PaloSanto Solutions
OPEN SOURCE INNOVATION

SANGOMA

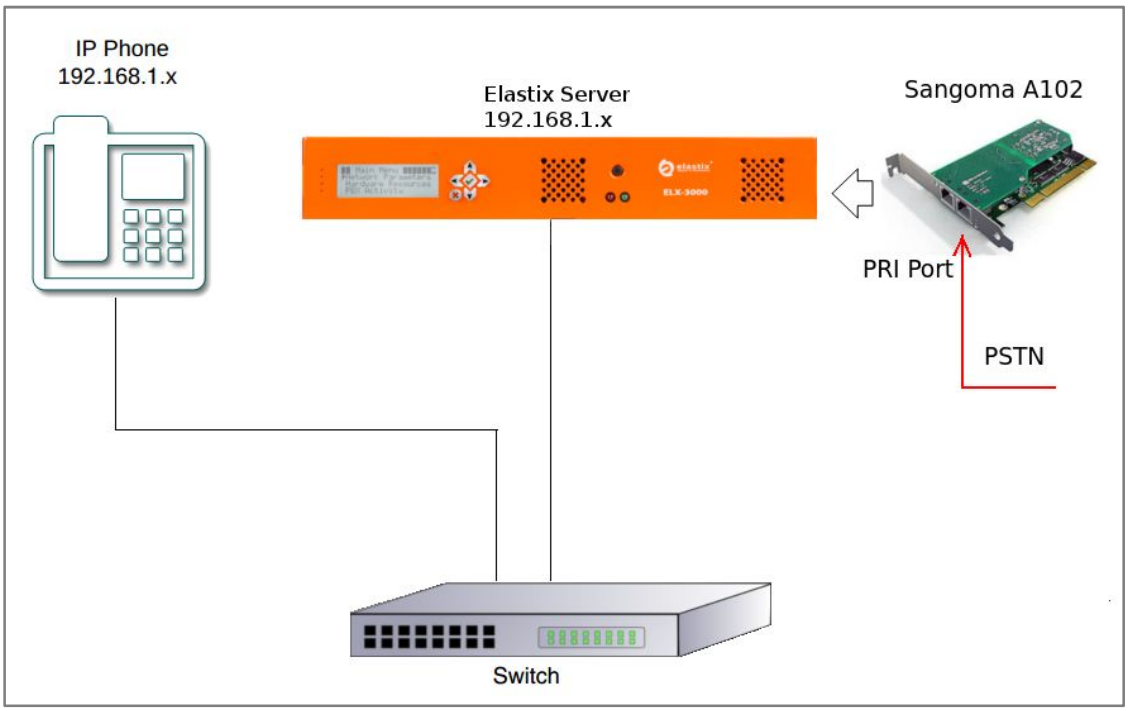
# Sangoma A102 and Elastix Server

## Setup Guide

# 1.0 Setup Diagram

Figure 1-1 is a setup diagram for a single Sangoma A102 Interface Card configuration.

**Figure 1-1. Setup Diagram**




# 2.0 Host PC Environment

**Table 2-1. Host Server Environment Details**

| | Description |
|---|---|
| Hardware Type | Elastix Appliance ELX-Series |
| Hardware Version | ELX-3000 |
| Software Type | Elastix |
| Software Version | 2.3 |

# 3.0 Test Setup Equipment

**Table 3-1. Test Setup Equipment**

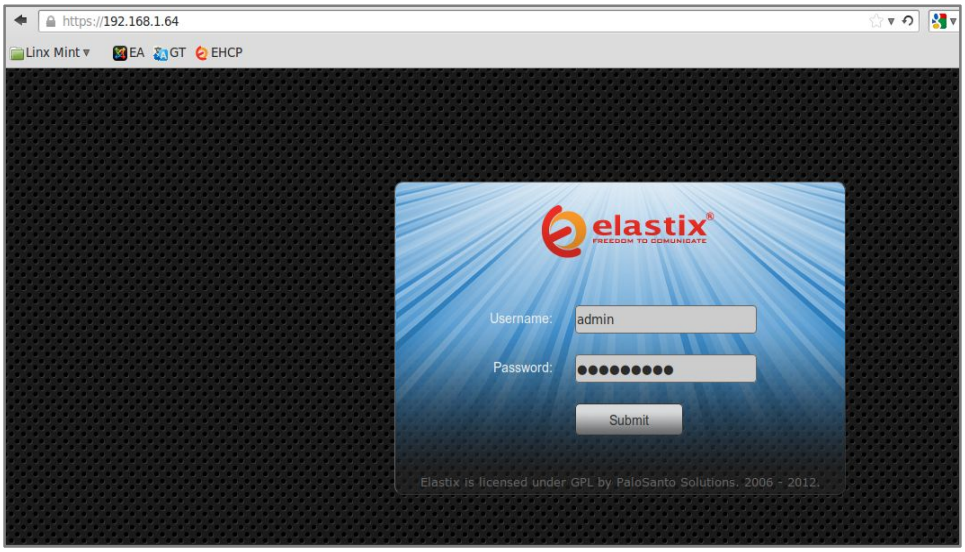
| Equipment | Model | Version |
|---|---|---|
| IP (SIP) Phone | N/A | N/A |
| Sangoma | A102 | wanpipe-util-3.5.25-0 |
| Switch | N/A | N/A |

# 4.0 Setup Procedure

**To set up the Elastix Server for the Sangoma A102 Interface Card,**

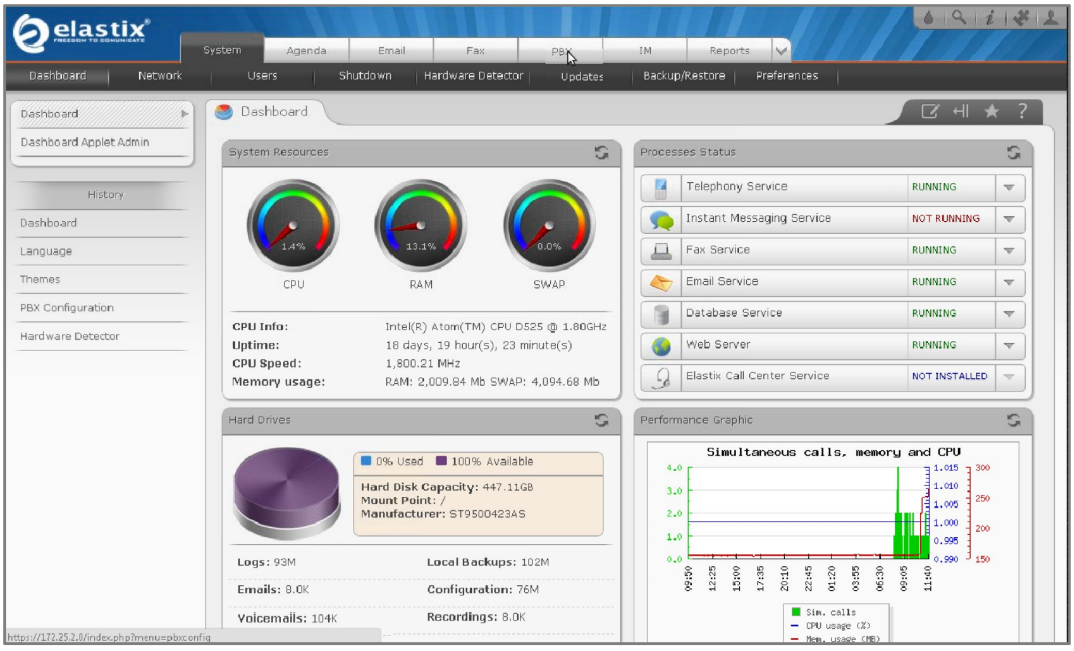
1. Go to the web address of the Elastix Server Login page. The web address is determined by the customer, for this guide we have used the IP address 192.168.1.64
2. On the Login page, type the username and password for an administrative user into the Username and Password fields, see Figure 4-1. The username and password are determined by the customer.

**Figure 4-1 Login**



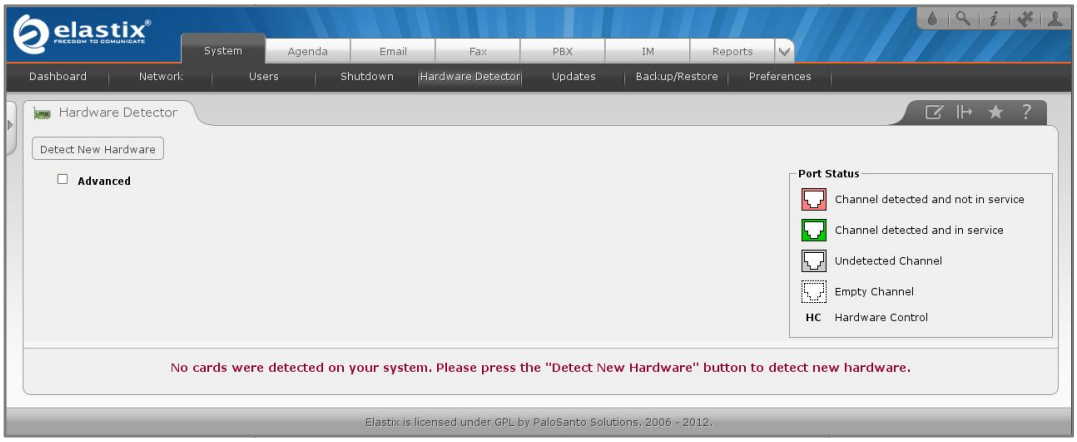

3. Press Enter or click on the Submit button to go to Elastix's Dashboard
4. Once inside, click on the System tab on the menu at the top of the screen

**Figure 4-2 Dashboard**



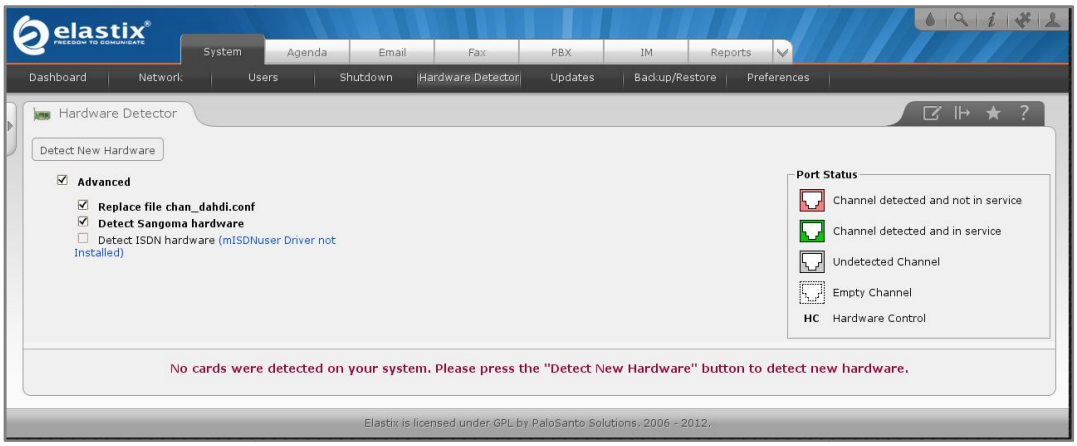
5. Now, click on “Hardware Detector” tab see Figure 4-3. This will take you to set some parameters for detecting new hardware in Elastix, see Figure 4-3.

**Figure 4-3 Hardware Detector**




6. Click on “Advance” checkbox and select “Replace file chan_dahdi.conf” and “Detect Sangoma hardware” options. Now click on “Detect New Hardware” (Figure 4-4).

**Figure 4-4 Hardware Detector**




7. If the interface card is successfully detected you should see 2 spans with several channels, which are “Detected by Asterisk”, shown at the bottom of the page (Figure 4-5).

**Figure 4-5. Hardware Detection**


8. You can configure ports for echo cancellation by clicking on "Configuration of Span" (Figure 4-6). Also you can choose the E1/T1 transmission format by clicking on the "Span Parameters" link (Figure 4-7) located on the left side of the detected ports.

**Figure 4-6. Configuration of Span**

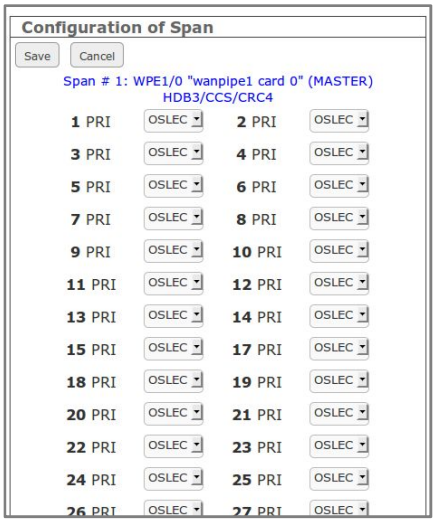
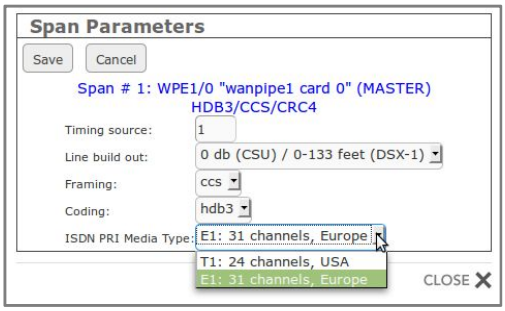


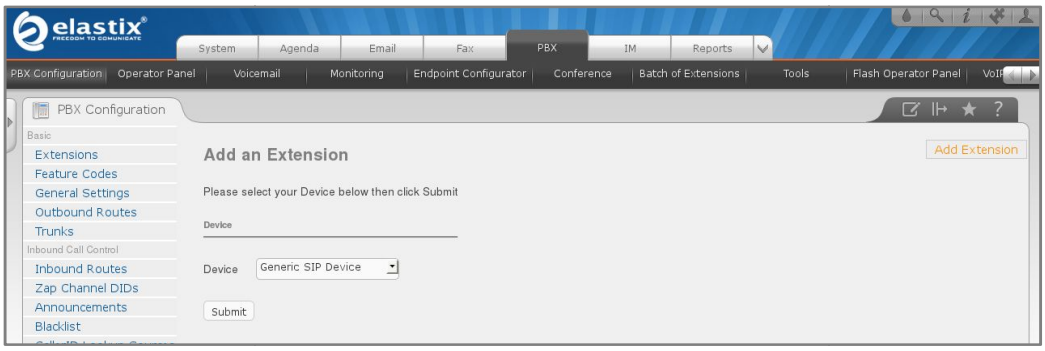

**Figure 4-7. Span parameters**




9. In Elastix the echo cancellation by default is OSLEC. You can change this value according to your needs.

10. Once the card is detected, we'll create an incoming route for the calls coming from PSTN to our PRI port. We're going to use an IVR for incoming calls. Let's create a SIP extension that will be one of the IVR options. For this go to "PBX => PBX Configuration => Extension". Click on "Submit" having selected "Add SIP Device" option. (Figure 4-8)

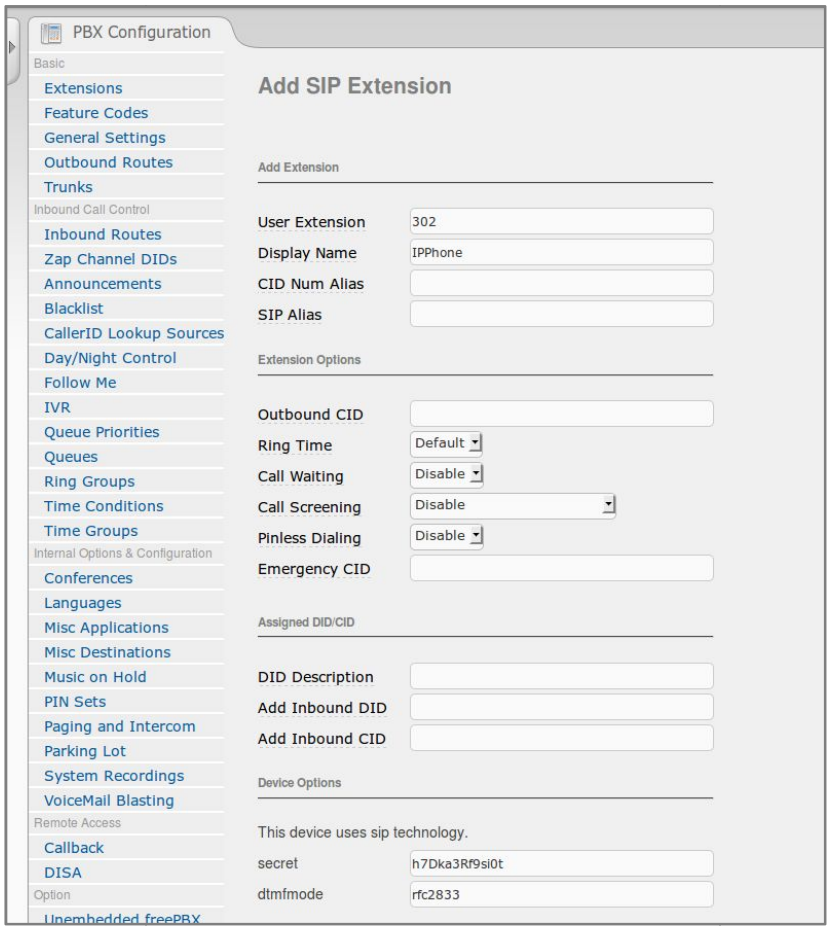
**Figure 4-8. SIP Extension**




11. Fill in the following information on the Add SIP Extension page (Figure 4-9):

- **User Extension** (302 in this example)
- **Display Name** ('IPPhone' in this example)
- **secret** ('h7Dka3Rf9si0t' in this example)

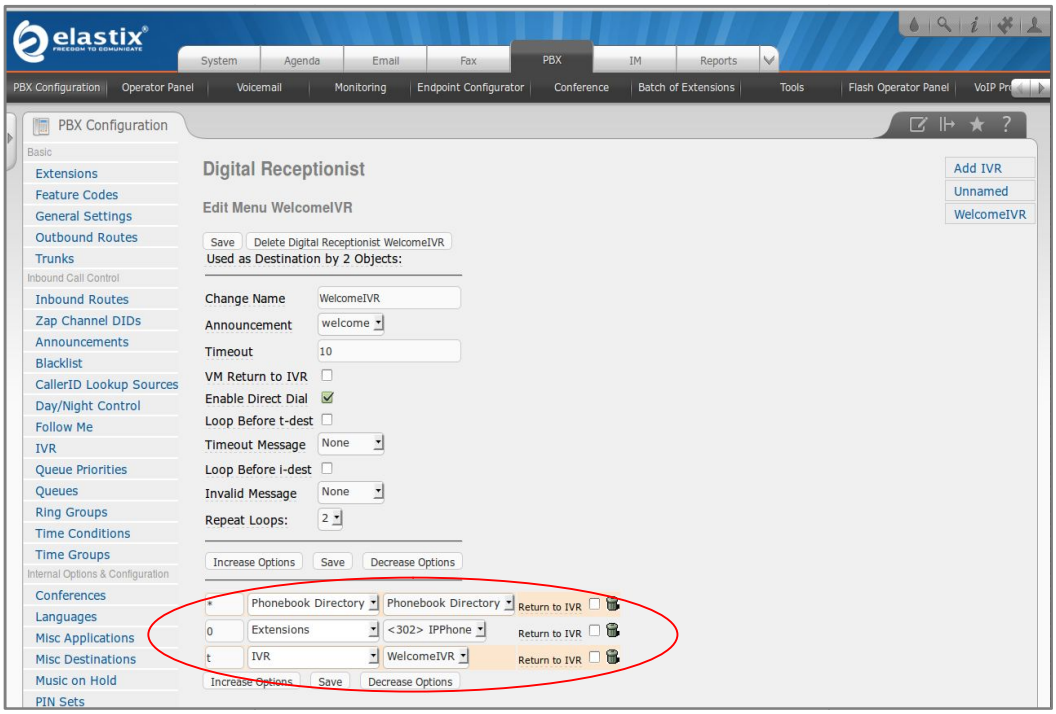
**Figure 4-9. Add SIP Extension**



12. Click on "Submit" button located at the end of the page and apply changes by clicking on the Apply Changes link that will appear on the top of the page. Now, go to "PBX => PBX Configuration => IVR". Click on "Add IVR" link (Figure 4.10). Set the following:

- **Name:** Name of IVR (WelcomeIVR in this example)
- **Announcement:** Record which will be played for incoming calls.
- **Options:**
  - * - Phone book.
  - 0 - 302 Extension
  - t - Repeat the options of IVR (Add this option by modifying the IVR after creation)

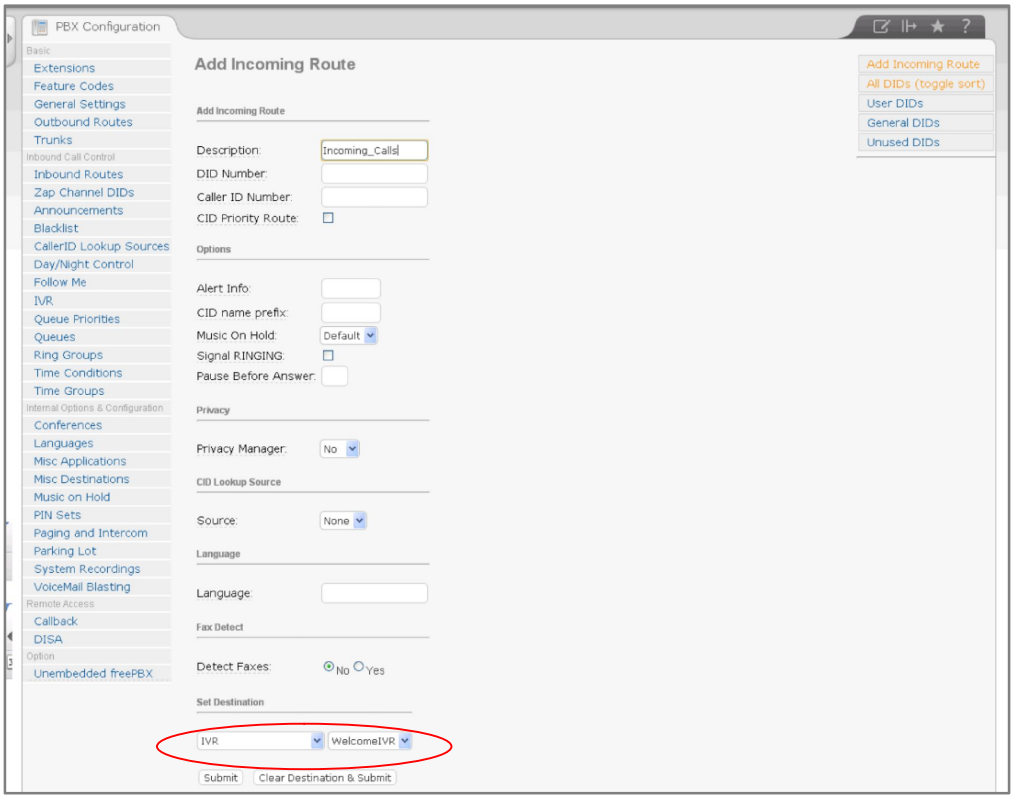
**Figure 4-10. IVR**




13. Click on "Save" and Apply changes by clicking on the pink ribbon that appears at the top of the page. Now go to "PBX => PBX Configuration => Inbound Routes". Click on "Add Incoming Route" link (Figure 4.11). Set the following:

- **Description:** Name of inbound route ("Incoming_Calls" in this example)
- **Set destination:** Where the call will be routed. ("WelcomeIVR" in this example)

**Figure 4-11. Incoming Route**

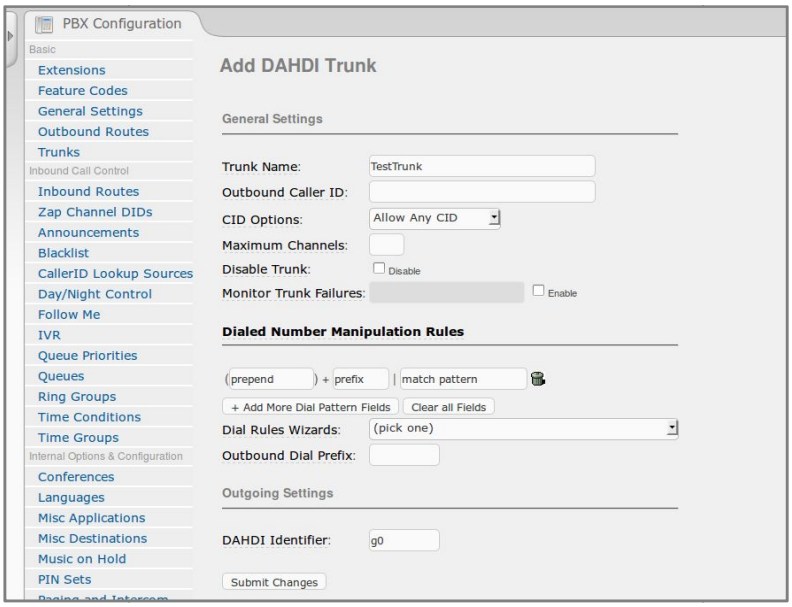



14. Click on “Submit” button and apply changes. Now when we receive calls the “WelcomeIVR” IVR will play to the caller giving him choices to interact with Elastix Server.

15. We will also configure an Outbound Route for outgoing calls depending on a prefix. For this we have to configure a DAHDI Trunk first. Go to “PBX => PBX Configuration => Trunks”. Click on “Add DAHDI Trunk”, then “Submit” (Figure 4-12). Set the following:

- **Trunk Name:** A name for the DAHDI trunk (“TestTrunk” in this example)
- **DAHDI Identifier:** Specify the span to be used for the trunk. (“g0” is the default value. For more details about the choices you have, refer to **Appendix** in this guide).

**Figure 4-12. Trunks**




16. Click on “Submit Changes” and apply changes. Go to “PBX => PBX Configuration => Outbound Routes”. Click on “Add Route” link (Figure 4-13). Set the following:

*Route Settings*

- **Route Name:** (“9_Outside_Test” in this example)

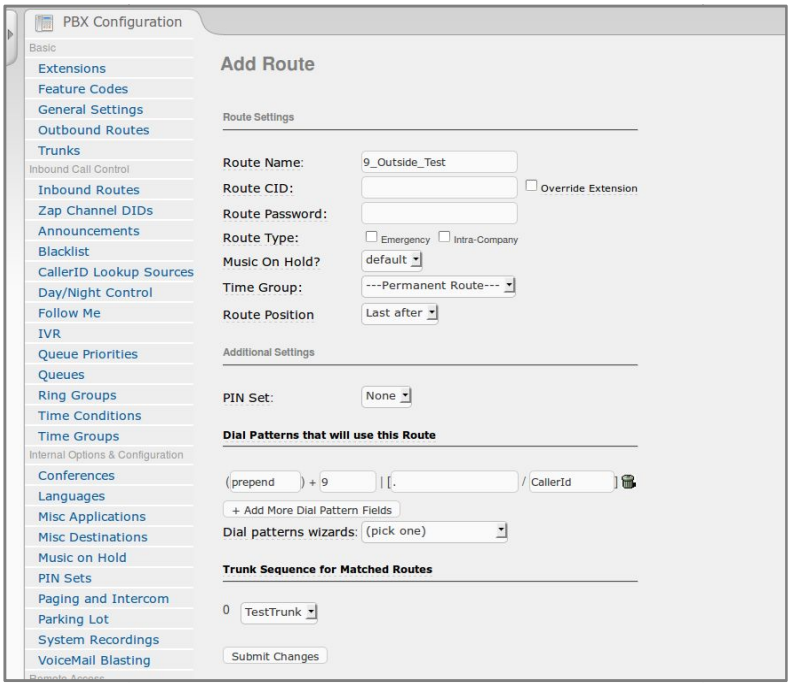
*Dial patterns*

- **Prefix:** (“9” in this example) | **Match pattern:** (“.” in this example)

*Trunk Sequence for Matched Routes*

- **0:** The trunk that we just created (“TestTrunk” in this example)

**Figure 4-13. Outbound Route**



17. Configure the other IP (SIP) Phone with the correct parameters (See figure 4.9).Now you can make calls to the PSTN through the channels group you specified by calling a telephone number with “9” as prefix.

18. This step completes the procedure for making and receiving calls using a Sangoma A102 PRI Interface Card.

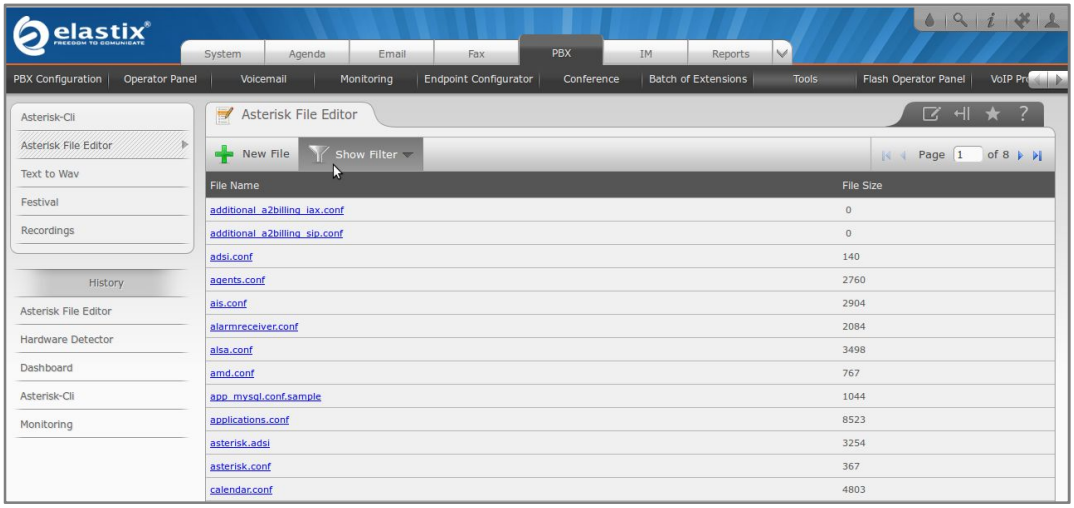
# APPENDIX

## DAHDI Identifier

When you create a DAHDI Trunk you need to specify the span that will be used for the trunk. The default value is “g0” (group 0). This value means that DAHDI will choose the available span in the order that shows the hardware detector section of Elastix Web Interface. If you want to use a particular span for your convenience, just follow these steps:

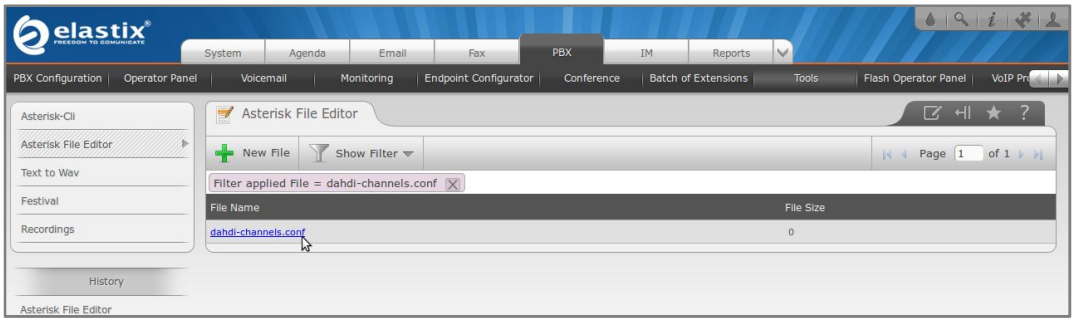
1. In the Elastix Server WebUI go to “PBX => Tools”. Select “Asterisk File Editor” option located on the left side. Click on “Show Filter” (Figure A-1).

**Figure A-1. Asterisk File Editor**



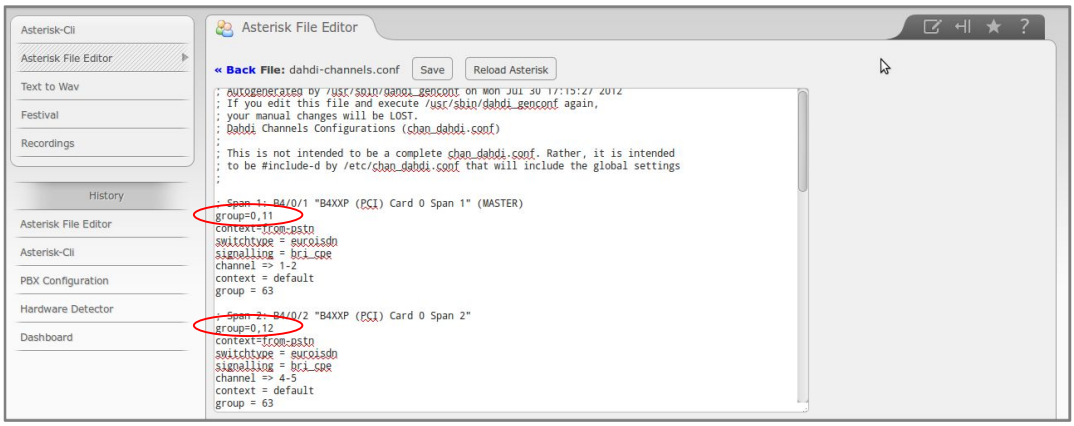

2. In the filter field write “dahdi-channels.conf” without quotes and press ENTER (Figure A-2).

**Figure A-2. Filter**




3. Click on “dahdi_channels.conf” file. In this example file, check the “group” parameter, the first one. We have group 0 and 11 for Span 1. If you want the DAHDI Trunk to use specifically Span 1, you have to set “g11” instead of “g0”. It’s the same for Span 2 with “g12”.

**Figure A-3. dahdi-channels.conf**




4. Close Asterisk File Editor. You can also use channel number instead of groups. See figure 4-5 to identify the channel number (for example, “1” or “4”).