Spectrum ENTERPRISE

Spectrum Enterprise SIP Trunking Service
Epygi QX
IP PBX Configuration Guide

About Spectrum Enterprise:

Spectrum Enterprise is a division of Charter Communications following a merger with Time Warner Cable and acquisition of Bright House Networks. Spectrum Enterprise is a national provider of scalable, fiber technology solutions. The Spectrum Enterprise portfolio includes networking and managed services solutions, including Internet access, Ethernet and Managed Network Services, Voice, TV and Cloud solutions. Our industry-leading team of experts works closely with clients to achieve greater business success.

About this document:

Spectrum Enterprise assures IP PBX compatibility by conducting interoperability testing to ensure any potential compatibility issues have been resolved prior to installation. Please review the IP PBX configuration instructions in this guide prior to your installation date.

Be advised that this document may contain references to Time Warner Cable Business Class. All references to Time Warner Cable Business Class, TWCBC or TWC should be read as Spectrum Enterprise.

Thank you,

Spectrum Enterprise

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Configuring Epygi QX IP PBX with Time Warner Cable

Abstract: This document describes the configuration of the Epygi QX IP PBXs with the SIP trunking service from Time Warner Cable.

Document Revision History

Revision	Date	Description	Valid for FW	Valid for Models
1.0	14-Jan-16	Initial release	6.1.x and higher	QX IP PBXs

Table of Contents

1 Introduction

This document describes the configuration of the Epygi QX IP PBX (herein QX) to use the SIP trunking service from Time Warner Cable (herein TWC). The QX is capable of making IP-PSTN calls via the TWC SIP server. This solution allows QX users to make cost-saving calls to the PSTN.

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

2 Scenario

Provider: TWC Business Class SIP Trunks

- offers outbound and inbound calls
- allows parallel outbound calls to be made from one account
- allows parallel calls to be received to one account

Customer:

- The customer will be making PSTN calls through TWC Business Class SIP trunks.

3 Requirements and Preparations

- The QX is connected to the network and all network settings are properly configured.
- The QX is running software 6.1.x and higher.

3.1 Account Information from TWC

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

• SIP Server	107.14.112.5
• Signaling port for the Time Warner SIP Server	5060
• User name	19802651176
• Telephone Number(s) (DIDs allocated to the customer)	981-266-1176 to 1185

4 Configuration

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

- Make outgoing calls through the TWC SIP Server.
- Receive incoming calls through the TWC SIP Server.

4.1 Configuration for Making Outgoing Calls through TWC

Create a new extension on the QX and configure it with the TWC SIP Server as follows:

1. Go to the **Telephony→VoIP Carrier Wizard** page, pass through the wizard and enter the following parameters:
   - Select **Manual** for VoIP Carrier.
   - Insert a **Description** if desired (Figure 1).

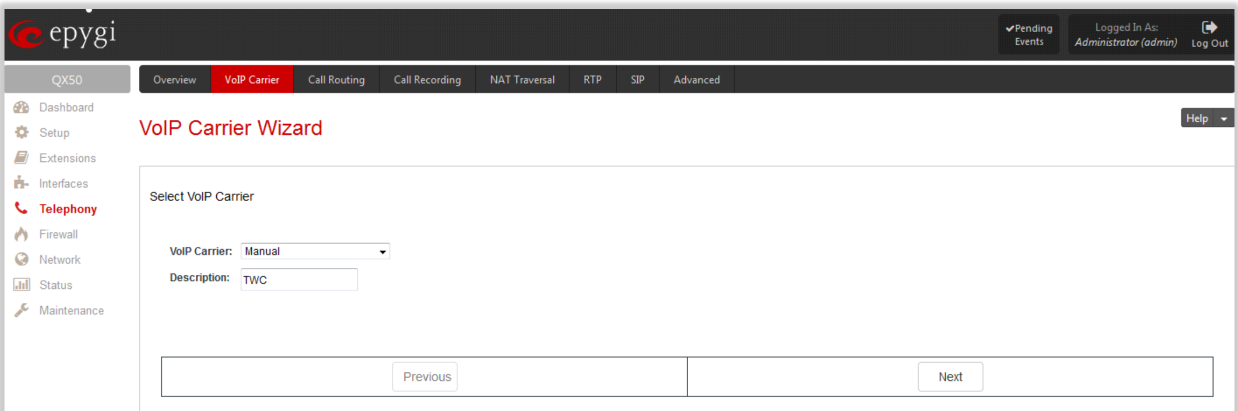

Figure 1: VoIP Carrier Wizard- Page 1

2. Insert the following parameters in the next page:
   - **Account Name** – 19802651176
   - **Password**
   - **SIP Server**–107.14.112.5
   - **SIP Server Port** – 5060 (Figure 2).

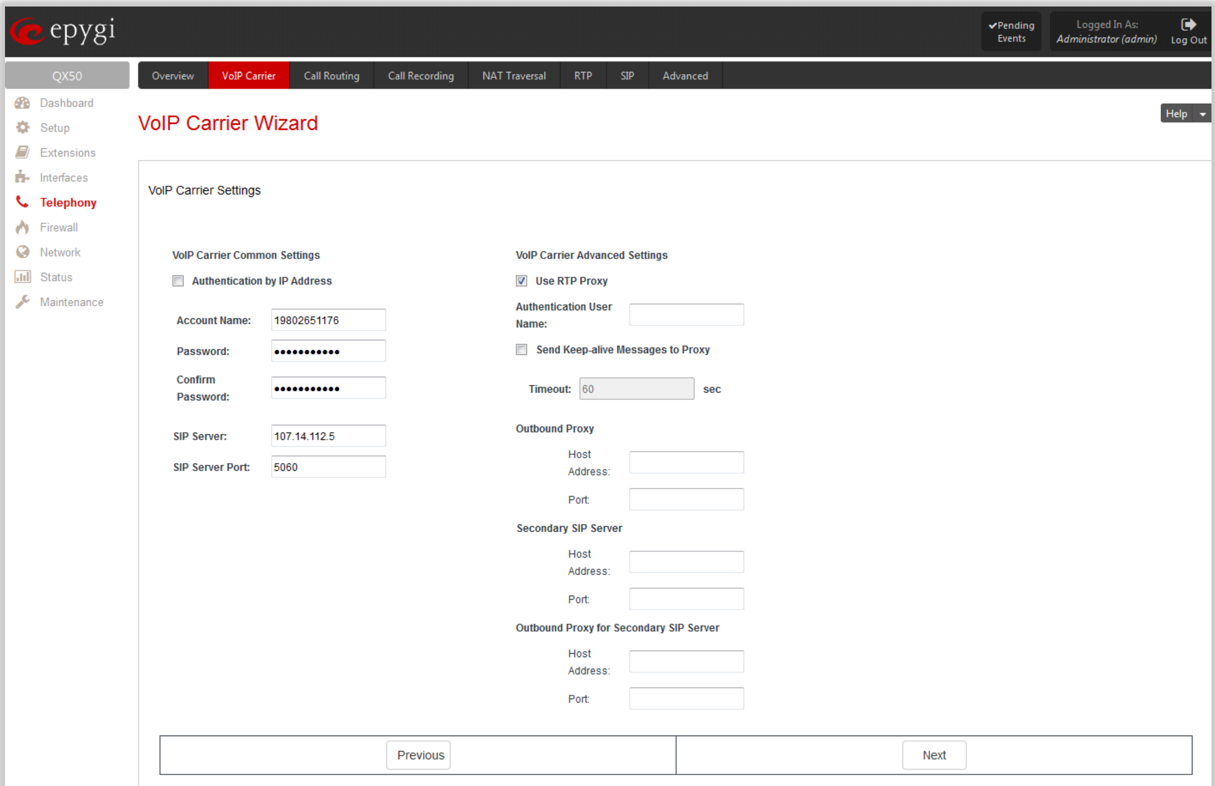

Figure 2: VoIP Carrier Wizard- Page 2

3. Define the **Access Code** which will be used in the Call Routing Table for calling through TWC. Let's say it is **9**. Also, define the extension that will receive incoming calls from TWC to the main number. Let's say it is Auto Attendant extension 00.
   - **Access Code** - 9
   - **Emergency Code** – 911 if emergency calls will be sent to TWC
   - **Route Incoming Calls to** – 00 (Figure 3).

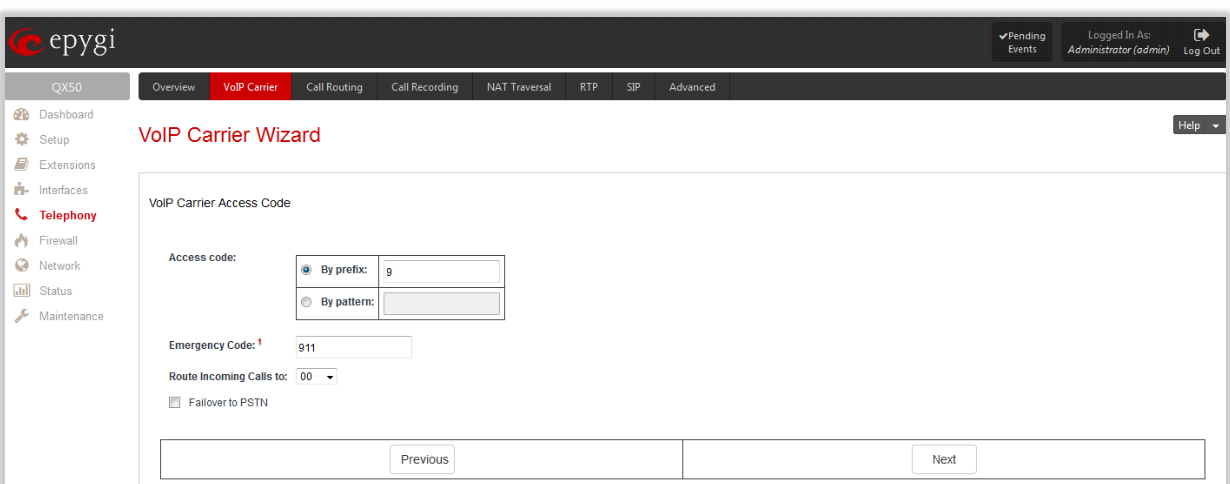

Figure 3: VoIP Carrier Wizard- Page 3

Enable **Failover to PSTN** service if you want outbound calls to failover to the onboard FXO line.

4. Confirm entered settings on the last page of the VoIP Carrier Wizard page and press **Finish** (**Error! Reference ource not found.**).

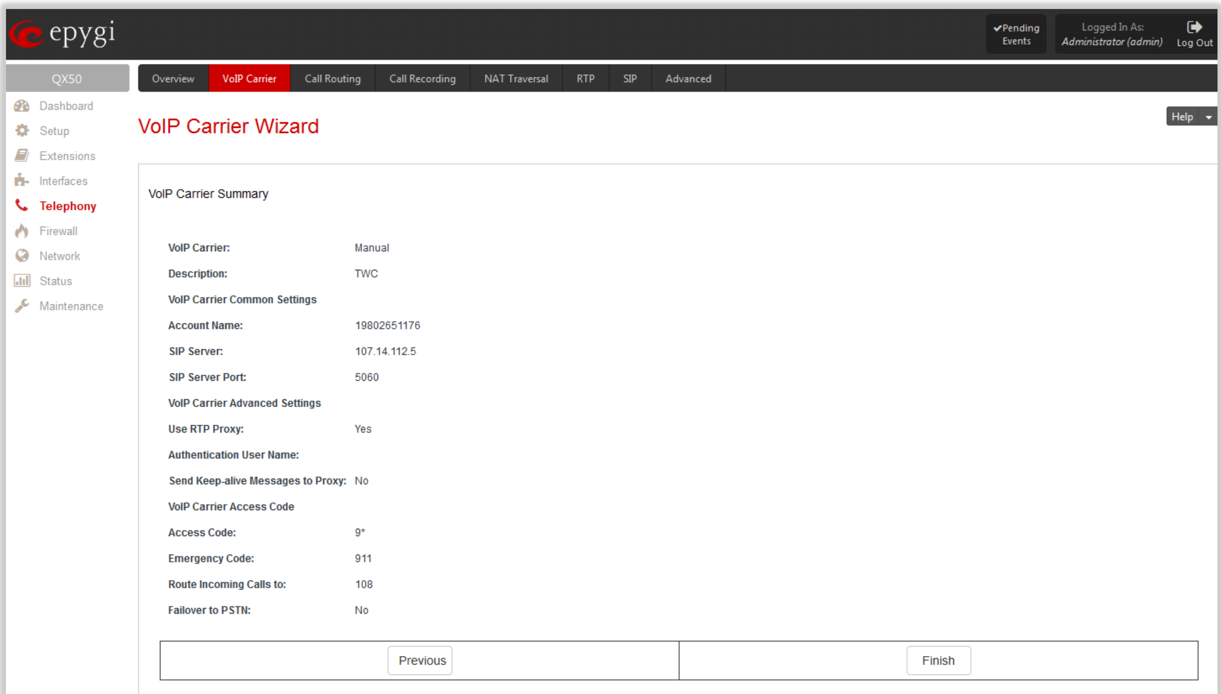

Figure 4: VoIP Carrier Wizard- Page 4

Now the provided account is configured, and you can make outgoing calls through TWC using the prefix code of 9 (appropriate Call Routing rule with 9* pattern is automatically added on the Call Routing table – **Error! Reference ource not found.**).

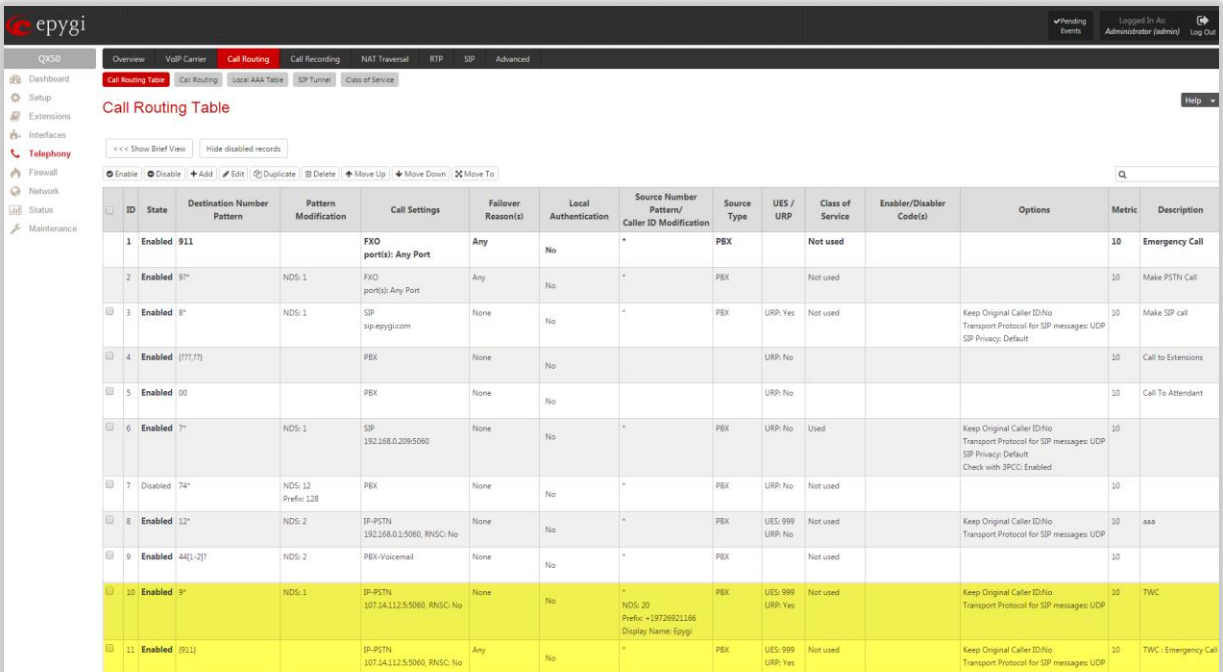

Figure 5: Call Routing Table page

How the rule works: The system will route all calls matching the pattern 9* (9 followed by a string of digits) to the TWC SIP Server.

4.2 Configuration for Receiving Inbound Calls from TWC

There are a couple of ways to allow incoming calls to be received from the TWC SIP Server.

1. One is already done. For receiving incoming calls from the TWC SIP Server, you already created the needed configuration during the **VoIP Carrier Wizard**, so now you can receive all incoming calls to the main DID number 19802651176 to extension 00, which is the system Auto Attendant (Figure 6).

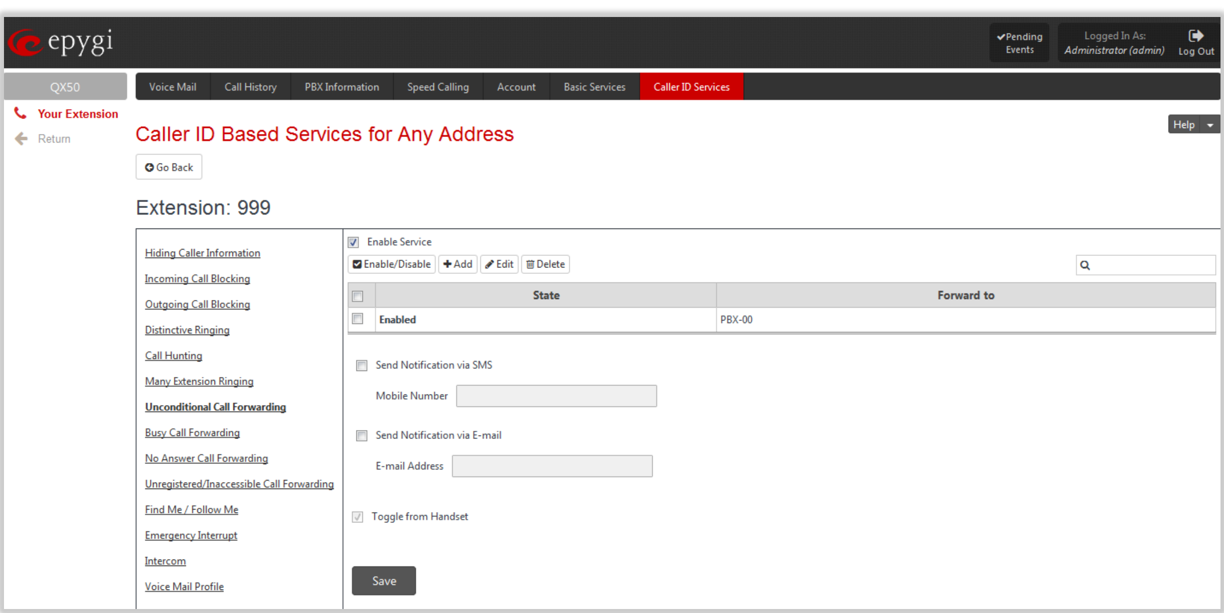

Figure 6: Unconditional Call Forwarding page

2. The second option can be used when a range of DIDs is allocated and provided to the customer. To use this option, the QX admin must create call routing rules to route incoming calls to different extensions for each provided DID number or to the same extension.

   In the example below a call routing rule is created to match the 9802651180 DID number and ring extension 110 in case of incoming call from the TWC SIP server.

Go to the **Telephony→Call Routing** page and press **Add** to add an appropriate rule to the Call Routing.

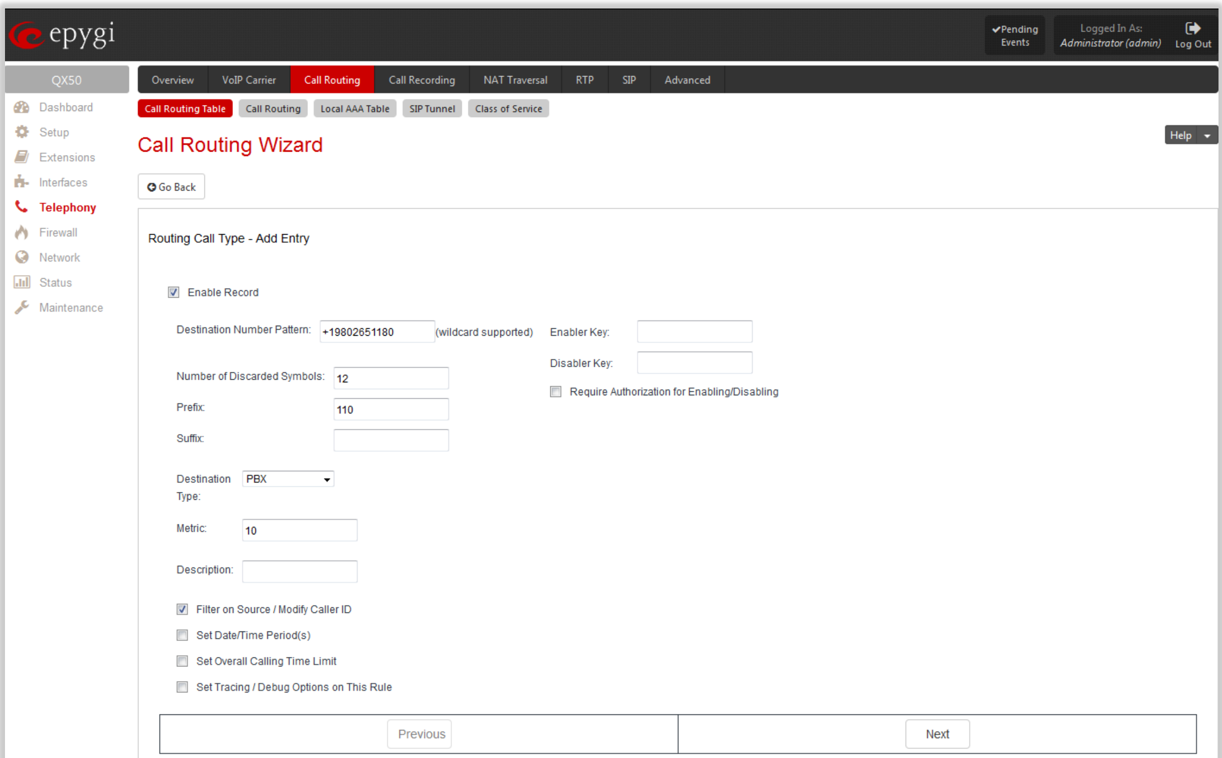

Figure 7: Call Routing Wizard page

Insert the following settings.

- **Destination Number Pattern** – +19802651180 for our example

  Note1: TWC uses the E.164 format, which requires the "+1" prefix for the DID.

  Note2: Example to include a range of DIDs: +198026511{76-85}

- **Number of Discarded Symbols** – 12 (all digits in the incoming DID number need to be discarded)
- **Prefix** – enter the extension number the call should be routed to as a prefix (in our case it is 110).
- **Destination Type** - PBX
- Disable **Filter on Source/Modify Caller ID** service and press **Next**.
- Proceed to the end of the Call Routing Wizard by leaving other settings unchanged and finish the wizard.

Now the Epygi can receive incoming calls from the TWC SIP Services directly to extension 110. Summarizing, to create separate rules for each DID number you just need to put the appropriate DID number in the **Destination Number Pattern** field and discard 12 digits.

How the rule works: Inbound calls matching the pattern '+19802651180' will be forwarded to extension 110.

5 Additional Notes

5.1 Modifying Caller Id for Outgoing Calls

TWC allows the outbound Caller Id to be modified. In the outgoing SIP Invite message TWC needs to see a known number in the P-Preferred field using the globalized E.164 format (+1 and 10 digits) in order for outbound calls to be allowed. Epygi does support this and it is enabled in the outgoing call routing entry as follows:

1. Go to **Telephony→Call Routing** page, select the outgoing Call Routing entry and press **Edit**. The **Call Routing Wizard** appears.
2. Enable the **Filter on Source/Modify Caller ID** option and press **Next** (Figure 8).

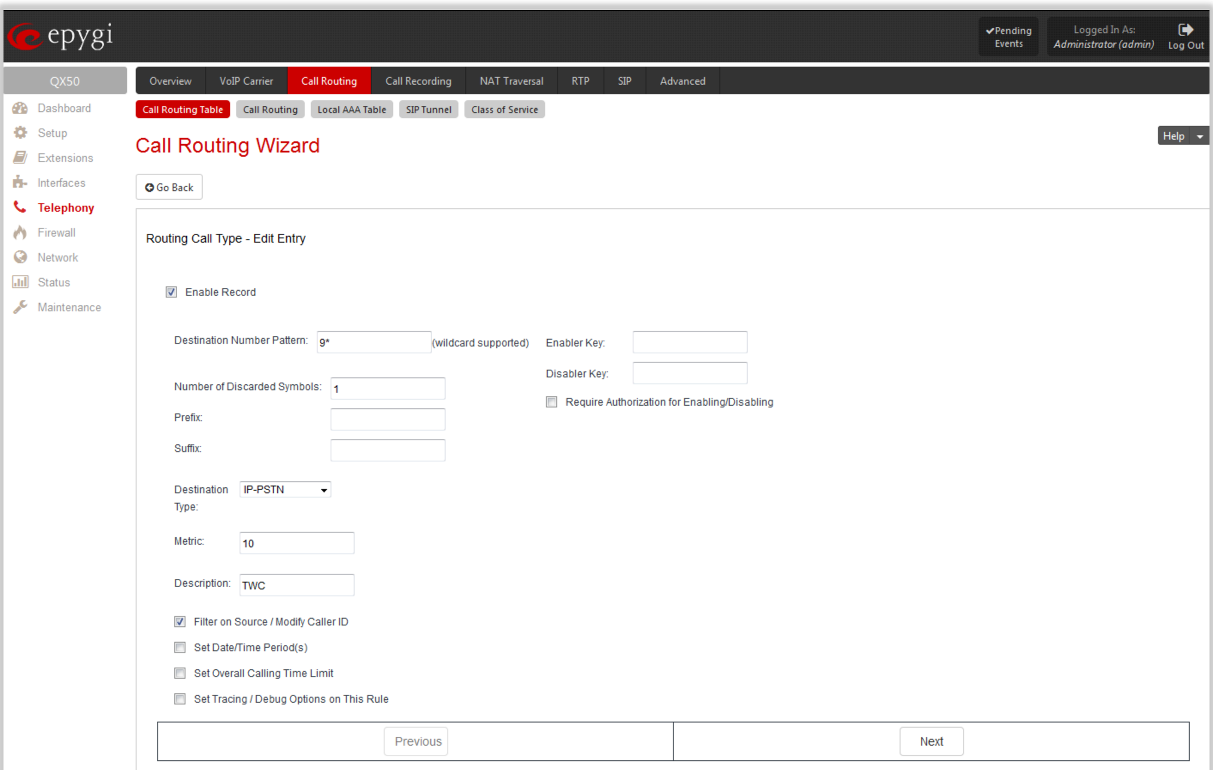

Figure 8: Call Routing Wizard page

3. Enable the option **Add Remote Party ID** on the next appeared page (Figure 9).

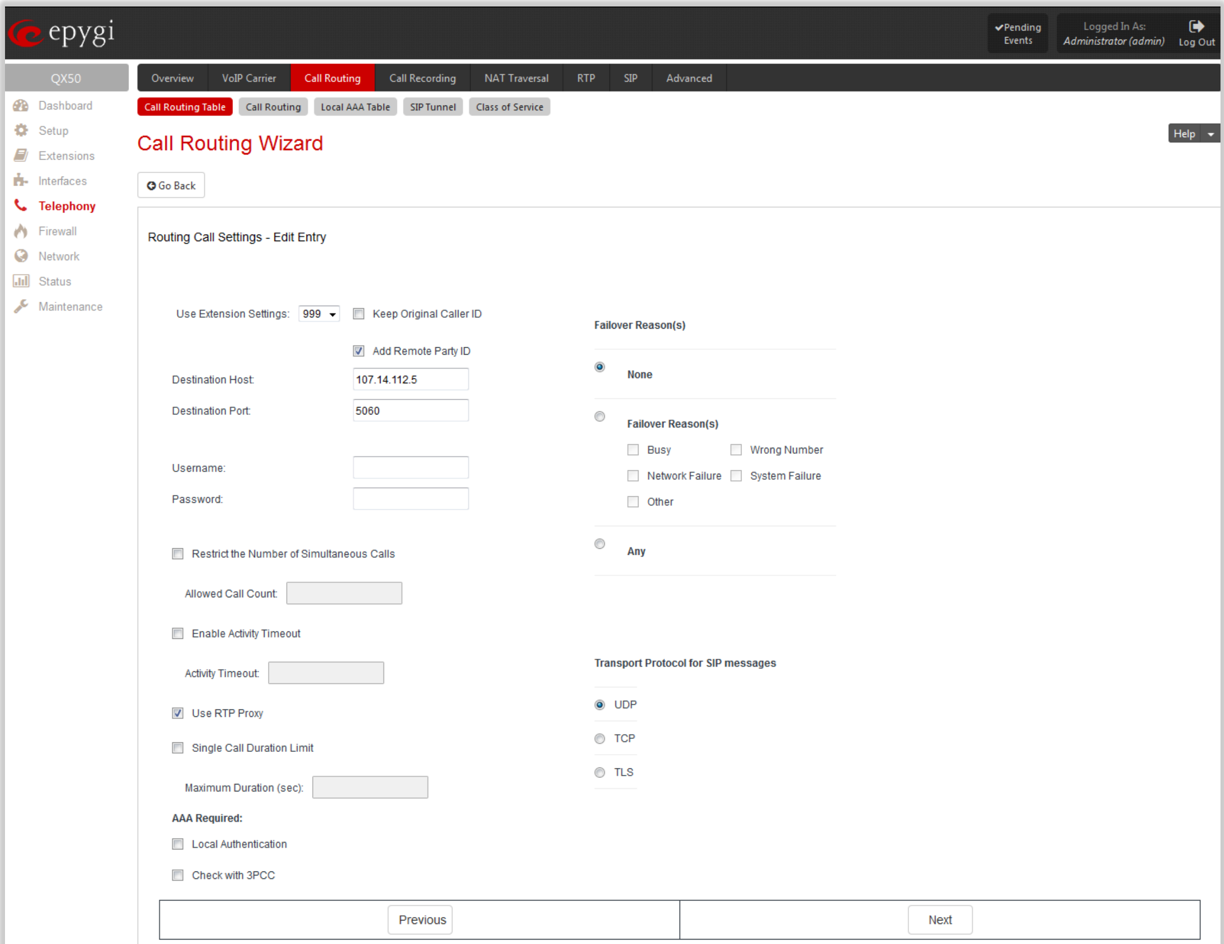

Figure 9: Call Routing Wizard page

4. Enter the following parameters on the next appeared page (Figure 1):
   - **Source Number Pattern** – *
   - **Source Type** – PBX
   - **Number of Discarded Symbols** – 20
   - **Prefix** – +19726921166 (new Caller ID number)
   - **Display Name** – Epygi (new Caller ID name)

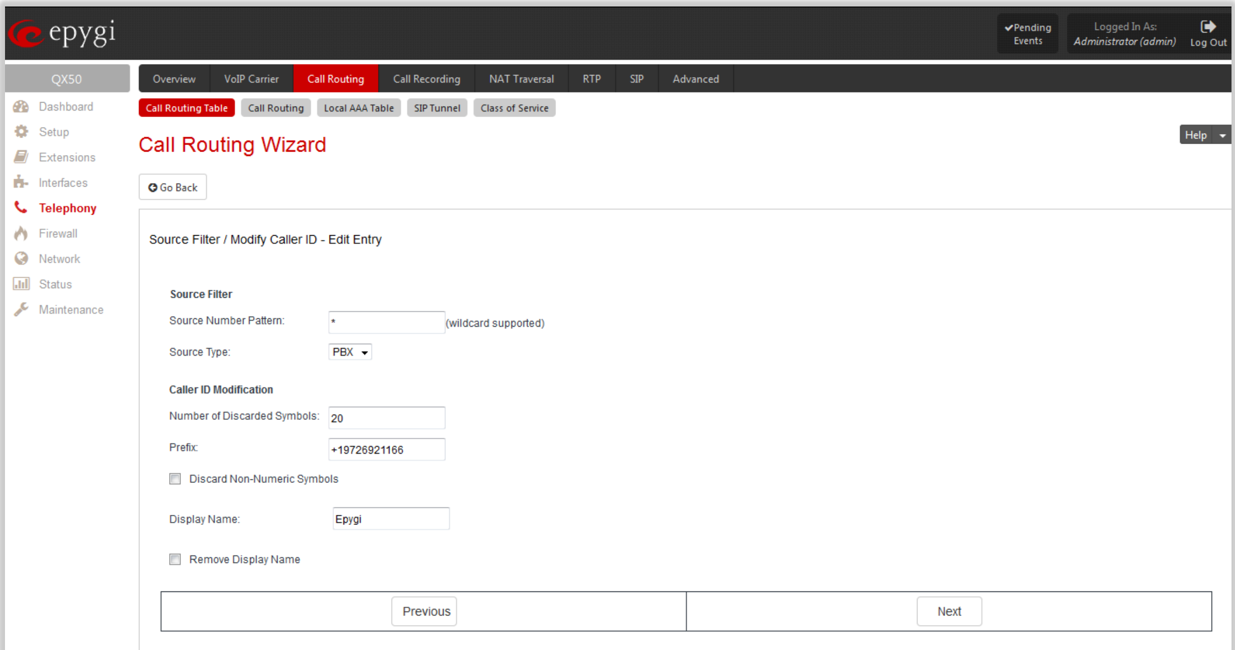

Figure 10: Call Routing Wizard page

- Press **Next** and finish the settings.

Outgoing calls will now have the new outgoing Caller ID.

5.2 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 Epygi, 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. Log into the Epygi as an extension user.
2. Open the **Supplementary Services→Basic Services→Hold Music Settings** page (Figure 11).
3. Select the **Send Hold Music to remote IP party** checkbox and press **Save**.

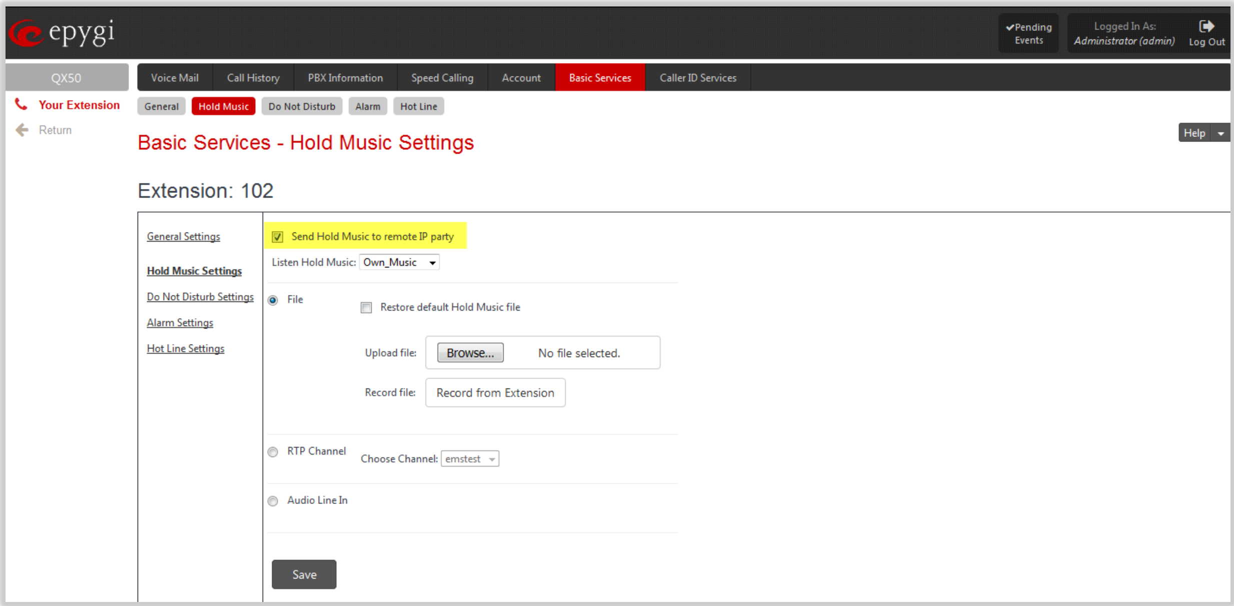

Figure 11: Basic Services – Hold Music Settings page

If the Epygi 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. Log into the Epygi as an administrator.
2. Type “generalconfig.cgi” in the address field of the browser to open the **General Configuration** page (Figure 12).
3. On this page, select the **Force Hold Music** checkbox and press **Save**.

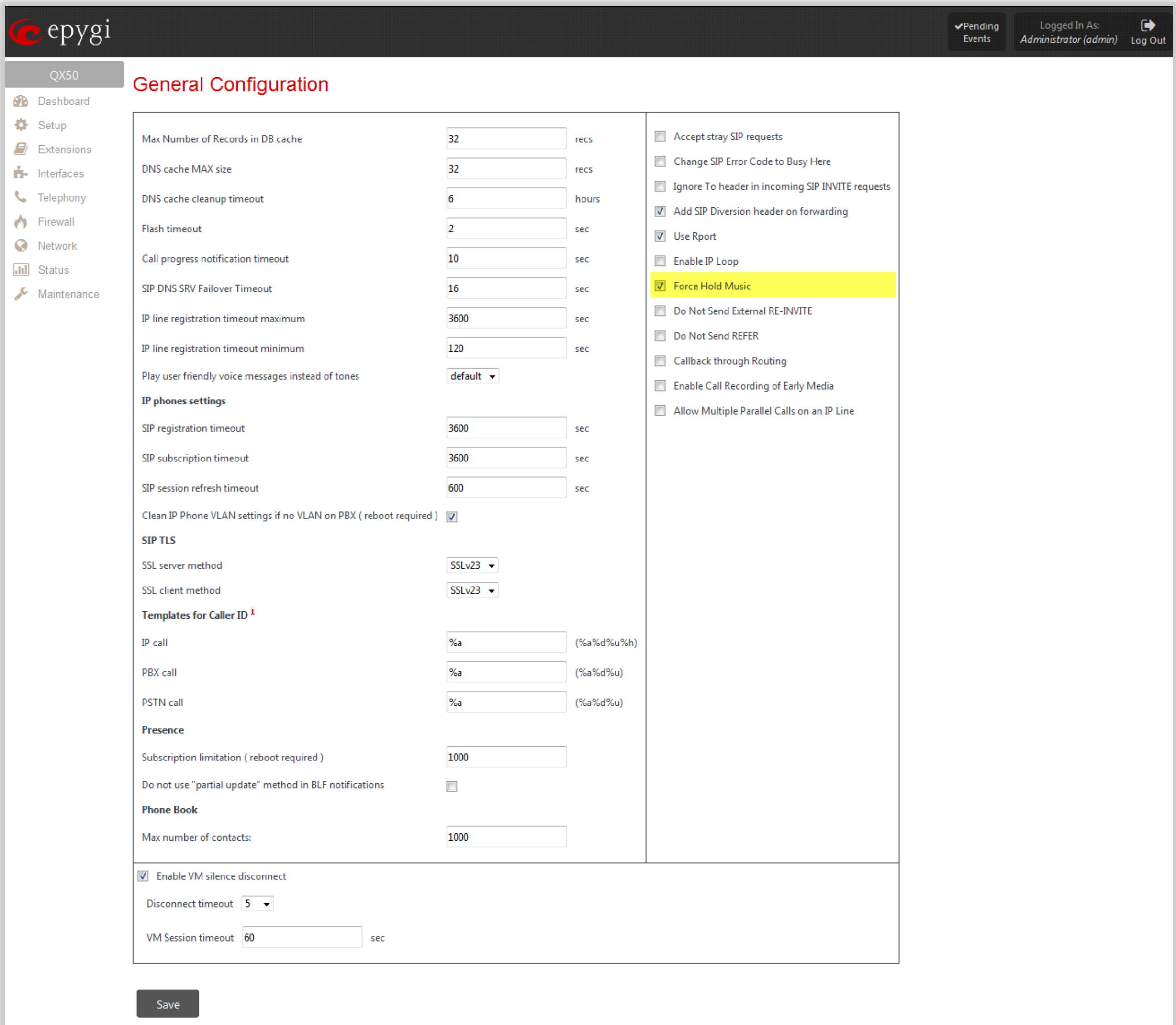

Figure 12: General Configuration page

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

4.3 Sending and Receiving Faxes through the TWC

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 codecs' list for the corresponding extension.

For receiving FAX from the TWC SIP Server 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 **Extensions→Extensions Management** page (Figure 13).
2. On the **Extensions Management** page, click on 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 (Figure 14).

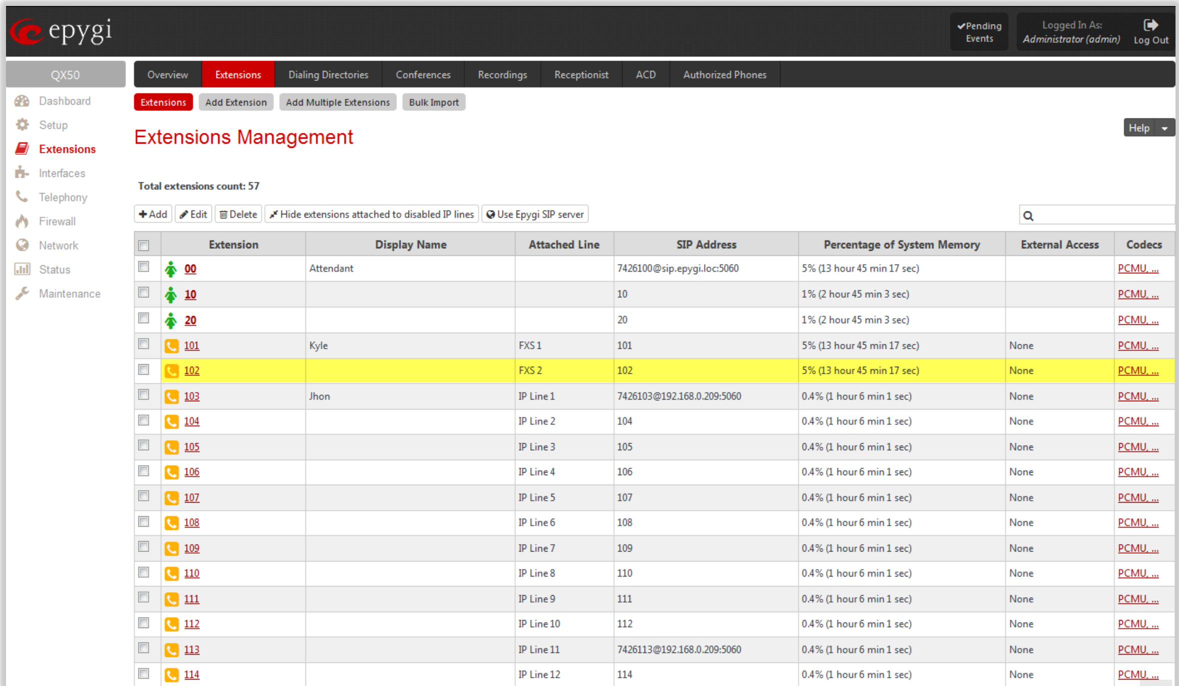

Figure 13: Extension Management page

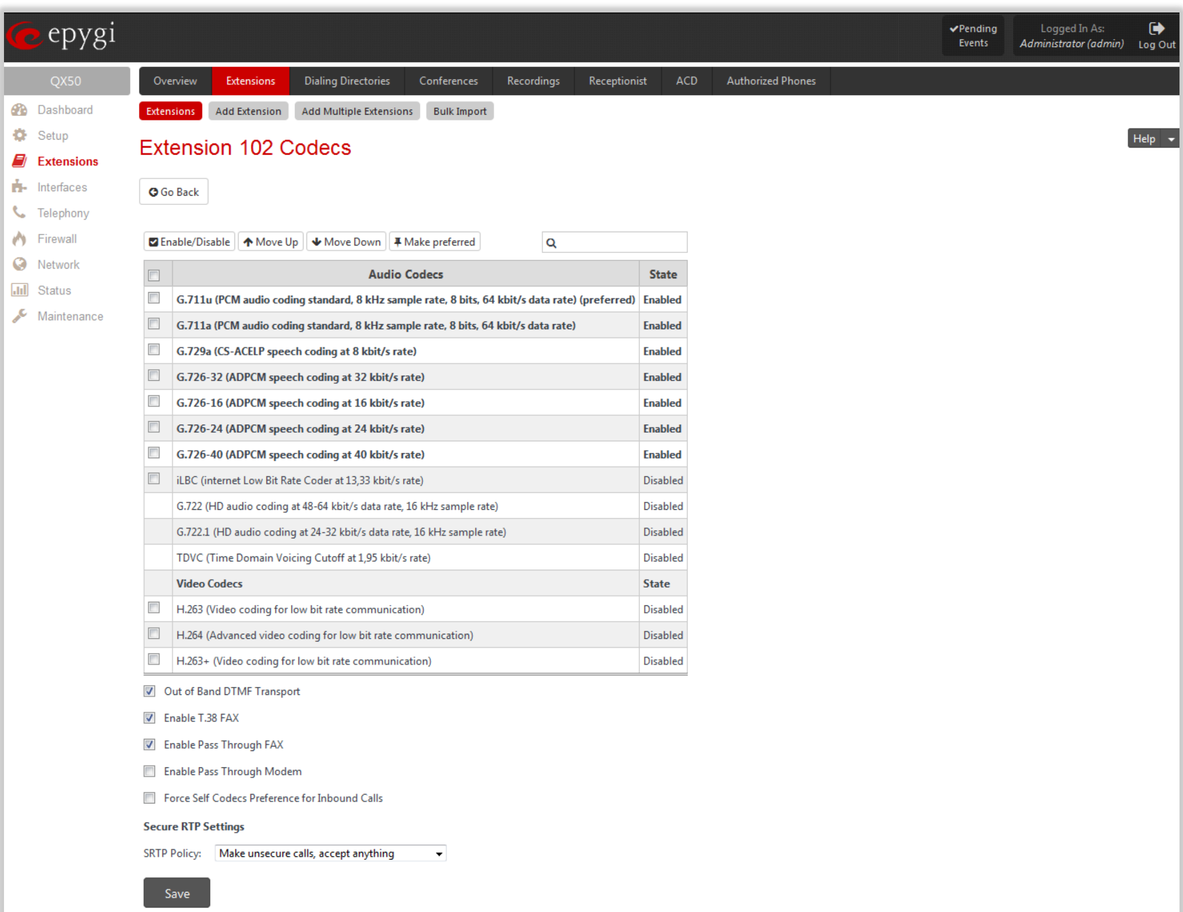

Figure 14: Codecs page for extension 102

There are configuration options for receiving FAXes on the Epygi:

- 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;

Epygi 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;
- Enough memory space should be allocated for storing incoming faxes;
- The **No answer timeout** should be set to its min value;
- The **Enable T.38 FAX** and **Enable Pass Through FAX** services for that extension should be enabled 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.

6 References

The following documents can be helpful for further configuration of the Epygi IP PBX. They can be downloaded from Epygi's WEB portal at www.epygi.com:

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