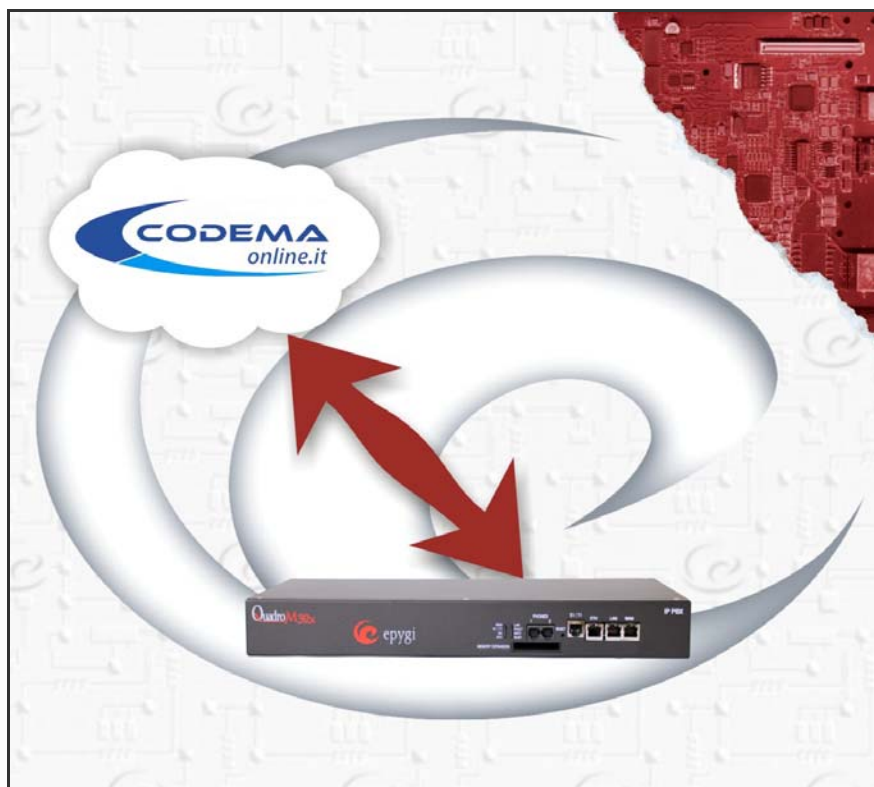


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# Configuring Quadro with CODEMA

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Revision: 1.0

**Abstract:** This document describes how to configure the Quadro to use the IP-PSTN service from CODEMA.

## Document Revision History

Revision	Date	Description	Valid for SW	Valid for models
1.0	15-Feb-2012	Initial release	5.2.x or higher	Quadro IP PBXs

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# 1 Introduction

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This document describes how to configure the Quadro to use the IP-PSTN service from CODEMA SIP Server. The Quadro IP PBX is capable of making IP-PSTN calls via CODEMA SIP Server. This solution allows Quadro IP PBX users to make cost-saving calls to global destinations.

**Please Note:** Security issues and rates are beyond the scope of this document.

## 2 Scenario

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Provider:

- CODEMA SIP Server.
- CODEMA SIP Server offers outbound and inbound calls.
- CODEMA SIP Server allows parallel outbound calls to be made from one account.
- CODEMA SIP Server allows parallel calls to be received to one account.

Customer:

- The customer will be making PSTN calls through CODEMA SIP Server.

### 2.1 Requirements and Preparations

- The Quadro IP PBX is connected to the network and all network settings are properly configured.
- The Quadro IP PBX is running software 5.2.x or higher.

### 2.2 Account Information from CODEMA

CODEMA will provide the customer with the following data (all provided below information are samples):

- Service Address: sip.provider.com (it also can be a IP address of codemaonline.it SIP server)
- Account number: codema\_account1, codema\_account2 (sample)
- Telephone Number (DID): (+39) 042470219, 042470220 (sample)

## 3 Configuration

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The sections below describe the configurations required on the Quadro to allow the users to

- Make outgoing calls through CODEMA SIP Server.
- Receive incoming calls through CODEMA SIP Server.

### 3.1 Making Outgoing Calls through CODEMA

First of all, provided account should be registered. For creating a new extension and registering it on CODEMA SIP Server, go to **Telephony→VoIP Carrier Wizard** page, pass through this wizard and enter the following parameters:

- VoIP Carrier – Manual;
- Description – CODEMA;
- Press **Next** (Figure 1).

Figure 1- VoIP Carrier Wizard- Page 1

In the next opened page, enter the following parameters:

- **Account Name** – codema\_account1;
- Put provided password in the **Password** and **Confirm Password** fields;
- **SIP Server** – sip.provider.com;
- **SIP Server Port** – 5060;
- Enable **Use RTP Proxy** service and press **Next** (Figure 2).

**VoIP Carrier Wizard**

**VoIP Carrier Settings**

**VoIP Carrier Common Settings**

Account Name:

Password:

Confirm Password:

SIP Server:

SIP Server Port:

**VoIP Carrier Advanced Settings**

☒ Use RTP Proxy

Authentication User Name:

☐ Send Keep-alive Messages to Proxy

Timeout:  sec

**Outbound Proxy**

Host Address:

Port:

**Secondary SIP Server**

Host Address:

Port:

**Outbound Proxy for Secondary SIP Server**

Host Address:

Port:

Please check your pending events!

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Figure 2- VoIP Carrier Wizard- Page 2

On the third page of VoIP Carrier Wizard, you can define the Access Code which will be used in the Call Routing Table. Let's say it is 01. You can also define the extension, on which you will receive the incoming calls from CODEMA SIP Server. Let's say it is 102 (you can also receive the incoming calls from CODEMA SIP Server on Quadro Auto Attendant – extension 00).

- **Access Code** - 01;
- **Emergency Code** – leave the default value or put your country emergency call;
- **Route Incoming Calls to** – 102;

If you want the calls failover through onboard FXO line, you can enable the **Failover to PSTN** service too and press the **Next** button (Figure 3).

**VoIP Carrier Wizard**

**VoIP Carrier Access Code**

Access Code:

Emergency Code: <sup>1</sup>

Route Incoming Calls to:

☐ Failover to PSTN

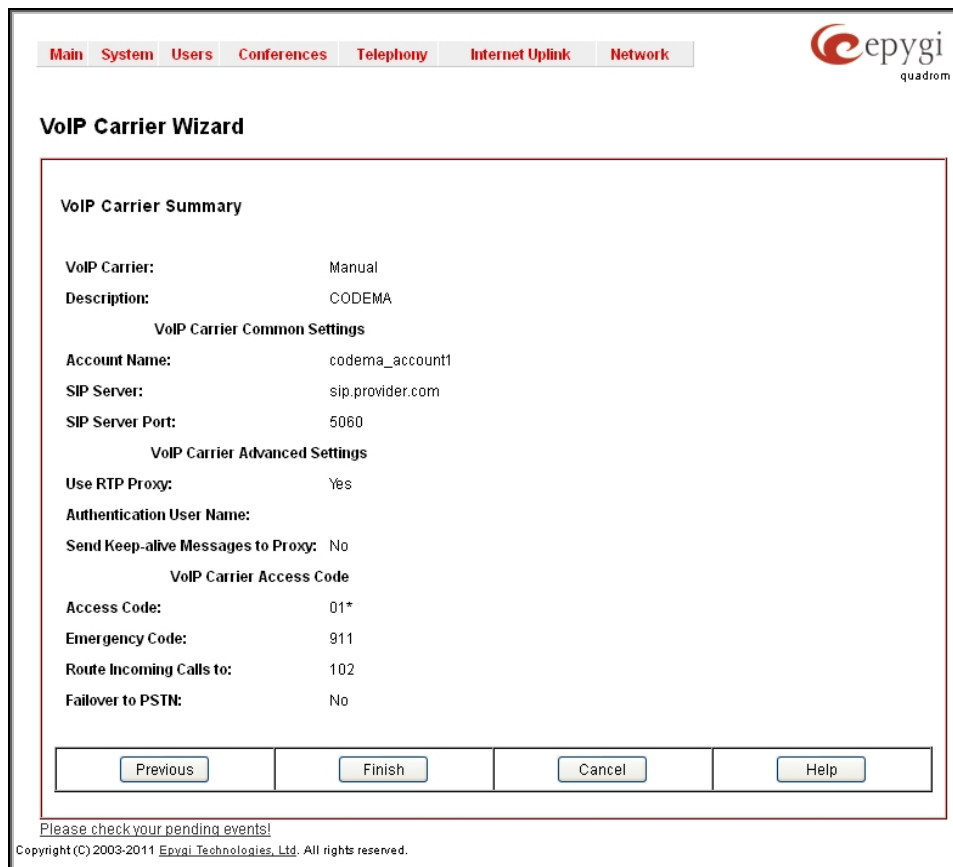
1 - WARNING: if this ITSP is 911 compliant then you have to bind this account with the geographical address of your device. If the ITSP is not 911 compliant then the public safety agency will not be able to determine the address automatically.

[Please check your pending events!](#)

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Figure 3- VoIP Carrier Wizard- Page 3

Confirm entered settings on the last page of VoIP Carrier Wizard page and press the **Finish** (Figure 4).



**VoIP Carrier Wizard**

**VoIP Carrier Summary**

VoIP Carrier: Manual  
 Description: CODEMA

**VoIP Carrier Common Settings**

Account Name: codema\_account1  
 SIP Server: sip.provider.com  
 SIP Server Port: 5060

**VoIP Carrier Advanced Settings**

Use RTP Proxy: Yes  
 Authentication User Name:  
 Send Keep-alive Messages to Proxy: No

**VoIP Carrier Access Code**

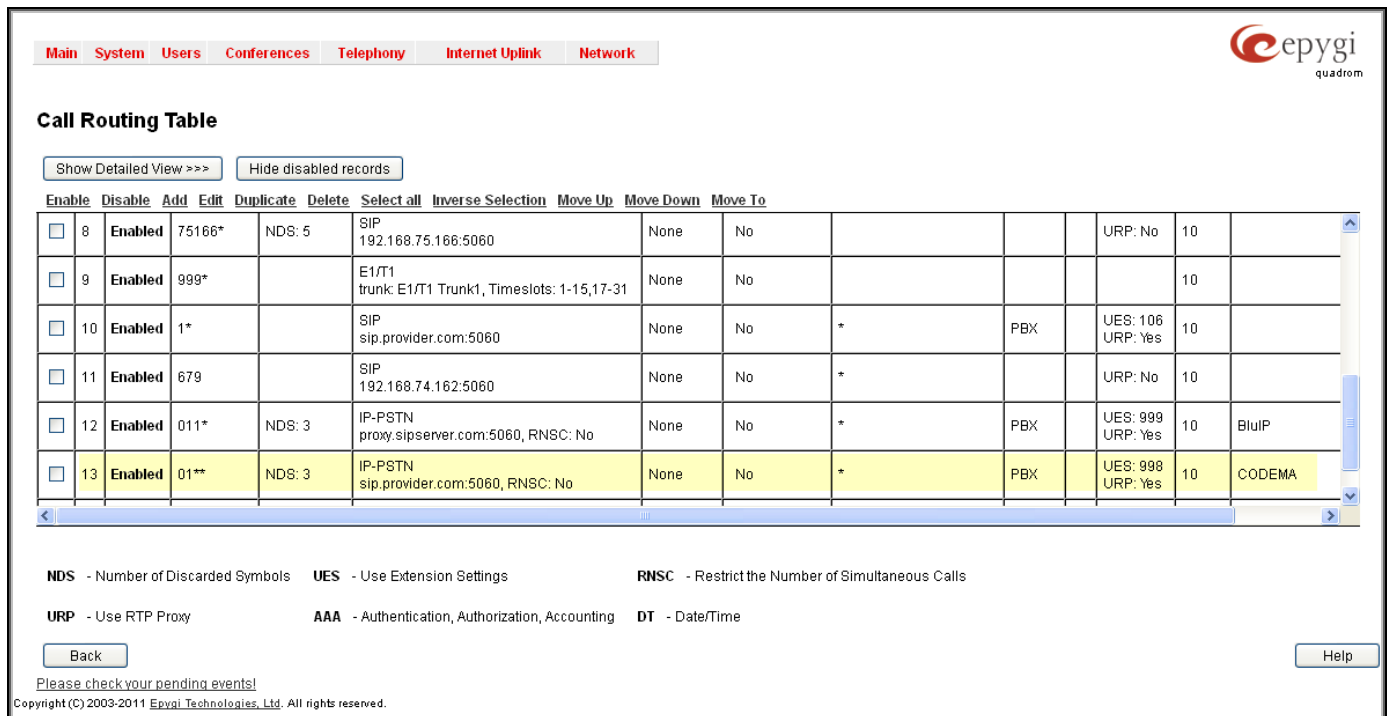
Access Code: 01\*  
 Emergency Code: 911  
 Route Incoming Calls to: 102  
 Failover to PSTN: No

Previous Finish Cancel Help

Please check your pending events!  
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Figure 4- VoIP Carrier Wizard- Page 4

Now the provided account is registered, and you can make outgoing calls through CODEMA SIP Server using 01 prefix (appropriate **Call Routing rule** with **01\*** pattern is automatically added on the **Call Routing table** – see Figure 5).



**Call Routing Table**

Show Detailed View >>> Hide disabled records

Enable	Disable	Add	Edit	Duplicate	Delete	Select all	Inverse Selection	Move Up	Move Down	Move To
<input type="checkbox"/>	8	Enabled	75166*	NDS: 5	SIP 192.168.75.166:5060	None	No			URP: No 10
<input type="checkbox"/>	9	Enabled	999*		E1/T1 trunk: E1/T1 Trunk1, Timeslots: 1-15,17-31	None	No			10
<input type="checkbox"/>	10	Enabled	1*		SIP sip.provider.com:5060	None	No	*	PBX	UES: 106 URP: Yes 10
<input type="checkbox"/>	11	Enabled	679		SIP 192.168.74.162:5060	None	No	*		URP: No 10
<input type="checkbox"/>	12	Enabled	011*	NDS: 3	IP-PSTN proxy.sipserver.com:5060, RNCS: No	None	No	*	PBX	UES: 999 URP: Yes 10 BluIP
<input type="checkbox"/>	13	Enabled	01**	NDS: 3	IP-PSTN sip.provider.com:5060, RNCS: No	None	No	*	PBX	UES: 998 URP: Yes 10 CODEMA

NDS - Number of Discarded Symbols    UES - Use Extension Settings    RNCS - Restrict the Number of Simultaneous Calls  
 URP - Use RTP Proxy    AAA - Authentication, Authorization, Accounting    DT - Date/Time

Back Help

Please check your pending events!  
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Figure 5- Call Routing Table page



## 3.2 Receiving Inbound Calls from CODEMA

For receiving incoming calls from CODEMA SIP Server, you already created the needed configuration during the **VoIP Carrier Wizard**, so now you can receive all incoming calls from CODEMA SIP Server on extension 102 (Figure 6).

The screenshot shows the 'Unconditional Call Forwarding' configuration page for extension 998. The page has a navigation bar with 'Main', 'Voice Mail', 'Your Extension', and 'Supplementary Services'. The 'Supplementary Services' tab is active. The page title is 'Caller ID Based Services for Any Address'. The extension is 998. On the left, there is a list of services: Hiding Caller Information, Incoming Call Blocking, Outgoing Call Blocking, Distinctive Ringing, Call Hunting, Many Extension Ringing, Unconditional Call Forwarding (selected), Busy Call Forwarding, No Answer Call Forwarding, Unregistered/Inaccessible Call Forwarding, Find Me / Follow Me, Intercom, and Emergency Interrupt. The main content area shows the 'Unconditional Call Forwarding' settings. It includes a checkbox for 'Enable Service' which is checked. Below it is a table with columns 'State' and 'Forward to'. The table has one row with 'Enabled' in the 'State' column and 'PBX-102' in the 'Forward to' column. There are also checkboxes for 'Send Notification Via SMS' and 'Send E-mail', each with a corresponding text input field for 'Mobile Number' and 'E-mail Address' respectively. A checkbox for 'Toggle from Handset' is also present and checked. At the bottom, there are 'Save', 'Back', and 'Help' buttons. A copyright notice at the bottom left reads: 'Copyright (C) 2003-2011 Epygi Technologies, Ltd. All rights reserved.'

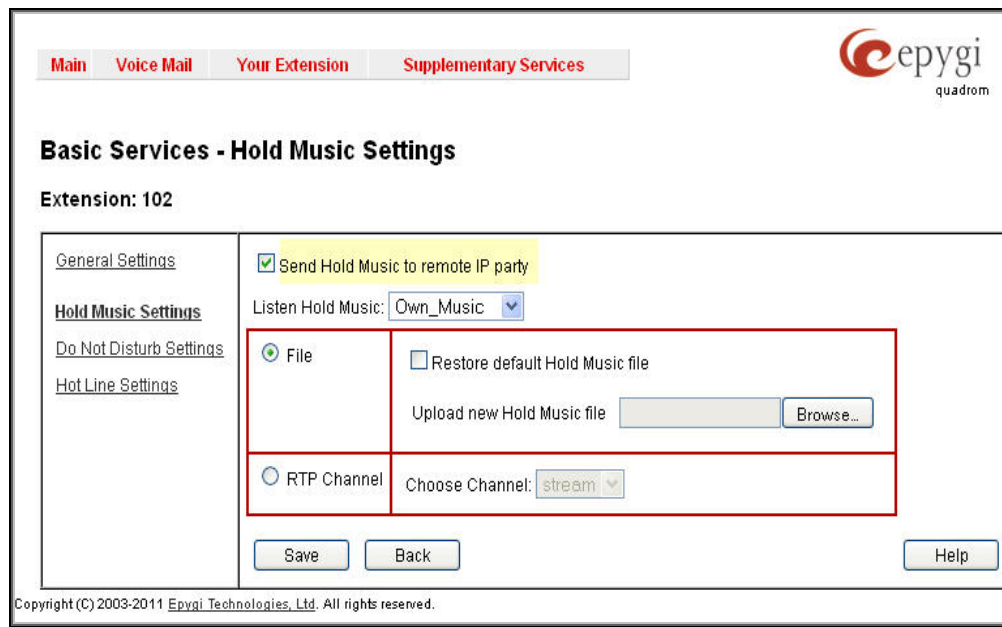
Figure 6- Unconditional Call Forwarding page

## 4 Additional Notes

### 4.1 Sending Music on Hold to Remote Parties

Each extension of the Quadro IP PBX can be configured to send its own hold music to remote parties on hold (PSTN, IP, or IP-PSTN destinations). While sending the extensions' music on hold (MOH) to PSTN parties does not require any configuration on the Quadro, certain configurations are needed when the remote party is an IP or IP-PSTN destination. The following steps describe how to configure an extension to send its own MOH to remote IP parties:

1. Login to the Quadro as an extension user.
2. Open the **Supplementary Services**→**Basic Services**→**Hold Music Settings** page (see Figure 7)
3. Select the **Send Hold Music to remote IP party** checkbox and press **Save**.



**Basic Services - Hold Music Settings**

Extension: 102

☒ Send Hold Music to remote IP party

Listen Hold Music: Own\_Music

☒ File ☐ Restore default Hold Music file

Upload new Hold Music file

☐ RTP Channel Choose Channel: stream

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Figure 7- Basic Services – Hold Music Settings page

If the Quadro is configured with an ITSP that does not support remote MOH (the ITSP closes the *received* audio stream when receiving an SIP re-INVITE message with the c=IN IP4 0.0.0.0, a=sendonly media attributes), please follow these steps to complete the configuration:

1. Log into the Quadro as an administrator.
2. Type "generalconfig.cgi" in the address field of the browser to open the **General Configuration** page (see Figure 8).
3. On this page, select the **Force Hold Music** checkbox and click **Save**.

The screenshot shows the 'General Configuration' page of the Epygi Quadro system. The page is divided into several sections:

- General Configuration:** Includes settings for Max Number of Records in DB cache (32), DNS cache MAX size (32), DNS cache cleanup timeout (6 hours), Flash timeout (2 sec), Call progress notification timeout (10 sec), IP line registration timeout maximum (3600 sec), IP line registration timeout minimum (120 sec), and Play user friendly voice messages instead of tones (default).
- IP phones settings:** Includes SIP registration timeout (3600 sec), SIP subscription timeout (3600 sec), and SIP session refresh timeout (600 sec).
- Templates for Caller ID:** Includes templates for IP call, PBX call, and PSTN call, each with a corresponding format string.
- Presence:** Includes a subscription limitation setting (140).
- Other settings:** Includes checkboxes for 'Accept stray SIP requests', 'Change SIP Error Code to Busy Here', 'Ignore To header in incoming SIP INVITE requests', 'Use Report', 'Enable IP Loop', 'Force Hold Music' (checked and highlighted), 'Do Not Send External RE-INVITE', 'Do Not Send REFER', and 'Callback through Routing'.
- VM settings:** Includes a checkbox for 'Enable VM silence disconnect' and a 'Disconnect timeout' setting (5).

At the bottom of the page, there are 'Save' and 'Back' buttons, a 'Help' button, and a note about pending events. The footer includes copyright information for Epygi Technologies Ltd.

Figure 8- General Configuration page

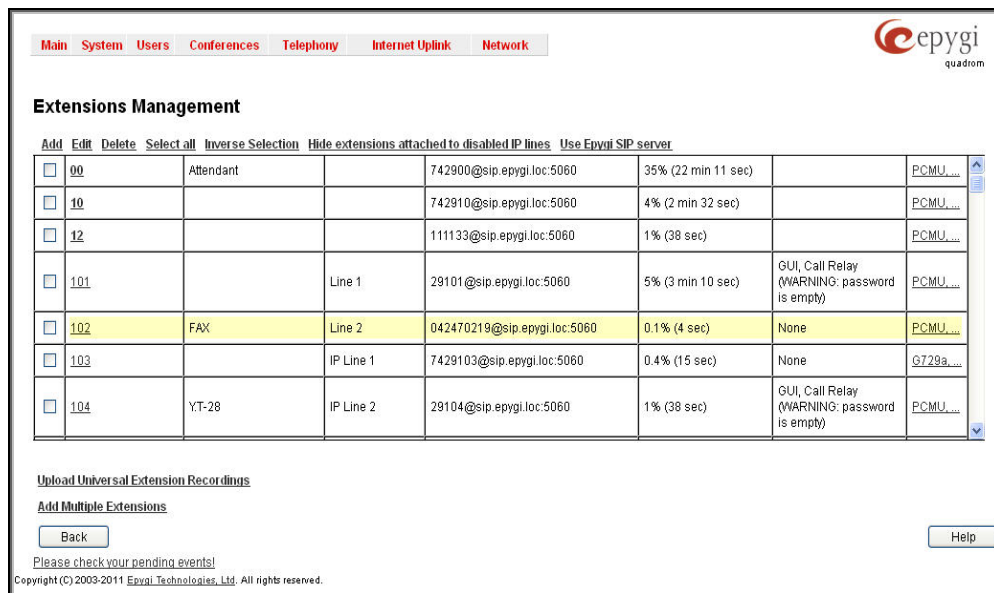
**Please Note:** Please inform your system administrator before making any other changes on this page.

## 4.2 Sending and Receiving Faxes through CODEMA

Following steps describe how to configure an extension to send and receive FAX messages through CODEMA SIP Server.

If the virtual (without attached line) extension is used, please go to **Supplementary Services** page of chosen extension and activate the **Unconditional Call Forwarding** service to one of the active (with attached line) extensions, i.e. extension 102.

1. Choose the **Users→Extensions Management** page (see Figure 9).
2. On the **Extensions Management** page, click on the **Codecs** link of *extension 102*.
3. On the **Extension Codecs** page select the **Enable T.38 FAX** and **Enable Pass Through FAX** checkboxes (see Figure 10).
4. Press **Save**.



**Extensions Management**

[Add](#) [Edit](#) [Delete](#) [Select all](#) [Inverse Selection](#) [Hide extensions attached to disabled IP lines](#) [Use Epygi SIP server](#)

Extension	Name	Line	SIP Address	Speed	Codec
00	Attendant		742900@sip.epygi.loc:5060	35% (22 min 11 sec)	PCMU...
10			742910@sip.epygi.loc:5060	4% (2 min 32 sec)	PCMU...
12			111133@sip.epygi.loc:5060	1% (38 sec)	PCMU...
101		Line 1	29101@sip.epygi.loc:5060	5% (3 min 10 sec)	GUI, Call Relay (WARNING: password is empty)
102	FAX	Line 2	042470219@sip.epygi.loc:5060	0.1% (4 sec)	None
103		IP Line 1	7429103@sip.epygi.loc:5060	0.4% (15 sec)	None
104	YT-28	IP Line 2	29104@sip.epygi.loc:5060	1% (38 sec)	GUI, Call Relay (WARNING: password is empty)

[Upload Universal Extension Recordings](#)

[Add Multiple Extensions](#)

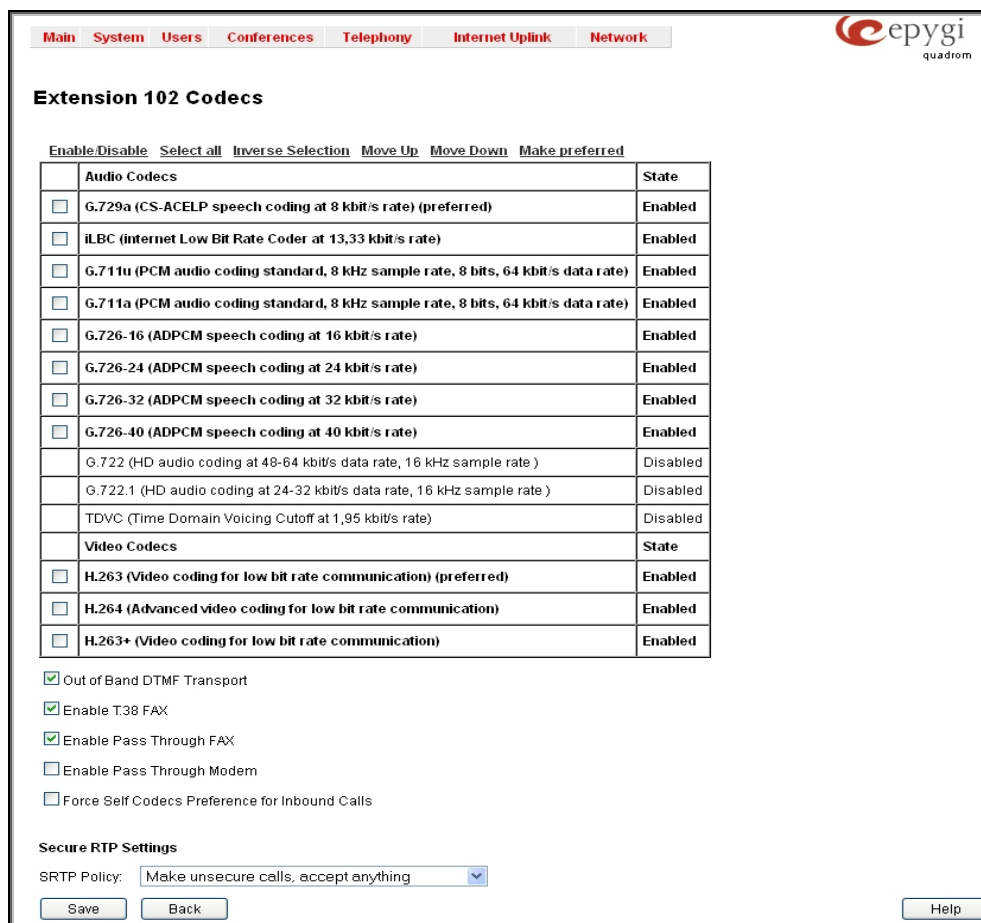
[Back](#) [Help](#)

Please check your pending events!

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Figure 9- Extension Management page

If the virtual (without attached line) extension is used, enable the **Enable T.38 FAX** and **Enable Pass Through FAX** services for the virtual extension as well.



**Extension 102 Codecs**

[Enable/Disable](#) [Select all](#) [Inverse Selection](#) [Move Up](#) [Move Down](#) [Make preferred](#)

Codec	State
G.729a (CS-ACELP speech coding at 8 kbit/s rate) (preferred)	Enabled
iLBC (Internet Low Bit Rate Codec at 13.33 kbit/s rate)	Enabled
G.711u (PCM audio coding standard, 8 kHz sample rate, 8 bits, 64 kbit/s data rate)	Enabled
G.711a (PCM audio coding standard, 8 kHz sample rate, 8 bits, 64 kbit/s data rate)	Enabled
G.726-16 (ADPCM speech coding at 16 kbit/s rate)	Enabled
G.726-24 (ADPCM speech coding at 24 kbit/s rate)	Enabled
G.726-32 (ADPCM speech coding at 32 kbit/s rate)	Enabled
G.726-40 (ADPCM speech coding at 40 kbit/s rate)	Enabled
G.722 (HD audio coding at 48-64 kbit/s data rate, 16 kHz sample rate)	Disabled
G.722.1 (HD audio coding at 24-32 kbit/s data rate, 16 kHz sample rate)	Disabled
TDVC (Time Domain Voicing Cutoff at 1,95 kbit/s rate)	Disabled
<b>Video Codecs</b>	<b>State</b>
H.263 (Video coding for low bit rate communication) (preferred)	Enabled
H.264 (Advanced video coding for low bit rate communication)	Enabled
H.263+ (Video coding for low bit rate communication)	Enabled

☒ Out of Band DTMF Transport

☒ Enable T.38 FAX

☒ Enable Pass Through FAX

☐ Enable Pass Through Modem

☐ Force Self Codecs Preference for Inbound Calls

**Secure RTP Settings**

SRTP Policy: [Make unsecure calls, accept anything](#)

[Save](#) [Back](#) [Help](#)

Figure 10- Codecs page for extension 102

## 5 References

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The following documents can be helpful for further configuration of the Quadro IP PBX. They can be downloaded from Epygi's WEB portal at [www.epygi.com](http://www.epygi.com):

- Quadro Manual I – Installation Guide
- Quadro Manual II – Administrator's Guide
- Preventing Unauthorized Calls on the Quadro
- User Access Privileges on the Quadro
- Quadro with generic IP-PSTN service

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