use Session Timer** checkbox to enable SIP Session Timer for this line.
10. Click **Save** to submit the changes.

Once a corresponding IP line is configured, factory reset the phone to complete Auto-configuration. For instructions on how to reset a Grandstream SIP phone, please refer to Section [4](#).



Main System Users Telephony Internet Uplink Network

IP Line Settings - IP Line 30

Inactive

SIP Phone

Phone Model: GrandStream GXP2000

MAC Address: 00 : 0B : 82 : 08 : 3D : 6E

Line Appearance: 2

Username: locext12

Password:

Use Session Timer

Save Back Help

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Figure 4-Configuring an IP line

4 Completing Grandstream IP Phones Configuration

To complete Grandstream IP phone configuration using Auto-configuration option, reset the phone to factory default settings. Please see the instructions below that describe how to restore the default configuration on the Grandstream SIP phones.

Please note: If a SIP phone obtains its basic network parameters from a DHCP server other than the Quadro's built-in DHCP server, certain configuration changes will be required on the DHCP server in use. Please refer to [Section 7](#).

4.1 Grandstream BT100/200

To complete the automatic configuration on Grandstream BT100/200, reset the phone to factory default settings as detailed below:

1. Press the **Menu** button on the phone for Key Pad Menu options.
2. Press the Up or Down button to see **Reset**.
3. Just after the rESET" is seen on the phone LCD, enter the MAC address of the phone using the key pad (It is a 12 digits HEX number located on the bottom of the unit).
4. Press the **Menu** button again to confirm the Reset.
5. Wait for phone reboot and the LCD backlight finish flashing.



Please Note: Use the following mapping for Grandstream phones to enter the MAC address:

0-9: 0-9

- **A:** 22 (press the "2" key twice, "A" will show on the LCD)
- **B:** 222
- **C:** 2222
- **D:** 33 (press the "3" key twice "D" will show on the LCD)
- **E:** 333
- **F:** 3333

If there are digits **22** in the MAC, you need to type **2** then press → right arrow key to move the cursor or wait for 4 seconds to continue to key in another **2**.

4.2 Grandstream GXP2000

To complete the automatic configuration on Grandstream GXP2000, reset the phone to factory default settings as detailed below:

1. Press the **OK** key to bring up the key pad configuration UI menu, select the **Config**,
2. Press the **OK key** to enter the submenu and select **Factory Reset**.
3. Key in the MAC address printed on the bottom of the sticker (see the **Please Note:** above).
4. Press the **OK** key again to move the cursor to **OK** button.
5. Press the **OK** key again to confirm. If the MAC address is correct the phone will reboot. Otherwise, it will exit to previous keypad menu interface.



5 Verifying Configuration

This section describes how to verify the Grandstream IP phone successful configuration:

- Go to Quadro **Status**→**SIP Registration status**→**Registered IP Lines** to see if the IP Line registration is successful.
- Dial ***74** to get the line information.
- Make outgoing and accept incoming calls.
- Make sure the default username set for an assigned IP line is displayed on the phone display (by default it has the 'locextNumber' format).

6 Troubleshooting

The IP phone fails to reboot/restart

Some IP phones may fail to reboot when the reboot is initiated from the phone's LCD-based interface. The only way to recover the phone from the permanent reboot is to unplug the power cable from the base unit of the phone and plug it in again.

If there is a problem with auto configuration of Grandstream BT100 phones, after resetting the phone there is a need to set the configuration server by hand from the GUI of the phone.

Advanced Settings -> *Firmware Upgrade and Provisioning*:

Firmware Server Path: should be changed from *fm.grandstream.com/gs* to Quadro LAN IP (e.g. 172.30.0.1)

Config Server Path: should be changed from *fm.grandstream.com/gs* to Quadro LAN IP (e.g. 172.30.0.1).

7 SIP Phone Uses a Third-Party DHCP Server

To allow a SIP phone to be configured using auto-configuration options, the phone should be able to download the configuration file from the Quadro's HTTP/TFTP server. This requires that the boot server address of the phone be set to the IP address of the Quadro's LAN interface. In network configurations where the SIP phone obtains its network parameters from the Quadro's DHCP server (recommended, see Figure 5), the boot server address is set automatically by the Quadro. Apart from the steps mentioned in Sections [4](#) no additional steps are required to complete SIP phone configuration.

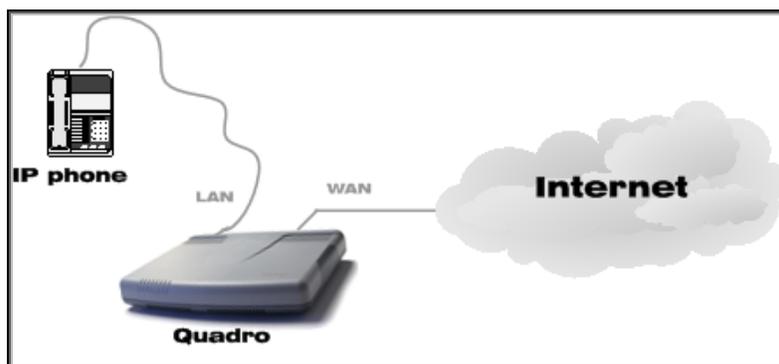


Figure 5-Recommended configuration for SIP phone setup

If the SIP phone uses a third-party DHCP server, the DHCP server should be configured to notify the phone of the Quadro's location. An example of such network configuration is shown in Figure 6. In this example, the LAN of the Quadro, the dedicated DHCP server, and SIP phones are in the same subnet. For the instructions on how to make appropriate changes to a third-party DHCP server, please see Section [9](#).

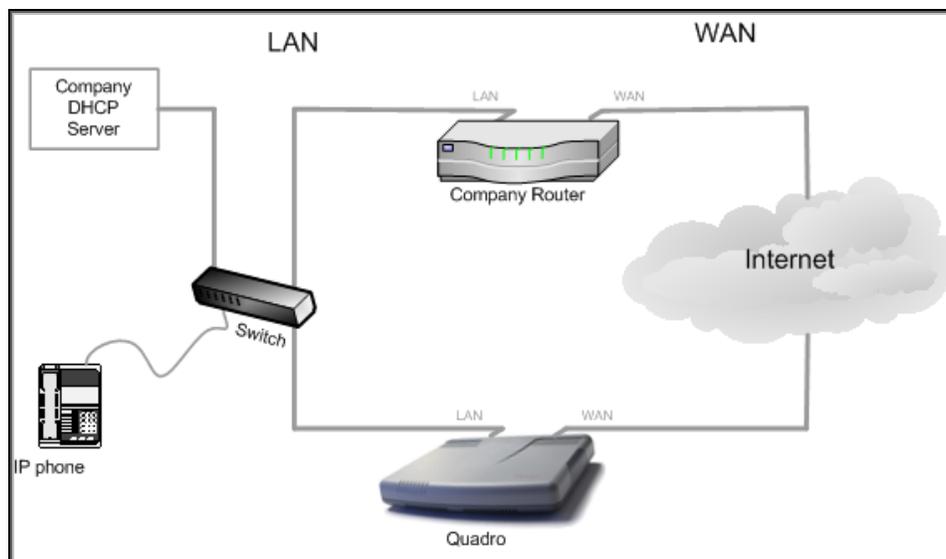


Figure 6- SIP Phone uses dedicated DHCP server

Please note: If your company's LAN configuration is similar to the one shown in Figure 6 make sure the DHCP server is disabled on the Quadro LAN. If it is not, unpredictable network behaviour may occur.

7.1 Configuration Changes to a DHCP Server

The steps below describe how to correctly configure the DHCP server. These steps also apply to LANs that consist of several logical subnets with the DHCP server and a SIP phone on one subnet, and the Quadro on another.

- Set the options listed in [Table 1](#) to the values shown in the right column.
- Create a DHCP record for each SIP phone connected to the Quadro LAN.
- Reset the phone to its default settings and then reboot.

Table 1 Global scope options

Option Name	Value	Example
003 Router	Quadro LAN IP	172.30.0.1
004 Time Server	Quadro LAN IP	172.30.0.1
005 Name Servers	Quadro LAN IP	172.30.0.1
006 DNS Servers	Quadro LAN IP	172.30.0.1
015 DNS-Domain Name	epygi-config.com	epygi-config.com
066 TFTP Server Name	Quadro LAN IP	172.30.0.1

Once the appropriate changes to the DHCP server configuration are completed, reset the phone to start the phone configuration. Please see [Section 4](#).

8 References

- Quadro Manual-II: Administrator's Guide for the corresponding release.
- Quadro Features on Epygi Tested IP Phones List.
- IP Phones and IP Lines Configuration Guide.