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## Configuring Quadro with ThinkTel

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Revision: 1.0

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

## Document Revision History

Revision	Date	Description	Valid for SW	Valid for models
1.0	5-Oct-2012	Initial release	5.3.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 ThinkTel SIP Server. The Quadro IP PBX is capable of making IP-PSTN calls via ThinkTel 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:

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

Customer:

- The customer will be making PSTN calls through ThinkTel 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 5.3.x or higher.

### 2.2 Account Information from ThinkTel

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

- Service Address: tor.trk.tprm.ca (sample)
- Account number: 4388998261, 4388998263 (samples)
- Telephone Number (DID): (+1) 4388998262, 4388998264 (samples)

## 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 ThinkTel SIP Server.
- Receive incoming calls through ThinkTel SIP Server.

### 3.1 Making Outgoing Calls through ThinkTel

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

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

Main System Users Conferences **Telephony** Internet Uplink Network

epgy  
quadrom

#### VoIP Carrier Wizard

Select VoIP Carrier

VoIP Carrier: Manual

Description: ThinkTel

Previous Next Cancel Help

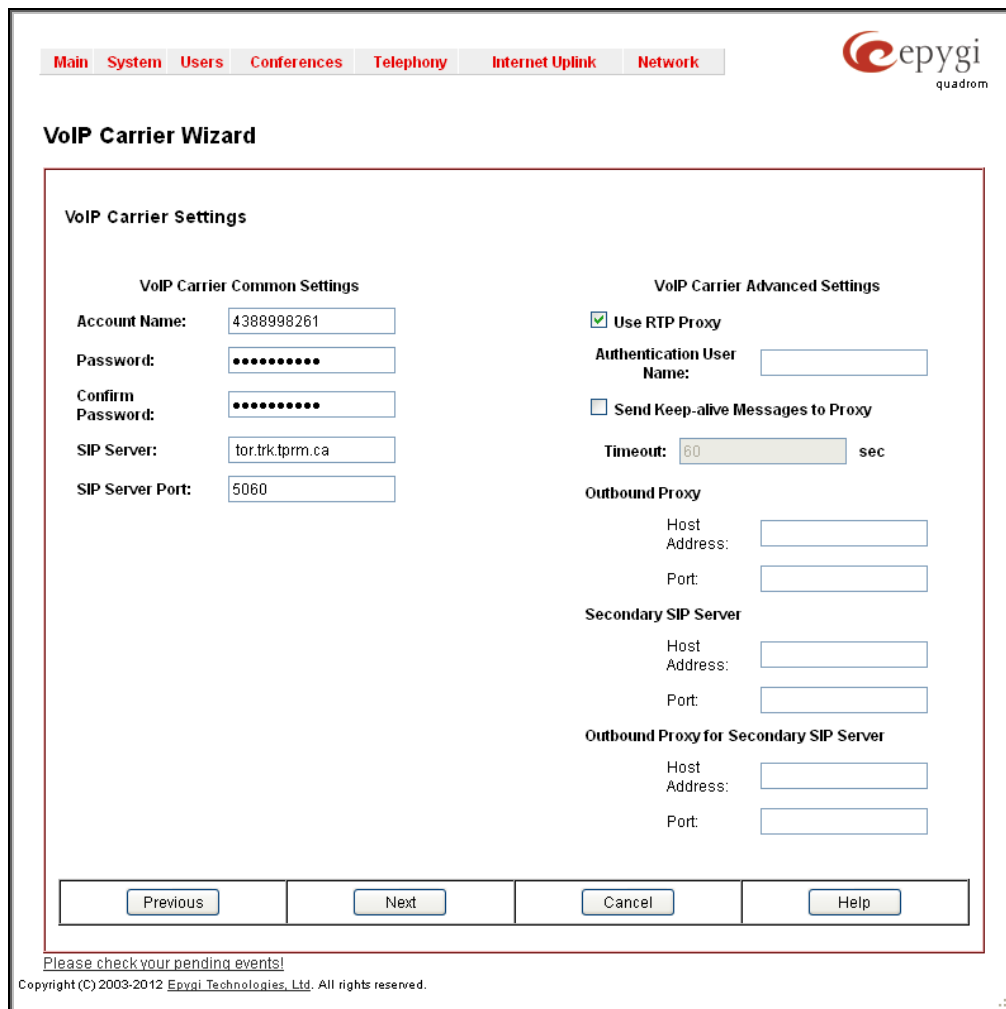
[Please check your pending events!](#)

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Figure 1- VoIP Carrier Wizard- Page 1

In the next opened page, enter the following parameters:

- **Account Name** – 4388998261;
- Put provided password in the **Password** and **Confirm Password** fields;
- **SIP Server** – tor.trk.tprm.ca;
- **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 ThinkTel SIP Server. Let's say it is 102 (you can also receive the incoming calls from ThinkTel 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).

Main System Users Conferences Telephony **Internet Uplink** Network

epygi  
quadrom

### VoIP Carrier Wizard

**VoIP Carrier Access Code**

Access code:

<input checked="" type="radio"/> By prefix:	01
<input type="radio"/> By pattern:	

Emergency Code: <sup>1</sup> 911

Route Incoming Calls to: 102

Failover to PSTN

Previous Next Cancel Help

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: ThinkTel

**VoIP Carrier Common Settings**

Account Name: 4388998261  
 SIP Server: tor.trk.tprm.ca  
 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

Buttons: 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 on the automatically created extension 999, and you can make outgoing calls through ThinkTel SIP Server using 01 prefix (appropriate **Call Routing rule** with **01\*** pattern is also 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	Extension	NDS	Description	PBX	URP	UES	DT		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2	Enabled	911	E1/T1 trunk: E1/T1 Trunk1, Timeslots: 1-15,17-31	Any	No	*	10	Emergency Call
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3	Enabled	9?*	E1/T1 trunk: E1/T1 Trunk1, Timeslots: 1-15,17-31	Any	No	*	10	Make PSTN Call
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4	Enabled	8*	SIP sip.epygi.com	None	No		10	Make SIP call
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5	Enabled	00	PBX	None	No		10	Call To Attendant
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6	Enabled	???	PBX	None	No		10	Call to Extensions
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7	Enabled	01*	IP-PSTN tor.trk.tprm.ca:5060, RNSC: No	None	No	*	10	ThinkTel

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

Buttons: Back, Help

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



## 3.2 Receiving Inbound Calls from ThinkTel

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

The screenshot shows the 'Unconditional Call Forwarding' configuration page for extension 999. The page is titled 'Caller ID Based Services for Any Address' and 'Extension: 999'. The main configuration area includes the following options:

- Enable Service
- Enable/Disable Add Edit Delete Select all Inverse Selection

	State	Forward to
<input type="checkbox"/>	Enabled	PBX-102

- Send Notification Via SMS
  - Mobile Number
- Send E-mail
  - E-mail Address
- Toggle from Handset

Buttons: Save, Back, Help

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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 in the Epygi Quadro web interface. The page is divided into several sections:

- General Configuration:** Contains various timeout and cache settings.
 

Max Number of Records in DB cache	32	recs
DNS cache MAX size	32	recs
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
Play user friendly voice messages instead of tones	default	
- IP phones settings:**

SIP registration timeout	3600	sec
SIP subscription timeout	3600	sec
SIP session refresh timeout	600	sec
- Templates for Caller ID:**

IP call	%a	(%a%d%u%h)
PBX call	%a	(%a%d%u)
PSTN call	%a	(%a%d%u)
- Presence:**

Subscription limitation	140	
-------------------------	-----	--
- Checkboxes:**
  - Accept stray SIP requests
  - Change SIP Error Code to Busy Here
  - Ignore To header in incoming SIP INVITE requests
  - Use Rport
  - Enable IP Loop
  - Force Hold Music
  - Do Not Send External RE-INVITE
  - Do Not Send REFER
  - Callback through Routing
- VM Settings:**
  - Enable VM silence disconnect
  - Disconnect timeout: 5

At the bottom, there are 'Save', 'Back', and 'Help' buttons, along with a warning: 'Please check your pending events!'. A copyright notice for Epygi Technologies Ltd. is also present.

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 ThinkTel

To send a FAX connect the FAX machine to one of FXS ports and enable **T.38 FAX** and **Enable Pass Through FAX** options in the codec's list for the corresponding extension (see Figure 10).

For receiving FAX from ThinkTel you can use the configuration already created during the VoIP Carrier Wizard. After the additional configuration steps described below you will receive FAX on the FAX machine attached to 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	Display Name	Attached Line	SIP Address	Percentage of System Memory	External Access	Codecs
<input type="checkbox"/> 00	Attendant		00	5% (17 min 59 sec)		PCMU ...
<input type="checkbox"/> 101		Line 1	70165101@sip.epygi.loc:5060	5% (17 min 59 sec)	None	PCMU ...
<input type="checkbox"/> 102	FAX	Line 2	438898262@sip.epygi.loc:5060	5% (17 min 59 sec)	None	PCMU ...
<input type="checkbox"/> 103	Snom320	IP Line 1	70165103@sip.epygi.loc:5060	0.4% (1 min 26 sec)	None	PCMU ...
<input type="checkbox"/> 104		IP Line 2	70165104@sip.epygi.loc:5060	0.4% (1 min 26 sec)	None	PCMU ...
<input type="checkbox"/> 105		IP Line 3	70165105@sip.epygi.loc:5060	0.4% (1 min 26 sec)	None	PCMU ...
<input type="checkbox"/> 106		IP Line 4	106	0.4% (1 min 26 sec)	None	PCMU ...
<input type="checkbox"/> 107		IP Line 5	107	0.4% (1 min 26 sec)	None	PCMU ...

Upload Universal Extension Recordings

Add Multiple Extensions

Please check your pending events!

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Figure 9- Extension Management page

**Extension 102 Codecs**

Enable/Disable Select all Inverse Selection Move Up Move Down Make preferred

Audio Codecs	State
<input type="checkbox"/> G.729a (CS-ACELP speech coding at 8 kbit/s rate) (preferred)	Enabled
<input type="checkbox"/> iLBC (internet Low Bit Rate Coder at 13,33 kbit/s rate)	Enabled
<input type="checkbox"/> G.711u (PCM audio coding standard, 8 kHz sample rate, 8 bits, 64 kbit/s data rate)	Enabled
<input type="checkbox"/> G.711a (PCM audio coding standard, 8 kHz sample rate, 8 bits, 64 kbit/s data rate)	Enabled
<input type="checkbox"/> G.726-16 (ADPCM speech coding at 16 kbit/s rate)	Enabled
<input type="checkbox"/> G.726-24 (ADPCM speech coding at 24 kbit/s rate)	Enabled
<input type="checkbox"/> G.726-32 (ADPCM speech coding at 32 kbit/s rate)	Enabled
<input type="checkbox"/> 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
Video Codecs	State
<input type="checkbox"/> H.263 (Video coding for low bit rate communication) (preferred)	Enabled
<input type="checkbox"/> H.264 (Advanced video coding for low bit rate communication)	Enabled
<input type="checkbox"/> 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:

Figure 10- Codecs page for extension 102

These are another configuration options for receiving FAX messages on the Quadro:

- Incoming calls are routed directly to the extension with 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 on Auto Attendant greeting message will forward call to the predefined FAX extension;

Quadro allows receiving FAX messages as a TIFF file into the extension's voice mailbox in case 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;
- Enough memory space should be allocated for storing incoming faxes;
- The **No answer timeout** should be set to it's min value of 5 sec;
- The **Enable T.38 FAX** and **Enable Pass Through FAX** services for that extension should enable as well.

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

## 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
- Receiving Unified FAX Messages on the Quadro
- User Access Privileges on the Quadro
- Quadro with generic IP-PSTN service

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