



Configuring QX IP PBXs with Adiptel SIP Trunks

Abstract: This guide describes the configuration of QX IP PBXs to use the SIP trunk service from Adiptel.

Document Revision History

Revision	Date	Description	Valid for FW	Valid for Models
1.0	29-Aug-17	Initial Release	6.1.50 and higher	QX IP PBXs

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1 Introduction

This document describes the configuration of Epygi QX IP PBXs (herein QXs) to use the VoIP SIP trunking service from Adiptel – the industry leader among business VoIP providers in Spain. The QX is capable of making IP-PSTN calls via Adiptel SIP trunks. This solution allows QX users to make cost saving calls to the global PSTN network.

Note:

- The described configuration is generic for all Epygi QX IP PBX models, such as the QX20, QX50, QX200, QX500, QX2000 and QXISDN4+.
- Security issues and calling rates are beyond the scope of this document. See the listed documents in [References](#) section to get more information on the security related issues.

2 Scenario

Provider: **Adiptel**

- Offers outbound and inbound calls.
- Allows parallel outbound calls to be made from one account.
- Allows parallel calls to be received on one account.

Customer:

- The customer will make long distance cost saving PSTN calls through the Adiptel SIP trunks.

2.1 Requirements and Preparations

- QX is connected to the network and all network settings are properly configured.
- One or more IP phones in Epygi supported phones list are autoconfigured with QX.
- Always use the **latest** available QX **firmware** to achieve maximum compatibility for the QX's telephony features and settings.

2.2 Account Information from Adiptel

Adiptel will provide the customer with the following data (all listed data below are just samples):

- **Username** (authorization username/userID) – 4997414497
- **Password** – *****
- **SIP server** – clientes.adiptel.com
- **Signaling port for SIP server** – 5060
- **Telephone number(s)** (DID allocated to the customer) – 9476XXXXX

3 Configuration

The sections below describe the configuration steps required on the QX to allow the users to

- Make outgoing calls through the Adiptel SIP trunks.
- Receive incoming calls from the Adiptel SIP trunks
- Send and receive faxes through the Adiptel SIP trunks.

We will use the QX's **VoIP Carrier Wizard** designed to simplify the configuration of QX with different VoIP SIP providers. The wizard allows collecting the account information from provider and generating the needed configuration for each specific VoIP SIP provider on QX. Just after finishing the wizard, the QX local PBX extensions will be able to place calls to the PSTN using the provider's SIP trunks, as well as receive calls from the provider's VoIP SIP trunks.

3.1 Making Outgoing Calls through the Adiptel

Create automatically a new extension on the QX and configure it with the Adiptel SIP trunks as follows:

1. Go to the **Telephony→VoIP Carrier Wizard**, pass through the wizard by inserting the below listed parameters:
 - Select **Manual** from the **VoIP Carrier** list.
 - **Description** – optional (e.g. Adiptel)
 - Click **Next**.



Figure 1: Select VoIP Carrier section

2. Insert the following parameters in the **VoIP Carrier Settings** section (Figure 2):
 - **Account Name** – the username provided by the Adiptel (4997414497 for this example)
 - **Password** – *****
 - **SIP server** – clientes.adiptel.com
 - **SIP Server Port** – 5060
 - **Use RTP Proxy** – selected
 - Click **Next**.

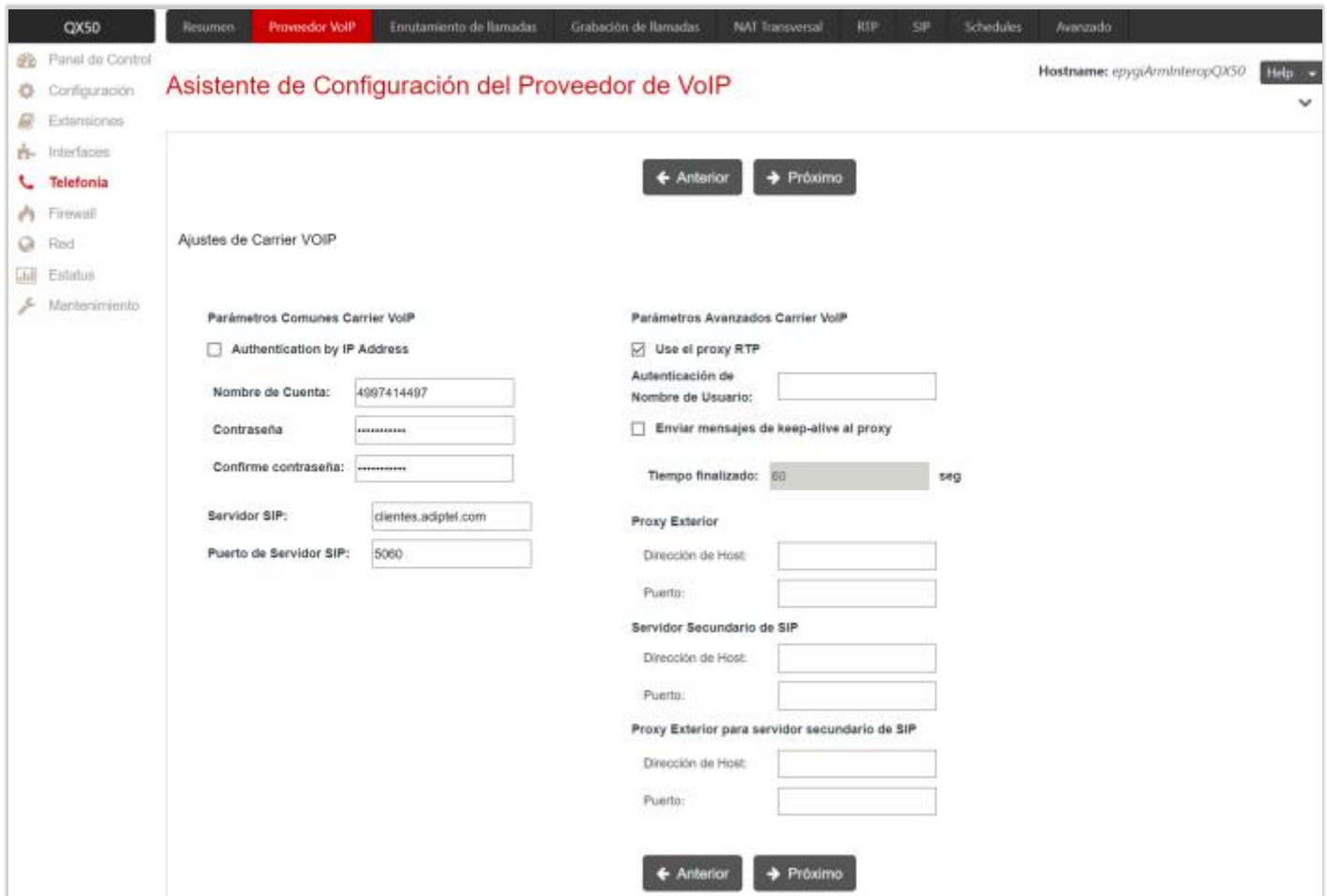


Figure 2: VoIP Carrier Settings section

3. Configure the following parameters in the **VoIP Carrier Access Code** section: (Figure 3):
 - **Access Code** – 1 (for this example)
 - **Emergency Code** – leave the default value or put your emergency call number for your area.
 - **Route Incoming Calls to** – 00 (the QX default Auto Attendant). Routing all incoming calls to the Auto Attendant is the most frequently used scenario. Using other QX extension as a call receiver is also applicable.
 - **Failover to PSTN** – Enable the **Failover to PSTN** service if it is desirable to allow calls failover through the QX's on-board FXO/ISDN lines. This option is available for QX50, QX200 and QXISDN4+ models.
 - Click **Next**.



Figure 3: VoIP Carrier Access Code section

4. Confirm the entered settings on the last section of **VoIP Carrier Wizard** and click **Finish**.

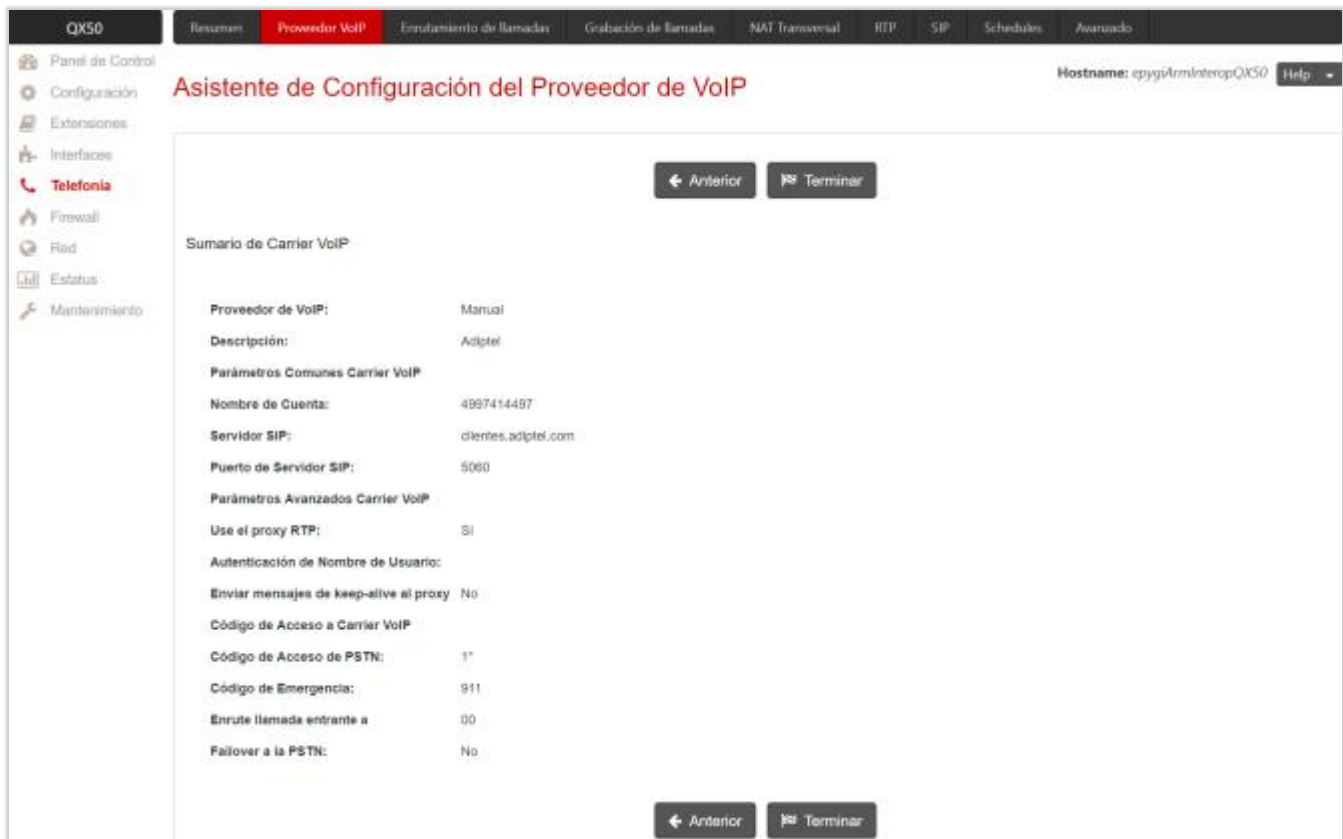
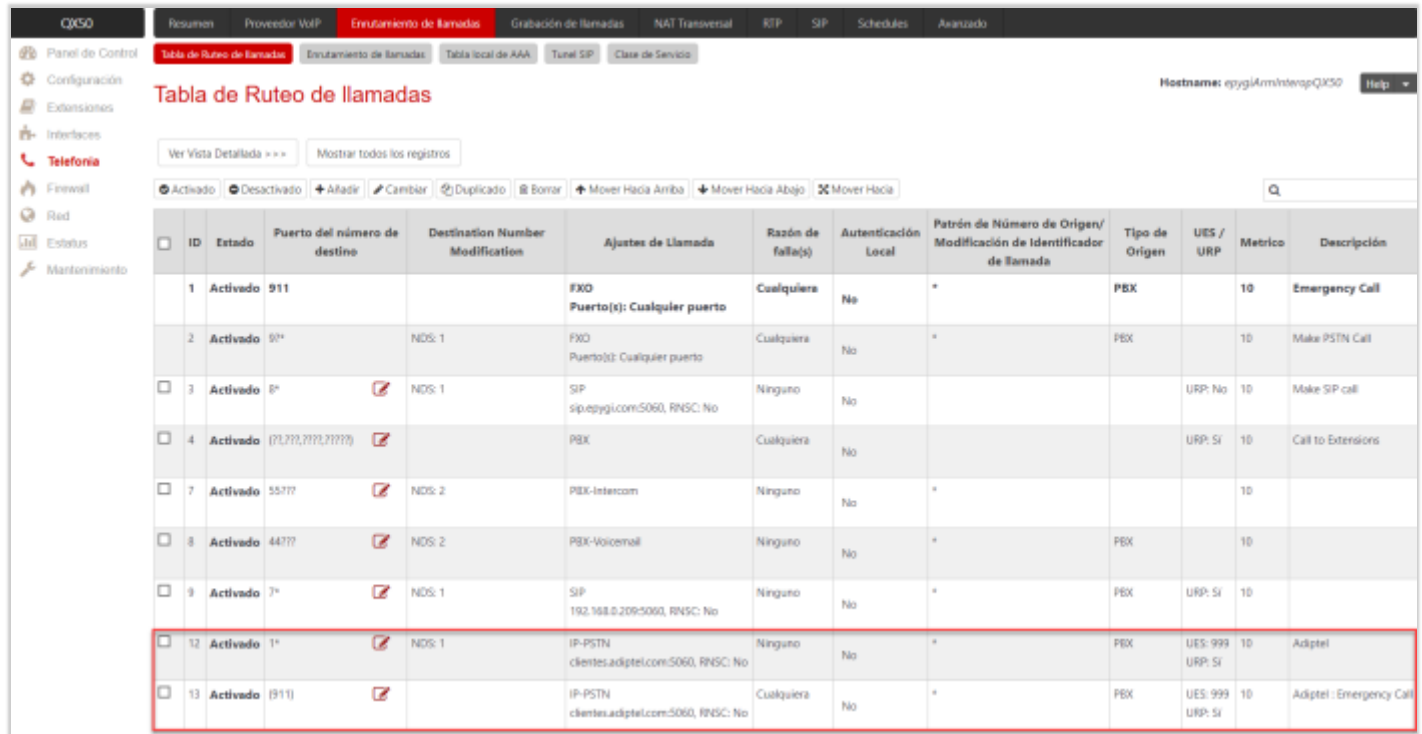


Figure 4: VoIP Carrier Wizard – Summary section

Now the provided account is configured with the QX. The extension (e.g. 999) with provided credentials (username, password) will be created automatically in the **Extensions Management** (Figure 5). The appropriate routing rules with **1*** and **{911}** patterns will be automatically added on the **Call Routing Table** (Figure 6).

QX50									
Resumen Extensiones Dialing Directories Conferencias Grabaciones Operadores ACD Teléfonos Autorizados									
Gestión de Extensiones									
Hostname: epygi@resinterop.QX50									
Conteo total de extensiones: 52/60									
+ Añadir + Cambiar + Borrar + Mostrar todas las extensiones + Utilizar Servidor SIP Epygi									
Q									
	Extensión	Nombre del Cliente	Línea conectada	Dirección de SIP	Porcentaje de Memoria del sistema	Acceso externo	Credit	CODECs	
<input type="checkbox"/>	00	Attendanc		20236@pygi.com:5060	5% (5 hour 43 min 54 sec)			PCMU...	
<input type="checkbox"/>	10			10	1% (1 hour 8 min 47 sec)			PCMU...	
<input type="checkbox"/>	20	Schedule testing		7134974201.Proxysip.epygi.com:5060	2% (2 hour 17 min 34 sec)			PCMU...	
<input type="checkbox"/>	101		FAX 1	2404988891.Proxysip.epygi.com:5060	5% (5 hour 43 min 54 sec)	Call Relay, Spec/Click2Dial		PCMU...	
<input type="checkbox"/>	102		FAX 2	7134974107.Proxysip.epygi.com:5060	0.1% (6 min 53 sec)	Ninguno		PCMU...	
<input type="checkbox"/>	103	Maria	Línea de IP 1	2404988891.Proxysip.epygi.com:5060	0.1% (6 min 53 sec)	GUI, Call Relay, Spec/Click2Dial		PCMU...	
<input type="checkbox"/>	104	Andrea	Línea de IP 2	7427104.Proxysip.epygi.com:5060	0.4% (27 min 31 sec)	Ninguno		PCMU...	
<input type="checkbox"/>	105		Línea de IP 3	12012594704	0.4% (27 min 31 sec)	Ninguno		PCMU...	
<input type="checkbox"/>	106		Línea de IP 4	7134974106.Proxysip.epygi.com:5060	0.4% (27 min 31 sec)	Ninguno		PCMU...	
<input type="checkbox"/>	107		Línea de IP 5	7134974107.Proxysip.epygi.com:5060	0.4% (27 min 31 sec)	Ninguno		PCMU...	
<input type="checkbox"/>	108		Línea de IP 6	7134974108.Proxysip.epygi.com:5060	1% (1 hour 8 min 47 sec)	Ninguno		PCMU...	
<input type="checkbox"/>	30	FAX	Ninguno	30	5% (5 hour 43 min 54 sec)	Ninguno		PCMU...	
<input type="checkbox"/>	37	shared mailbox	Ninguno	37	5% (5 hour 43 min 54 sec)	Ninguno		PCMU...	
<input type="checkbox"/>	38		Ninguno	38	1% (1 hour 8 min 47 sec)	Ninguno		PCMU...	
<input type="checkbox"/>	500	Out & Announce	Ninguno	7069278142	2% (2 hour 17 min 34 sec)	Ninguno		PCMU...	
<input type="checkbox"/>	600	VE for Hot Desking	Ninguno	7134974600.Proxysip.epygi.com:5060	1% (1 hour 8 min 47 sec)	Ninguno		G726-24...	
<input type="checkbox"/>	700	VE for Hot Desking	Ninguno	7134974700.Proxysip.epygi.com:5060	1% (1 hour 8 min 47 sec)	Ninguno		PCMU...	
<input type="checkbox"/>	719	marketing	Ninguno	719	1% (1 hour 8 min 47 sec)	Ninguno		PCMU...	
<input type="checkbox"/>	999	Adiptel (agregado por el Asistente de Conferencias)	Ninguno	9997414497@clarkes.adiptel.com:5060	0% (0 sec)	Ninguno		PCMU...	
<input type="checkbox"/>	36 (Grupo de toma de llamadas)			36	0% (0 sec)			PCMU...	
<input type="checkbox"/>	35 (Estacionar Llamada)			35	0% (0 sec)			PCMU...	
<input type="checkbox"/>	456 (Estacionar Llamada)			456	0% (0 sec)			PCMU...	
<input type="checkbox"/>	367 (Grupo Paging)			7628995042	0% (0 sec)			PCMU...	
<input type="checkbox"/>	36 (Grupo de Grabación)			36	1% (1 hour 8 min 47 sec)	Ninguno		PCMU...	

Figure 5: Extensions Management page



ID	Estado	Puerto del número de destino	Destination Number Modification	Ajustes de Llamada	Razón de falla(s)	Autenticación Local	Patrón de Número de Origen/Modificación de Identificador de llamada	Tipo de Origen	UES / URP	Métrico	Descripción
1	Activado	911		FXO Puerto(s): Cualquier puerto	Cualquiera	No	*	PBX		10	Emergency Call
2	Activado	50*	NDS: 1	FXO Puerto(s): Cualquier puerto	Cualquiera	No	*	PEX		10	Make PSTN Call
3	Activado	8*	NDS: 1	SIP sip.epygi.com:5060, RNSC: No	Ninguno	No			URP: No	10	Make SIP call
4	Activado	(71,71?,71?,71???)		PBX	Cualquiera	No			URP: Si	10	Call to Extensions
7	Activado	55???	NDS: 2	PBX-Intercom	Ninguno	No	*			10	
8	Activado	44???	NDS: 2	PBX-Voicemail	Ninguno	No	*	PEX		10	
9	Activado	7*	NDS: 1	SIP 192.168.0.209:5060, RNSC: No	Ninguno	No	*	PEX	URP: Si	10	
12	Activado	1*	NDS: 1	IP-PSTN clientes.adiptel.com:5060, RNSC: No	Ninguno	No	*	PEX	UES: 999 URP: Si	10	Adiptel
13	Activado	(911)		IP-PSTN clientes.adiptel.com:5060, RNSC: No	Cualquiera	No	*	PEX	UES: 999 URP: Si	10	Adiptel : Emergency Call

Figure 6: Call Routing Table page

How this works: The system will route all outbound calls matching the pattern **1*** to the Adiptel SIP trunks. Adiptel, in its turn, will route all inbound calls to the DID 9476XXXXX number to the QX Auto Attendant (00).

3.2 Receiving Inbound Calls from Adiptel

To receive incoming calls from the Adiptel SIP trunks, the required configuration is already created through the **VoIP Carrier Wizard**, so now all incoming calls to the DID number 9476XXXXX will go to the extension 00, which is the QX's default Auto Attendant.

4 Additional Notes

4.1 Sending Music on Hold to Remote Parties

Each extension of the QX 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 QX, certain configuration is 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. Open the **Basic Services→Hold Music Settings** page.
2. Enable the **"Send Hold Music to remote IP party"** checkbox and click **Save**.



The screenshot shows the 'Servicios Básicos - Ajustes de Música en Espera' page for extension 999. The page has a top navigation bar with tabs: 'Correo de Voz', 'Historial de Llamadas', 'Información del PBX', 'Discado Rápido', 'Cuenta', 'Servicios básicos' (selected), and 'Servicios de Identificador de Llamadas'. Below the navigation bar, there are tabs for 'General', 'Música en Espera' (selected), 'No Molestar', 'Alarm', 'Activate D&A', and 'Línea Caliente'. The main content area is titled 'Servicios Básicos - Ajustes de Música en Espera' and 'Extensión: 999'. On the left, there is a sidebar with links: 'Ajustes Generales', 'Parámetros de Música en Espera' (selected), 'Parámetro de No Molestar', 'Alarm Settings', 'D&A Schedule', and 'Parámetros de Línea Caliente'. The main content area contains the following settings:

- ☒ Enviar Música en Espera a clientes IP remotos (highlighted with a red box)
- Escuchar Música en Espera: Own_Music (dropdown menu)
- ☒ Archivo
 - Archivos Cargados: Choose File (button) | No file chosen
 - Grabar: Extensión de Grabación (button)
- ☐ Canal RTP
 - Seleccionar Canal: Basic (dropdown menu)
- ☐ Entrada de Audio
- Guardar (button)

Figure 7: Basic Services – Hold Music Settings page

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

1. Go to the "<http://xxx.xxx.xxx.xxx/generalconfig.cgi>" hidden page (Figure 8).
2. On this page, select the **"Force Hold Music"** checkbox and click **Save**.

QX50

Configuración General

Panel de Control

Configuración

Extensiones

Interfaces

Telefonía

Firewall

Red

Estatus

Mantenimiento

Max Number of Records in DB cache

32

recs

DNS cache MAX size

32

recs

DNS cache cleanup timeout

6

Horas

Flash timeout

2

seg

Call progress notification timeout

10

seg

SIP DNS SRV Failover Timeout

16

seg

IP line registration timeout maximum

3600

seg

IP line registration timeout minimum

120

seg

Play user friendly voice messages instead of tones

default

IP phones settings

SIP registration timeout

3600

seg

SIP subscription timeout

3600

seg

SIP session refresh timeout

600

seg

SIP failed registration retry timeout

30

seg

Clean IP Phone VLAN settings if no VLAN on PBX (reboot required)

☒

SIP TLS

SSL server method

SSLv23

SSL client method

SSLv23

Templates for Caller ID

IP call

%a

(%a%d%u%h)

PBX call

%a

(%a%d%u)

PSTN call

%a

(%a%d%u)

Presencia

Subscription limitation (reboot required)

1000

Do not use "partial update" method in BLF notifications

☐

Directorio Telefónico

Max number of contacts:

1000

☒ Enable VM silence disconnect

Disconnect timeout

60

VM Session timeout

6000

seg

☐ Accept stray SIP requests

☐ Change SIP Error Code to Busy Here

☐ Ignore To header in incoming SIP INVITE requests

☒ Add SIP Diversion header on forwarding

☒ Use Rport

☐ Use External Call Control Forwarding

☐ Enable IP Loop

☒ Force Hold Music

☐ Do Not Send External RE-INVITE

☐ Do Not Send REFER

☐ Callback through Routing

☐ Enable Call Recording of Early Media

☐ Allow Multiple Parallel Calls on an IP Line

Guardar

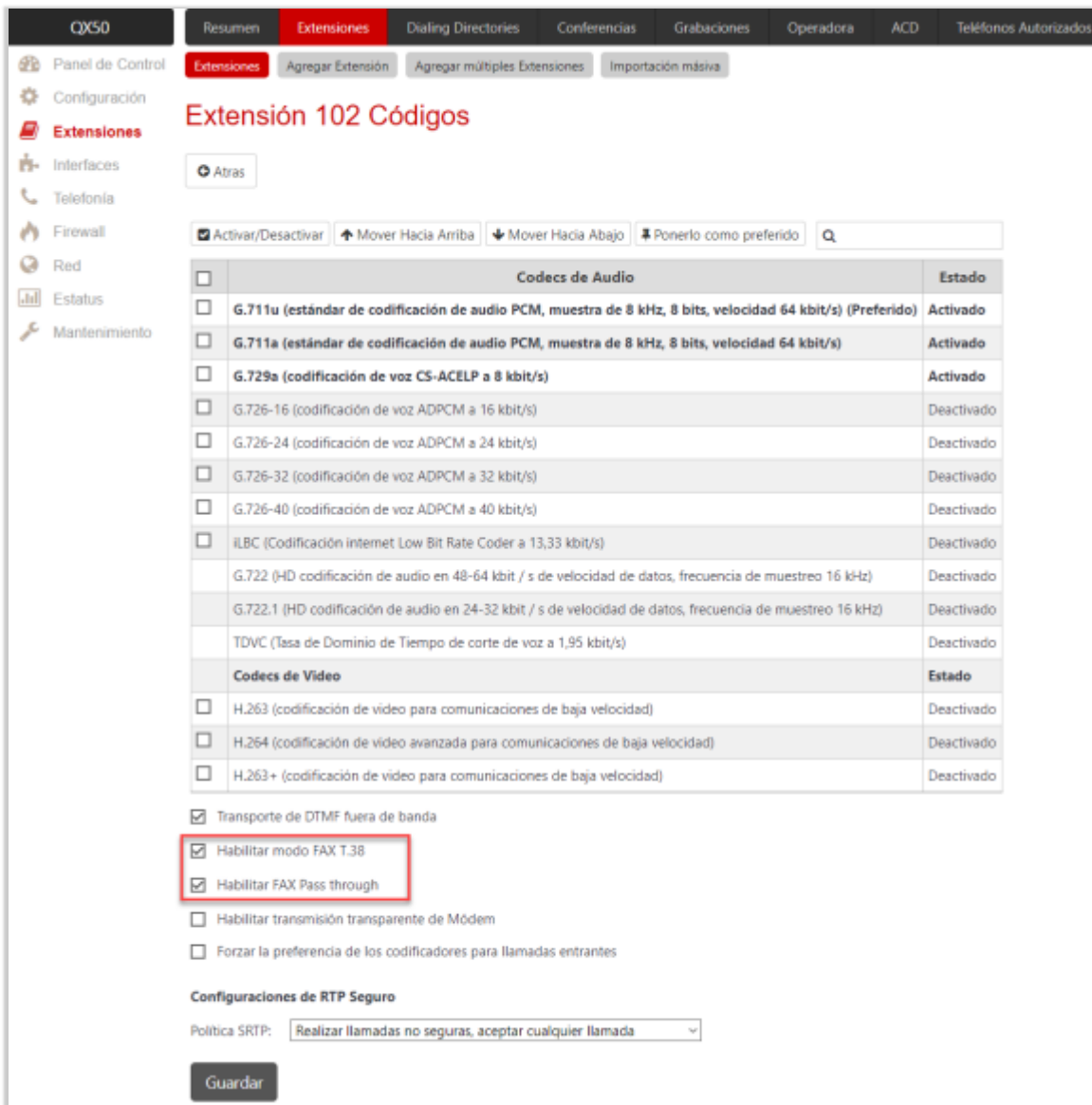
Figure 8: General Configuration hidden page

4.2 Sending and Receiving Faxes through the Adiptel

To send a FAX connect the FAX machine to one of FXS ports on IP PBX and enable **T.38 FAX** and **Enable Pass Through FAX** options in the codecs' list for the corresponding FXS extension (extension 102, FXS-2 in this example).

For receiving FAX from the **Adiptel** SIP trunks you can use an already created configuration through the VoIP Carrier Wizard. After the additional configuration steps described below you will receive FAX on the FAX machine attached to the FXS-2, extension 102:

1. Choose the **Extensions→Extensions Management** page.
2. On the **Extensions Management** page, click the **Codecs** link of the extension 102.
3. On the **Extension Codecs** page select the **Enable T.38 FAX** and **Enable Pass Through FAX** checkboxes.



Extensión 102 Códigos

☐ Activar/Desactivar

Codecs de Audio	Estado
<input type="checkbox"/> G.711u (estándar de codificación de audio PCM, muestra de 8 kHz, 8 bits, velocidad 64 kbit/s) (Preferido)	Activado
<input type="checkbox"/> G.711a (estándar de codificación de audio PCM, muestra de 8 kHz, 8 bits, velocidad 64 kbit/s)	Activado
<input type="checkbox"/> G.729a (codificación de voz CS-ACELP a 8 kbit/s)	Activado
<input type="checkbox"/> G.726-16 (codificación de voz ADPCM a 16 kbit/s)	Deactivado
<input type="checkbox"/> G.726-24 (codificación de voz ADPCM a 24 kbit/s)	Deactivado
<input type="checkbox"/> G.726-32 (codificación de voz ADPCM a 32 kbit/s)	Deactivado
<input type="checkbox"/> G.726-40 (codificación de voz ADPCM a 40 kbit/s)	Deactivado
<input type="checkbox"/> iLBC (Codificación internet Low Bit Rate Coder a 13,33 kbit/s)	Deactivado
G.722 (HD codificación de audio en 48-64 kbit / s de velocidad de datos, frecuencia de muestreo 16 kHz)	Deactivado
G.722.1 (HD codificación de audio en 24-32 kbit / s de velocidad de datos, frecuencia de muestreo 16 kHz)	Deactivado
TDVC (Tasa de Dominio de Tiempo de corte de voz a 1,95 kbit/s)	Deactivado
Codecs de Video	Estado
<input type="checkbox"/> H.263 (codificación de video para comunicaciones de baja velocidad)	Deactivado
<input type="checkbox"/> H.264 (codificación de video avanzada para comunicaciones de baja velocidad)	Deactivado
<input type="checkbox"/> H.263+ (codificación de video para comunicaciones de baja velocidad)	Deactivado

☒ Transporte de DTMF fuera de banda

☒ Habilitar modo FAX T.38

☒ Habilitar FAX Pass through

☐ Habilitar transmisión transparente de Módem

☐ Forzar la preferencia de los codificadores para llamadas entrantes

Configuraciones de RTP Seguro

Política SRTP:

Figure 9: Codecs page for extension 102

These are the configuration options for receiving FAX on the QX:

- Incoming calls are routed directly to the extension with the FAX machine attached. A special DID number is dedicated for that extension in this case.
- Incoming calls are routed to the Auto Attendant with FAX forwarding enabled to the appropriate extension. Pressing **START** from the sending fax machine while listening to the Auto Attendant greeting message will forward the call to the predefined FAX extension that has the fax machine attached.

The QX also allows receiving FAX messages as a TIFF file into the extension's voice mailbox if there is no FAX machine attached to the extension. In this case, the following should be configured on that extension:

- The voice mail service should be enabled (default).
- Enough memory space should be allocated to the selected extension for storing incoming faxes.
- The **No answer timeout** should be set to its min value in the extension settings.
- The **Enable T.38 FAX** and **Enable Pass Through FAX** options for that extension should be enabled as well.

Note: In all scenarios, the **Enable T.38 FAX** and **Enable Pass Through FAX** checkboxes should be selected for the FAX extension.

5 References

Refer to the below listed recourses to get more details about the configuration settings used in this guide:

- Manual-II: Administration Guide for QX IP PBXs
- Manual-III: User Guide for QX IP PBXs
- User Rights Management on QX IP PBXs
- Preventing Unauthorized Calls on QX IP PBXs

Find the above listed documents on [Epygi Support Portal](#).

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