

beroNet Technical Training

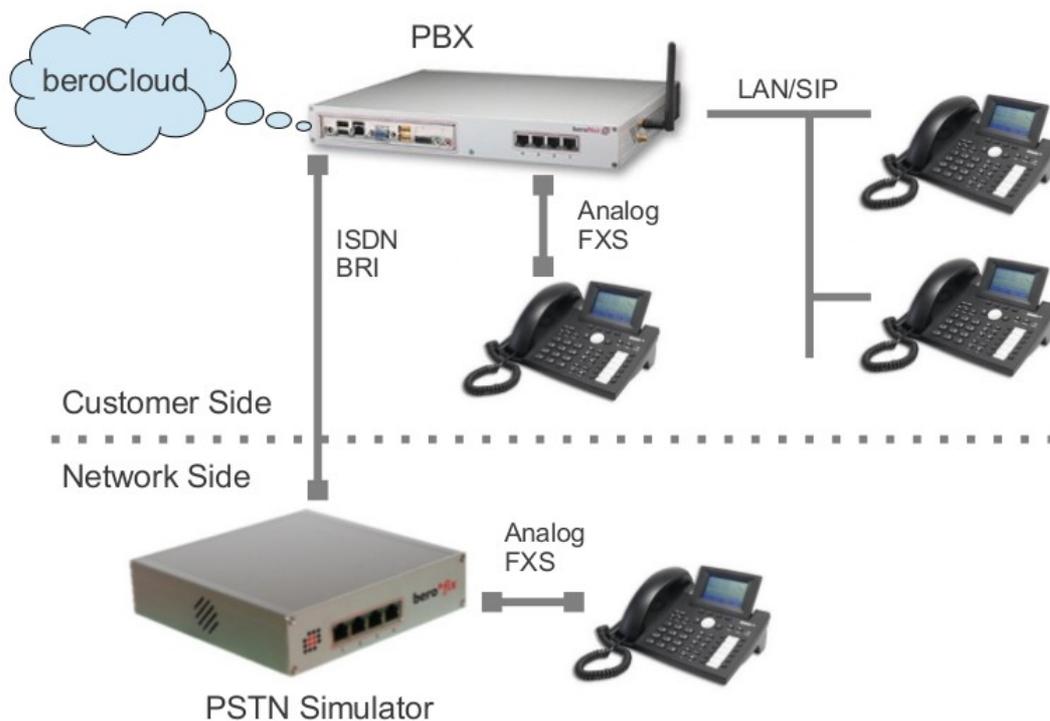
Practical Part

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Abstract

The beroNet technical training consists mainly of a practical part where you use the Starter Pack to setup a test scenario. The test scenario helps you to understand how the configuration of beroFix and the beroNet telephony appliance works and how you can troubleshoot your devices.

The test scenario is a setup with one beroFix and one appliance which you interconnect via ISDN. The beroFix gateway will be the PSTN Simulator your appliance. You will also need two analog phones to create some inbound and outbound test calls:



This document gives you a step by step tutorial for the practical part, so that you can pass the partner approval quickly. At the beginning you will be introduced to the Starter Packs hardware. You will learn how the basic configuration of beroFix works. Then we will go deeper into the configuration of beroFix and understand how the PSTN and SIP settings are configured and how the routing works. This tutorial describes the configuration of a very common scenario which includes a SIP PBX, an ISDN PSTN Trunk and a local fax machine connected directly to the appliance's FXS port. At the end you will see how to use beroFix' troubleshooting tools and finally how to bring beroFix into the beroCloud.

The final goal is to pass our partner approval, which requires a backup of the beroFix configuration in the beroCloud and a set of traces of some test calls.

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1 Hardware

1.1 Contents of Starter Pack



The Starter Pack arrives with two packages, containing:

1. One beroFix Box with 2S02FXS
2. One beroNet Telephony Appliance with 2S02FXS



The appliance Box contains the appliance with a preconfigured 2S02FXS module, a Power Supply, an USB stick and 2xFXS cables.



The beroFix Box contains a beroFix gateway preconfigured with a 2S02FXS module, a powersupply, 4xBNTadapters and 2xFXS cables.

2 Test Scenario

The test scenario consists of the beroFix gateway and the beroNet appliance which are interconnected via ISDN.

2.1 PSTN Simulator

The beroFix gateway is called the „PSTN simulator“. This means, it must have an ISDN NT port, like the public ISDN carrier provides. It has also an analog FXS port connected to an analog phone. This phone simulates a participant of the telephone network and can be used to generate and receive calls.

2.2 PBX

The appliance runs the PBX software. It has to be connected to the PSTN simulator and also to an analog phone, which simulates a local connected fax machine.

2.3 Setup



The connection of all devices and cables can be seen above. Make sure to use either an proper ISDN cable (4 wires) or the beroNet T-Adapter on the PSTN simulator. Port 3 of the PSTN simulator is connected to an analog phone. Port 3 of the PBX is also connected with an analog phone.

3 BeroFix and Appliance Basic Setup

3.1 Appliance Soft PBX Installation

The appliance is shipped with an ubuntu server including an basic asterisk pre-installed. You can install whatever operating system and Softpbx you like, including Windows with 3CX and SnomONE or Linux with Asterisk or complete Softpbx-Distributions like IPTam, MobyDick, trixbox, elastix and so on.

To install a softpbx of your choice, you can simply use a USB CD-Rom, or a bootable USB Stick.

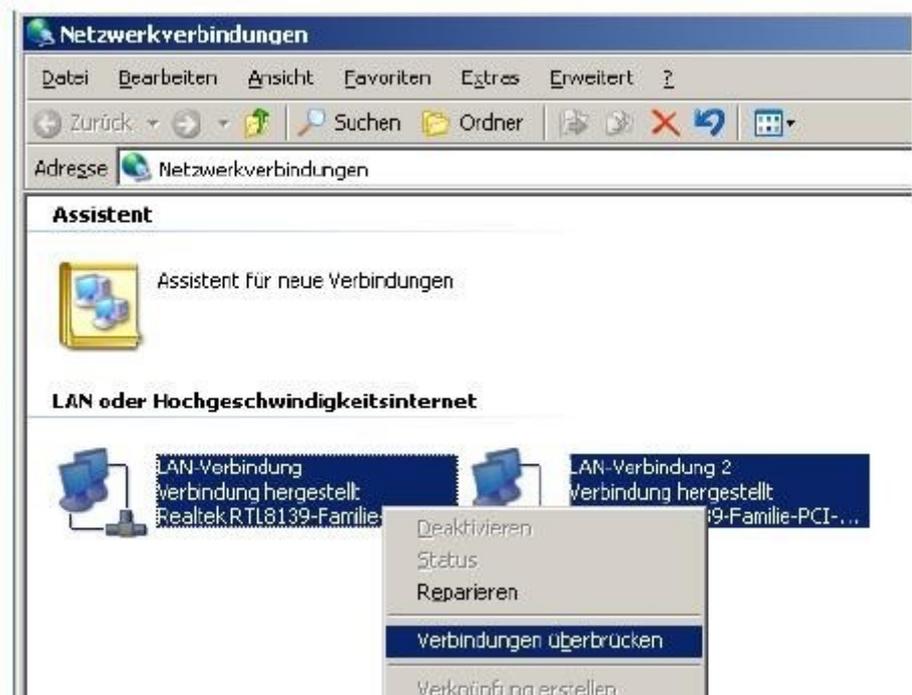
3.2 Appliance & beroFix card basic setup

After the PBX Installation, you need to configure the two berofix card. The first step is to setup networking so that you can access the beroFix GUI.

The beroFix card (PBX device) appears as a network interface card! It will show up as a second network adapter (Linux: eth1, Windows: Lan Connection 2).

To simplify the configuration, you should configure a network bridge where the card and the main network interface are part of.

Windows



Linux

3.3 Network Setup

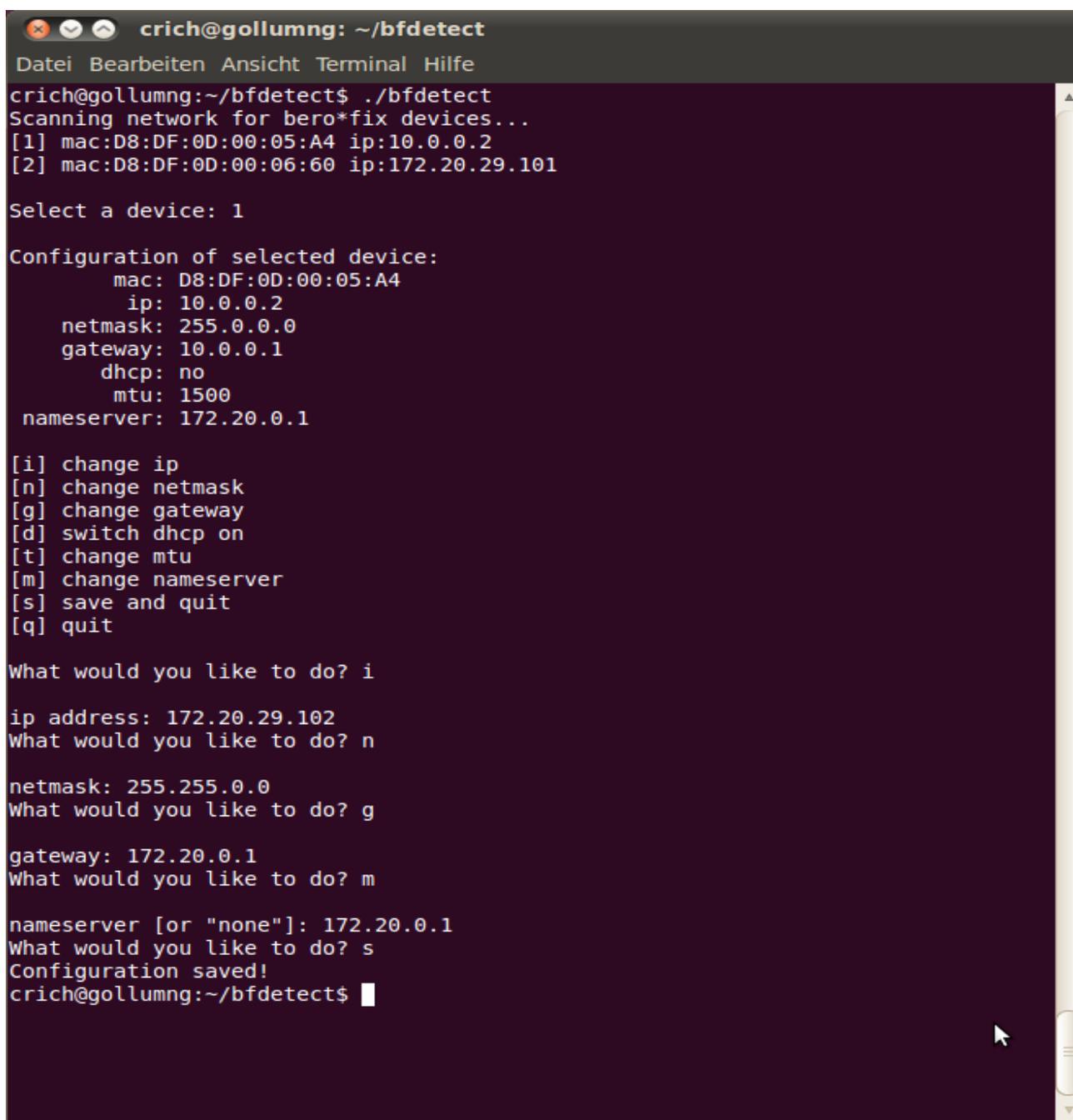
The next step is to assign both beroFix Devices an IP address of your local network. By default beroFix has the IP address 10.0.0.2, so both devices will have the same IP address.

You can use the bfdetect tool which can be downloaded at:

<http://www.beronet.com/downloads/berofix/tools/bfdetect.tar.gz> (linux)

http://www.beronet.com/downloads/berofix/tools/bfdetect_win_x86.zip

(windows), to find all beroFix devices in your network and to modify their IP configuration. bfdetect is a command line tool. It will list all beroFix devices and gives you options for modifying their network configuration. A sample session can be seen below:

A terminal window titled 'crich@gollumng: ~/bfdetect' showing the execution of the bfdetect tool. The tool scans the network and lists two devices. The user selects device 1 and enters a configuration menu. The user changes the IP address to 172.20.29.102, the netmask to 255.255.0.0, and the gateway to 172.20.0.1. The configuration is saved.

```
crich@gollumng: ~/bfdetect
Datei Bearbeiten Ansicht Terminal Hilfe
crich@gollumng:~/bfdetect$ ./bfdetect
Scanning network for bero*fix devices...
[1] mac:D8:DF:0D:00:05:A4 ip:10.0.0.2
[2] mac:D8:DF:0D:00:06:60 ip:172.20.29.101

Select a device: 1

Configuration of selected device:
    mac: D8:DF:0D:00:05:A4
    ip: 10.0.0.2
    netmask: 255.0.0.0
    gateway: 10.0.0.1
    dhcp: no
    mtu: 1500
    nameserver: 172.20.0.1

[i] change ip
[n] change netmask
[g] change gateway
[d] switch dhcp on
[t] change mtu
[m] change nameserver
[s] save and quit
[q] quit

What would you like to do? i
ip address: 172.20.29.102
What would you like to do? n
netmask: 255.255.0.0
What would you like to do? g
gateway: 172.20.0.1
What would you like to do? m
nameserver [or "none"]: 172.20.0.1
What would you like to do? s
Configuration saved!
crich@gollumng:~/bfdetect$
```

First bfdetect displays two beroFixes. You press “1” to modify the first device. Then you press “i” to change the IP, then “n” to change the netmask, “g” to change the gateway and “m” to change the nameserver. Finally you press “s” to save and quit.

In our case we use the IP 172.20.29.102 for the PBX device and 172.20.29.101 for the PSTN simulator.

3.4 GUI Overview

After the network settings have been configured, you can open the beroFix GUI with a browser by using its IP address as URL.

The default login credentials are:

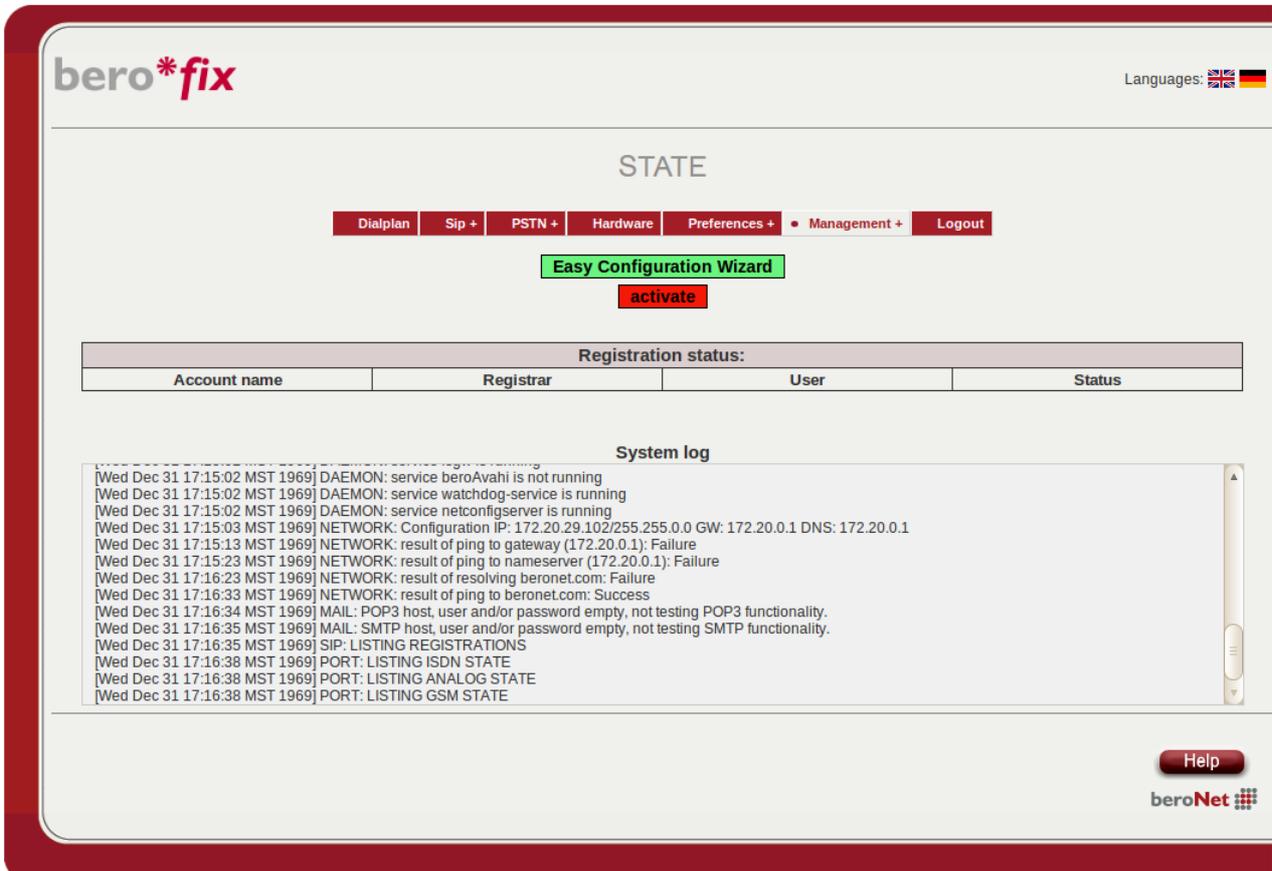
Username=admin

Password=admin



Change these settings in security sensible locations.

The first page shown after login is the 'State' screen of your beroFix. If you log in for the first time, you will also see a gray button labeled 'Easy Configuration Wizard' and a red button labeled 'Activate'.



You can always go back to this state by performing a factory reset, using "Management->Reboot/Reset->Factory Reset".

The beroFix GUI consists of a main menu bar which is above the Workspace. It is grouped into the options "Dialplan", "SIP", "PSTN", "Hardware", "Preferences", "Management" and "Logout".

Each option has a sub menu, which appears when the cursor hovers over the option. We start by configuring the PSTN simulator box first and then we configure the PBX device. To find out which device you are currently working on, you can go to 'Management->Info', it shows you the firmware state, the serial number and the installed modules.

4 PSTN Simulator Configuration

The PSTN Simulator has a 2BRI 2FXS Module. Since port 1 is connected with port 1 of the PBX beroFix, it must be set into NT mode. beroFix works always with port groups, which means we need to put the ISDN port and the analog port into groups.

There are five things to configure:

Set port 1 into NT mode

Put ISDN port 1 into a group

Put analog port 1 into a group

Configure a dialplan rule from Analog to ISDN

Configure a dialplan rule from ISDN to Analog

4.1 Hardware Setup

First of all we need to configure the hardware settings. Go to “Hardware” in the main menu. There you will see options for both line interfaces. There is also the “Graphical representation of the port assignment” which helps you to understand which port is on which RJ45 or on which port of the BNT-Adapters.

Here you need to modify the type setting of ISDN port 1 of the bf2S02FXs line interface, set it into NT mode.

bero*fix Languages:

HARDWARE

Dialplan Sip + PSTN + **Hardware** Preferences + Management + Logout

Easy Configuration Wizard
activate

Graphical representation of the port assignment

Card Type: bf4S0 Line Interface: 0 Master: master Synchronization port: 1				
Port: 1	Port type: BRI	Type: nt	Protocol: PTP	Termination: <input checked="" type="checkbox"/>
Port: 2	Port type: BRI	Type: nt	Protocol: PTP	Termination: <input checked="" type="checkbox"/>
Port: 3	Port type: BRI	Type: te	Protocol: PTP	Termination: <input checked="" type="checkbox"/>
Port: 4	Port type: BRI	Type: te	Protocol: PTP	Termination: <input checked="" type="checkbox"/>

Card Type: bf4FXS Line Interface: 1 Master: slave	
Port: 1	Port type: FXS
Port: 2	Port type: FXS
Port: 3	Port type: FXS
Port: 4	Port type: FXS

Ring Voltage: 49V

PCM Master bridging: PCM Master port: 54329

Save

Help

Then click on save.

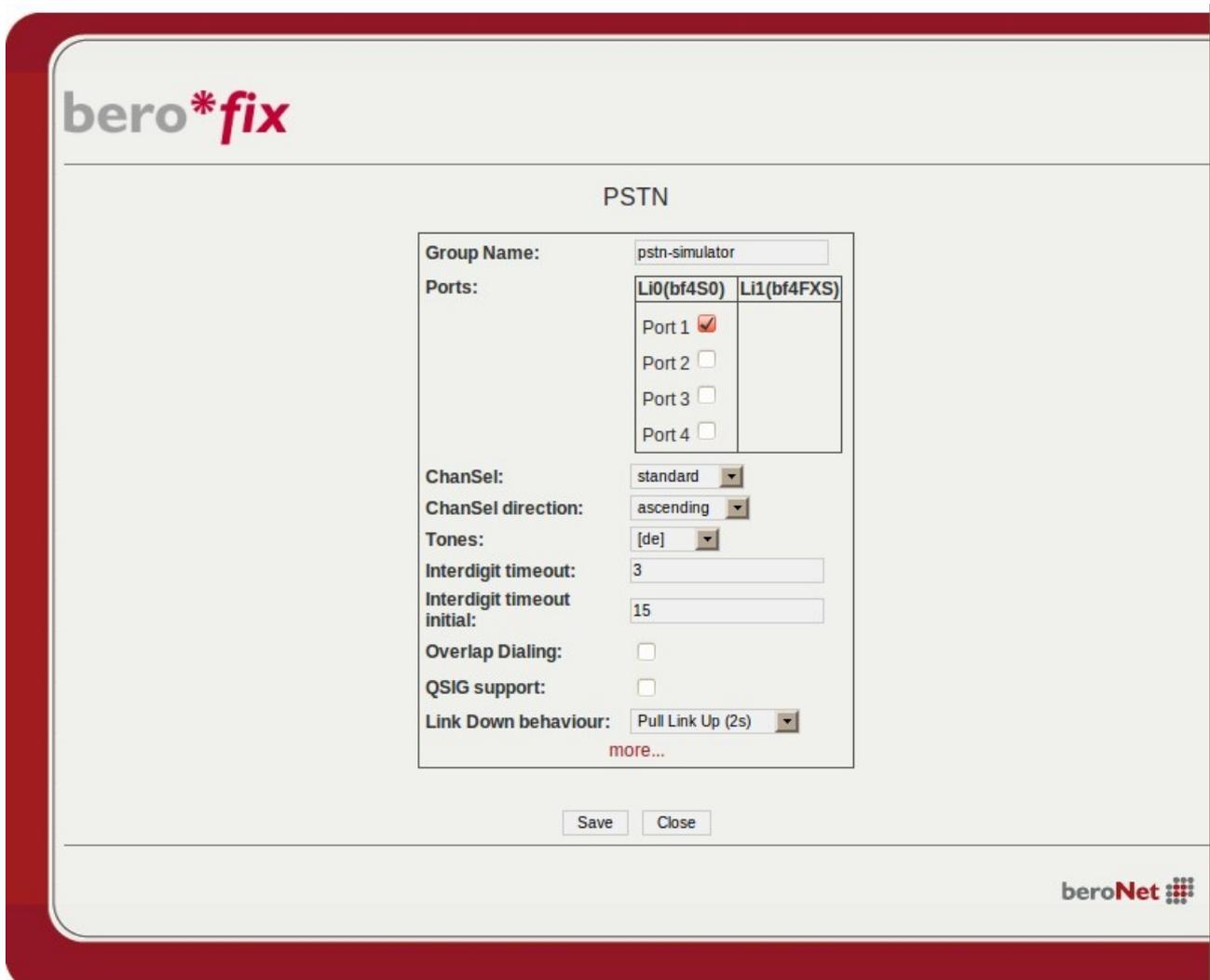
Normally, if you modify something in the beroFix GUI, the setting is only stored, and you need to activate it with the activate button. The red activate button means a reboot (so calls get dropped). There is also an orange button, which also drops calls but is faster than the reboot. The yellow activate button can always be used without losing running calls.

But you can also make a set of configuration at once and then activate it at later times.

4.2 PSTN Group Setup

The next step is to configure an ISDN Group. Got to PSTN->ISDN and click on "add", make sure you allow pop-ups for beroFix at this point.

You will see a pop-up:



The screenshot shows the 'bero*fix' GUI with a 'PSTN' configuration dialog box. The dialog box contains the following fields and options:

- Group Name:** pstn-simulator
- Ports:** A table with two columns: Li0(bf4S0) and Li1(bf4FXS).

	Li0(bf4S0)	Li1(bf4FXS)
Port 1	<input checked="" type="checkbox"/>	
Port 2	<input type="checkbox"/>	
Port 3	<input type="checkbox"/>	
Port 4	<input type="checkbox"/>	
- ChanSel:** standard
- ChanSel direction:** ascending
- Tones:** [de]
- Interdigit timeout:** 3
- Interdigit timeout initial:** 15
- Overlap Dialing:**
- QSIG support:**
- Link Down behaviour:** Pull Link Up (2s)

At the bottom of the dialog box, there is a 'more...' link and 'Save' and 'Close' buttons. The 'beroNet' logo is visible in the bottom right corner of the GUI.

You need only to enable port 1 and give this group a name (pstn-simulator here).

After you have clicked "save" you will be redirected to the ISDN group list and it should look like:

The screenshot shows the 'ISDN BRI CONFIGURATION' page in the 'bero*fix' web interface. At the top left is the 'bero*fix' logo, and at the top right are language selection options for UK, DE, and ES. A navigation bar contains tabs for 'Dialplan', 'Sip +', 'PSTN +', 'Hardware', 'Preferences +', 'Management +', and 'Logout'. Below the navigation bar is an 'activate' button. A table lists the configuration groups:

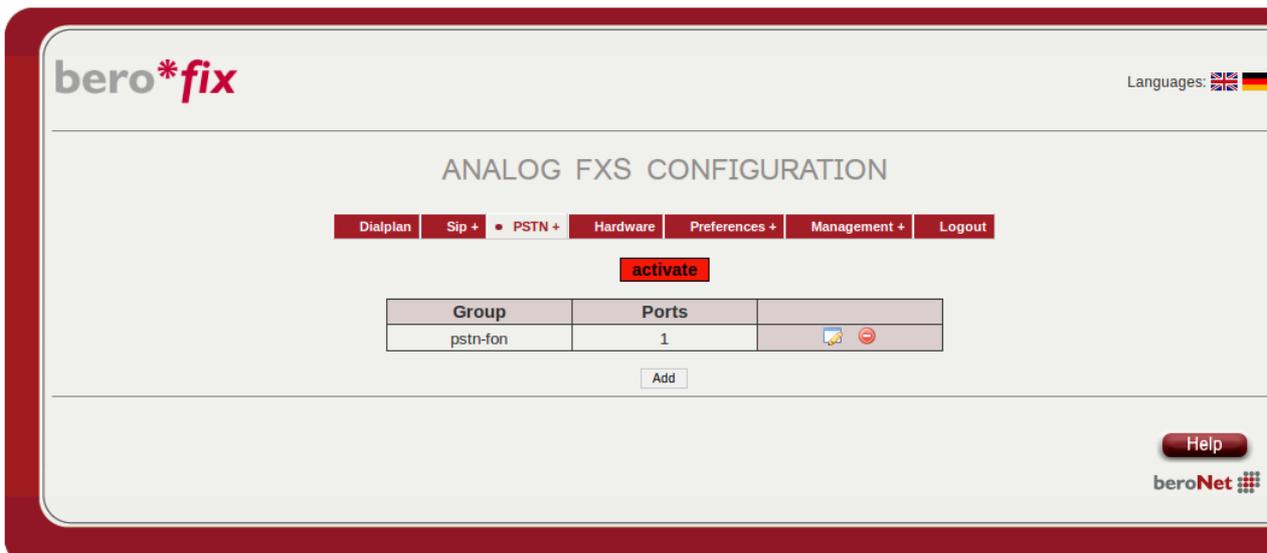
Group	Ports	
pstn-simulator	1	 

Below the table is an 'Add' button. At the bottom right, there is a 'Help' button and the 'beroNet' logo.

You do the same with the analog port. PSTN->Analog FXS, click Add and put port 1 into the group which needs to be named:

The screenshot shows the 'PSTN' configuration form. The 'Group Name' field is filled with 'pstn-fon'. The 'Ports' section has two columns: 'Li0(bf4S0)' and 'Li1(bf4FXS)'. Under 'Li1(bf4FXS)', 'Port 1' is checked, while 'Port 2', 'Port 3', and 'Port 4' are unchecked. Other fields include 'Interdigit timeout initial' (15), 'Interdigit timeout' (3), 'Overlap Dialing' (unchecked), 'Tones' ([de]), 'CLIP', and 'CNIP'. A 'more...' link is visible below the form. At the bottom, there are 'Save' and 'Close' buttons, with a tooltip that says 'Save your modified settings'.

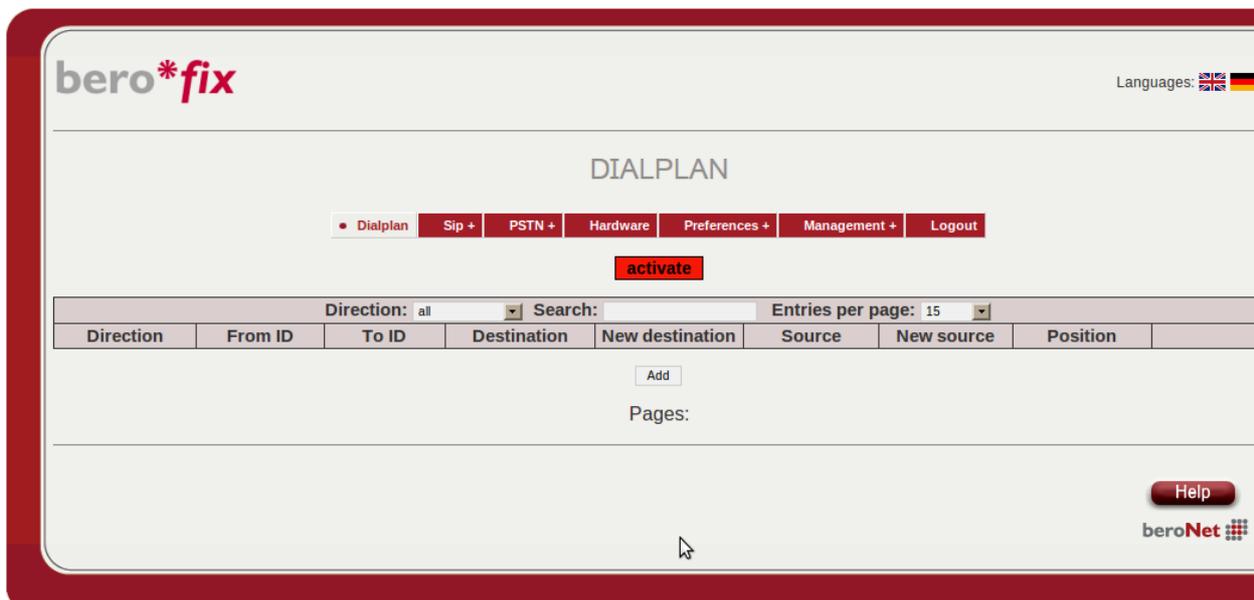
After clicking “save” the analog port list looks like:



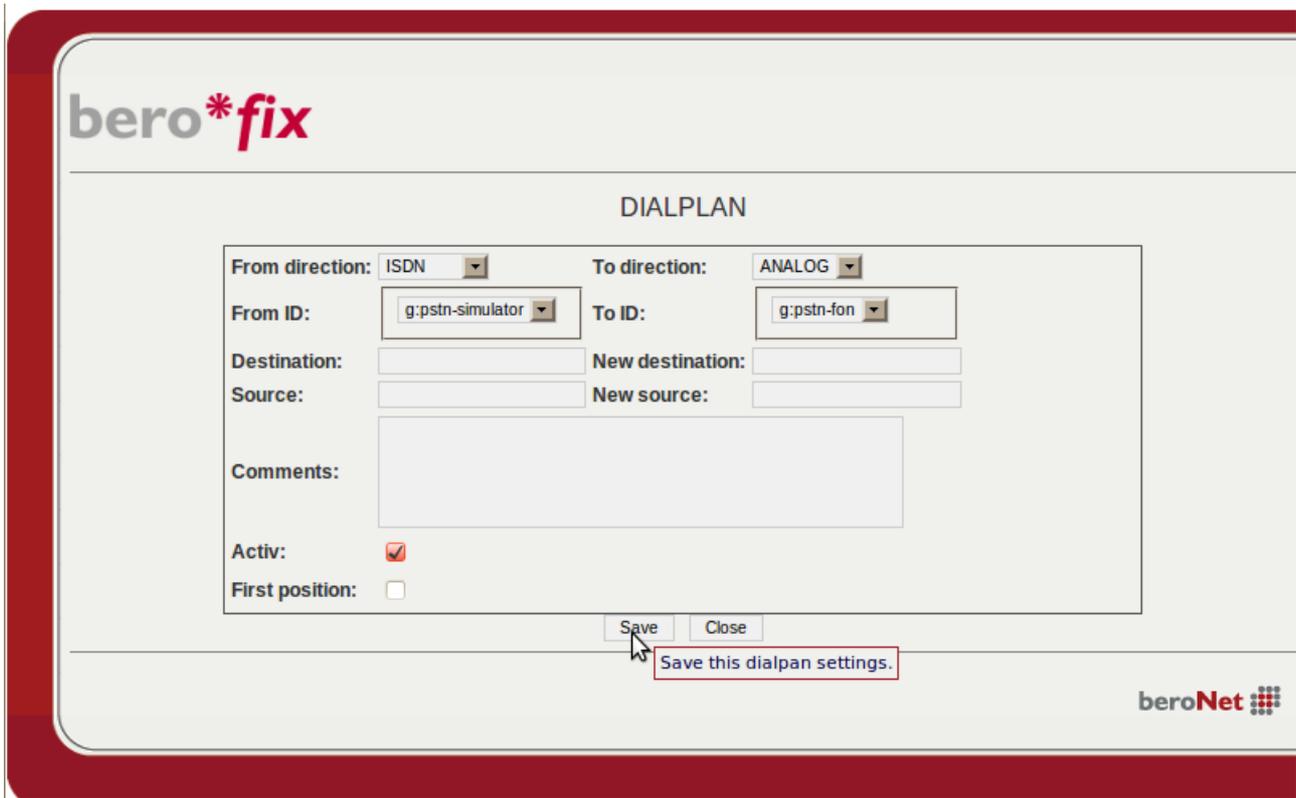
The next and final step is to configure the routing between the analog port and the ISDN port.

4.3 Routing

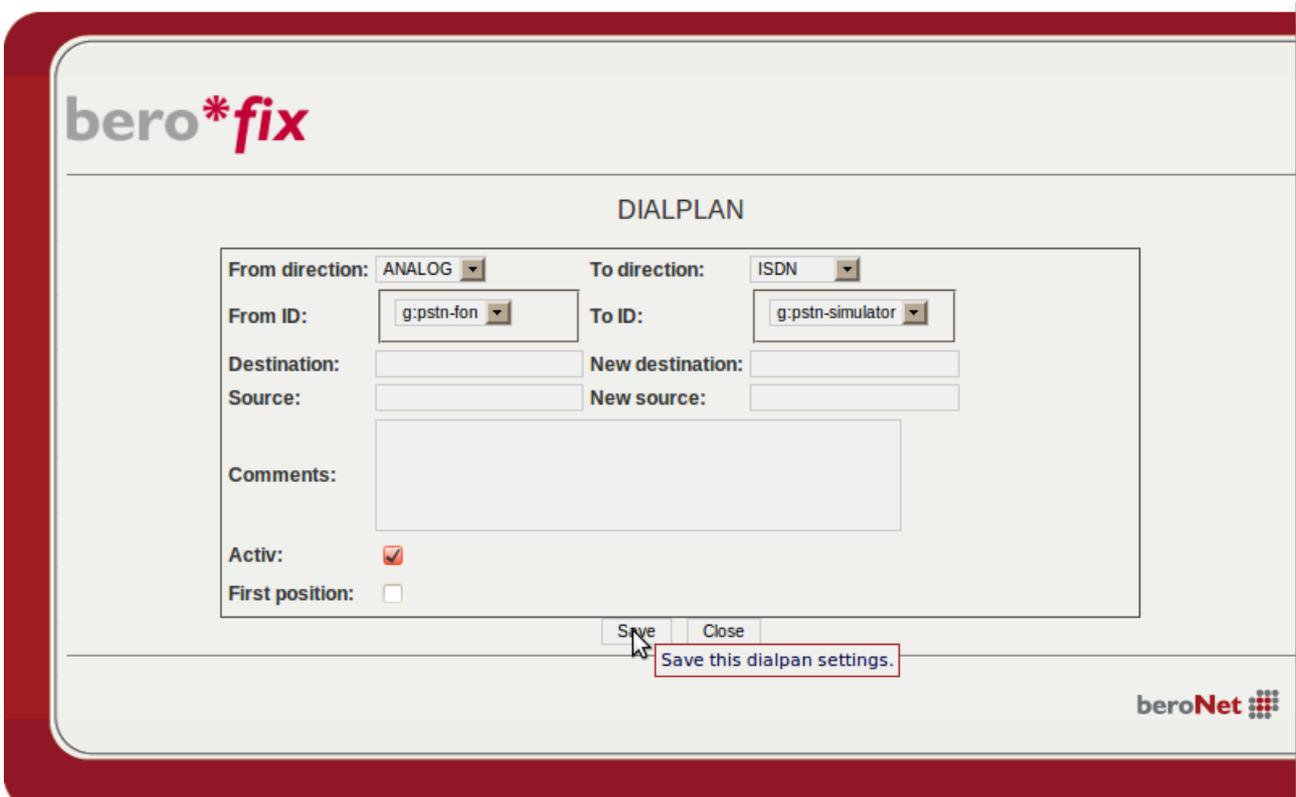
The routing is configured in the “Dialplan”.



Click on “Add” to create a new rule:



As "From Direction" choose ISDN and as "From Id" choose the ISDN group PSTN-Simulator which we earlier created. As "To Direction" choose analog and as "To ID" choose PSTN-Fon, the analog group that we previously created. Leave the rest blank, beroFix will fill in proper defaults. In the next chapter, the dialplan will be explained in detail. Next we setup a second dialplan rule from analog to ISDN, so just the same settings but opposite in terms of From and To.



Finally the dialplan rule list should look like:

The screenshot shows the bero*fix web interface for the DIALPLAN configuration. At the top left is the logo 'bero*fix'. At the top right, it says 'Languages: [UK flag] [DE flag]'. Below the logo is the title 'DIALPLAN'. A navigation menu contains buttons for 'Dialplan', 'Sip +', 'PSTN +', 'Hardware', 'Preferences +', 'Management +', and 'Logout'. Below the menu is an 'activate' button. A table shows the dialplan rules with columns: Direction, From ID, To ID, Destination, New destination, Source, New source, and Position. Below the table is an 'Add' button and 'Pages: 1'. At the bottom right is a 'Help' button and the 'beroNet' logo.

Direction	From ID	To ID	Destination	New destination	Source	New source	Position
isdn-analog	g:pstn-simulato...	g:pstn-fon	(.*)	\1	(.*)	\1	1
analog-isdn	g:pstn-fon	g:pstn-simulato...	(.*)	\1	(.*)	\1	2

Everything which is dialed at the analog phone goes to the ISDN port, and everything coming from the ISDN port goes to the ISDN phone. This gives us a nicely usable test PSTN network.

5 Appliance and beroFix Configuration with Asterisk

This chapter describes how the appliance is configured together with an Asterisk based PBX. It also shortly describes an Asterisk sample configuration which you can use for testing and for the partner approval process.

When you want to use beroFix together with a 3CX PBX then skip this chapter and go directly to chapter 6.

5.1 Asterisk Setup

The Asterisk PBX must be pre-installed on your appliance. Since beroFix is a SIP Gateway you need to add a SIP Peer for beroFix in the sip.conf, just add the following code to your /etc/asterisk/sip.conf:

```
[test]
type=friend
username=test
secret=test
fromuser=test
context=inbound
host=dynamic
qualify=yes
```

As next step you need to define what happens with calls coming from beroFix in your /etc/asterisk/extensions.conf:

```
[inbound]
exten => _X.,1,Playback(demo-congrats)

[outbound]
exten => _0X.,1,Dial(SIP/${EXTEN:1}@test)
```

The [inbound] context, is the one where calls coming from beroFix are processed. In this sample setup the inbound call will be accepted and the demo audio file “demo-congrats” will be played back.

There is also an [outbound] context which can be used to call out on the berofix device. You can include this context in a SIP test phone, or you can use the “originate” CLI comand from Asterisk to create an outbound test call with the command line:

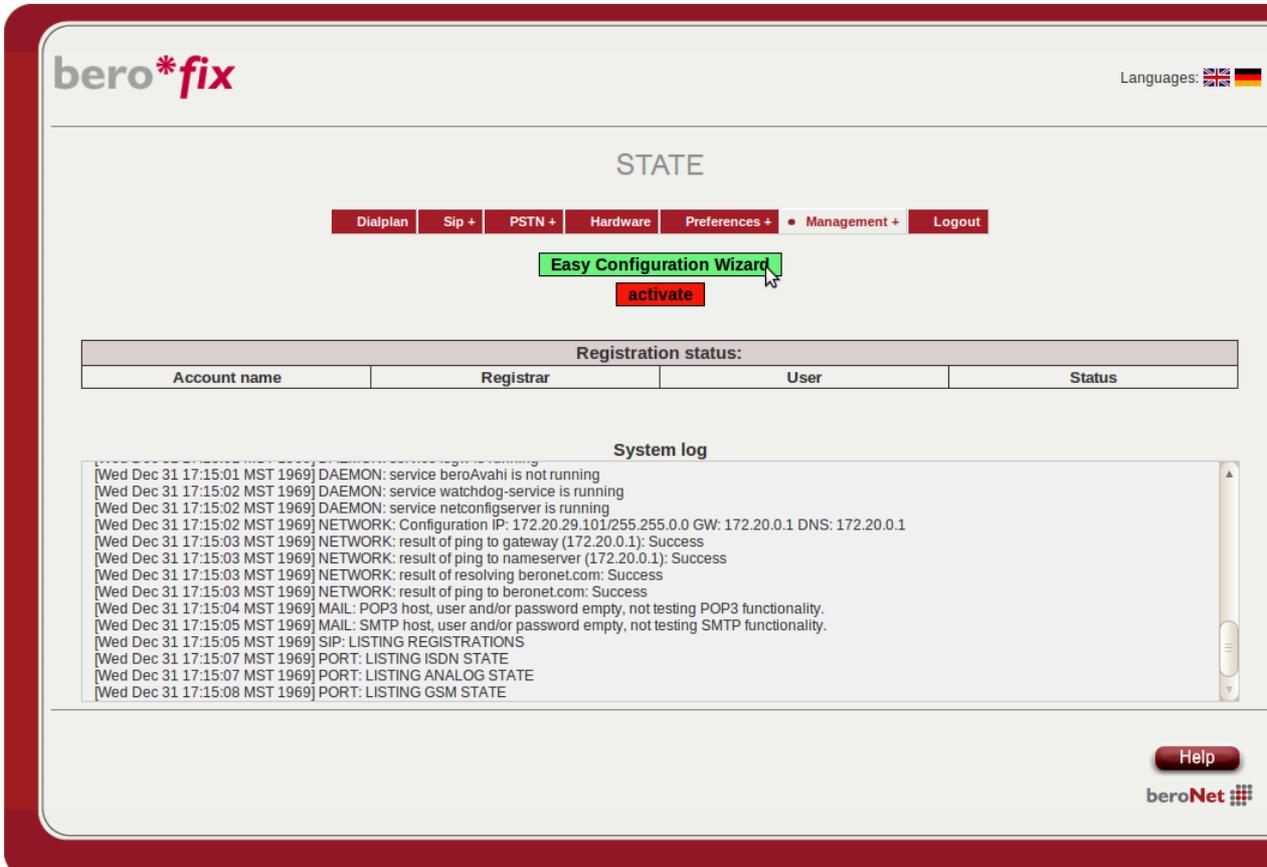
```
gollumng*CLI> originate Local/0123@outbound application playback
demo-congrats
```

This command will send out a call on beroFix and will connect the Playback application to this call.

5.2 Easy Configuration Wizard

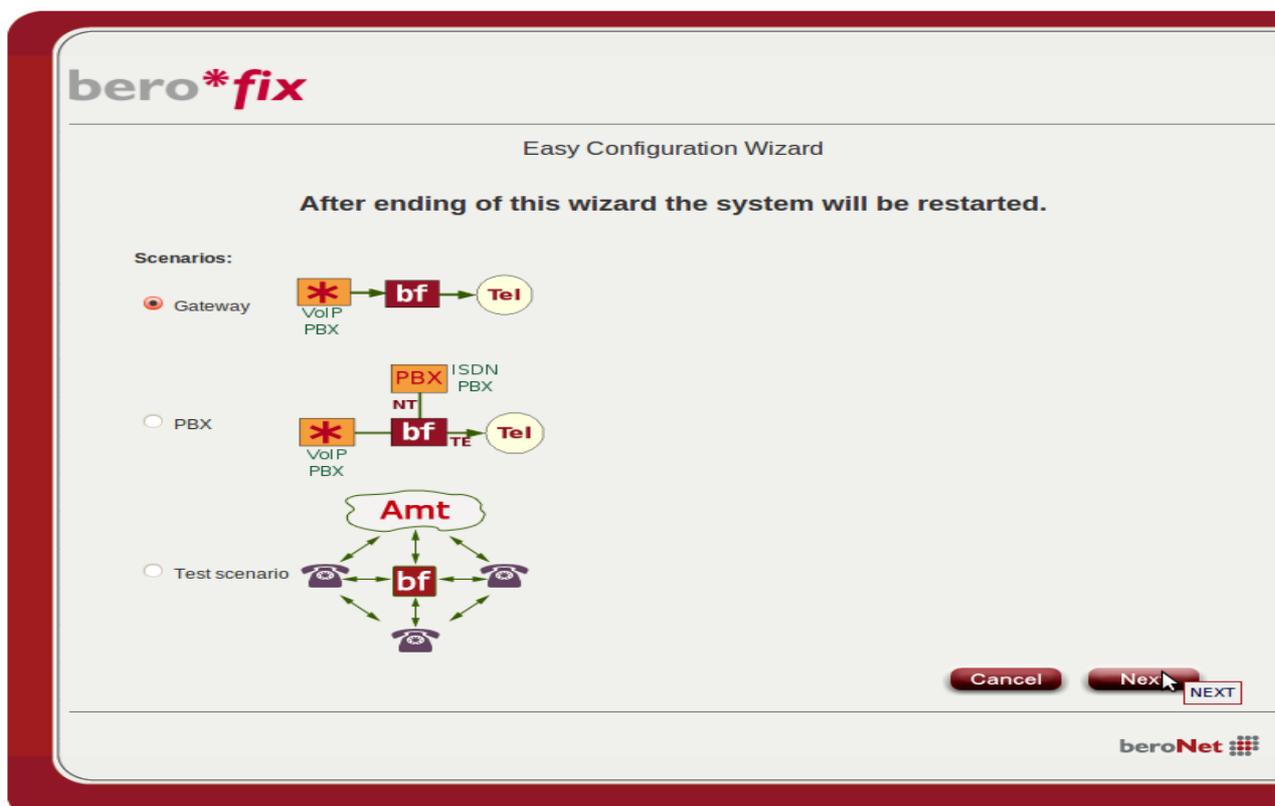
For the initial configuration of the appliance berofix we can use the “Easy Configuration Wizard”. It generates a simple configuration which helps to understand how berofix works.

After logging in, we directly click on the “Easy Configuration Wizard” button.



The screenshot shows the berofix web interface. At the top left is the berofix logo. At the top right, there are language selection options (UK, DE). Below the header is a navigation bar with buttons for Dialplan, Sip, PSTN, Hardware, Preferences, Management, and Logout. The 'Easy Configuration Wizard' button is highlighted in green, with an 'activate' button below it. Below the navigation bar is a table for 'Registration status' with columns for Account name, Registrar, User, and Status. Below the table is a 'System log' section with a scrollable list of system messages. At the bottom right, there is a 'Help' button and the berofix logo.

We choose the Gateway Scenario on the first wizard page:



The screenshot shows the 'Easy Configuration Wizard' page. At the top, it says 'After ending of this wizard the system will be restarted.' Below this, there are three scenarios listed: Gateway, PBX, and Test scenario. The 'Gateway' scenario is selected, indicated by a red radio button. The diagram for the Gateway scenario shows a 'VolP PBX' (represented by a star icon) connected to a 'bf' (berofix) box, which is then connected to a 'Tel' (telephone) icon. The PBX scenario shows a 'VolP PBX' connected to a 'bf' box, which is connected to a 'Tel' icon, with an 'ISDN PBX' box and an 'NT' (Network Termination) box also connected to the 'bf' box. The Test scenario shows a 'bf' box connected to three telephone icons. At the bottom right, there are 'Cancel' and 'Next' buttons, with the 'Next' button highlighted. The berofix logo is at the bottom right.

Next we choose BRI as external PSTN Group, then we give this group a name and put port 1 into the group:

The screenshot shows the 'Easy Configuration Wizard' interface for bero*fix. The title is 'Easy Configuration Wizard' and a warning states 'After ending of this wizard the system will be restarted.' The section is titled 'PSTN-Network-Group (TE-Ports)'. It features two radio buttons: 'BRI' (selected) and 'FXS'. Below this is a 'Group Name' field containing 'pstn'. A 'Ports' table is shown with two columns: 'Li0(bf2S02FXS)' and 'Li1()'. The 'Port 1' row has a checked checkbox, while 'Port 2' has an unchecked checkbox. At the bottom right, there are 'Cancel' and 'Next' buttons, with a mouse cursor pointing to 'Next' and a 'NEXT' label appearing. The beroNet logo is in the bottom right corner.

Li0(bf2S02FXS)	Li1()
Port 1 <input checked="" type="checkbox"/>	
Port 2 <input type="checkbox"/>	

Then we configure a SIP account, with the account name, server IP address, username and secret:

The screenshot shows the 'Easy Configuration Wizard' interface for bero*fix. The title is 'Easy Configuration Wizard' and a warning states 'After ending of this wizard the system will be restarted.' The section is titled 'Sip configuration'. It features four input fields: 'Name' (asterisk), 'Server Address' (172.20.70.31), 'User' (test), and 'Secret' (test). At the bottom right, there are 'Cancel' and 'Next' buttons, with a mouse cursor pointing to 'Next' and a 'NEXT' label appearing. The beroNet logo is in the bottom right corner.

Finally we click finish:

After ending of this wizard the system will be restarted.

Sip Entry:

Name: asterisk
Server Address: 172.20.70.31
User: test
Secret: test
Register: 0

PSTN Entry:

Group Name: pstn
Ports: 1

Dialplan Entries:

From direction: sip
To direction: isdn
From ID: p:asterisk
To ID: g:pstn
Destination: (*)
New destination: \1
Source: (*)
New source: \1

From direction: isdn
To direction: sip
From ID: g:pstn
To ID: p:asterisk
Destination: (*)
New destination: \1
Source: (*)
New source: \1

Cancel

Finish

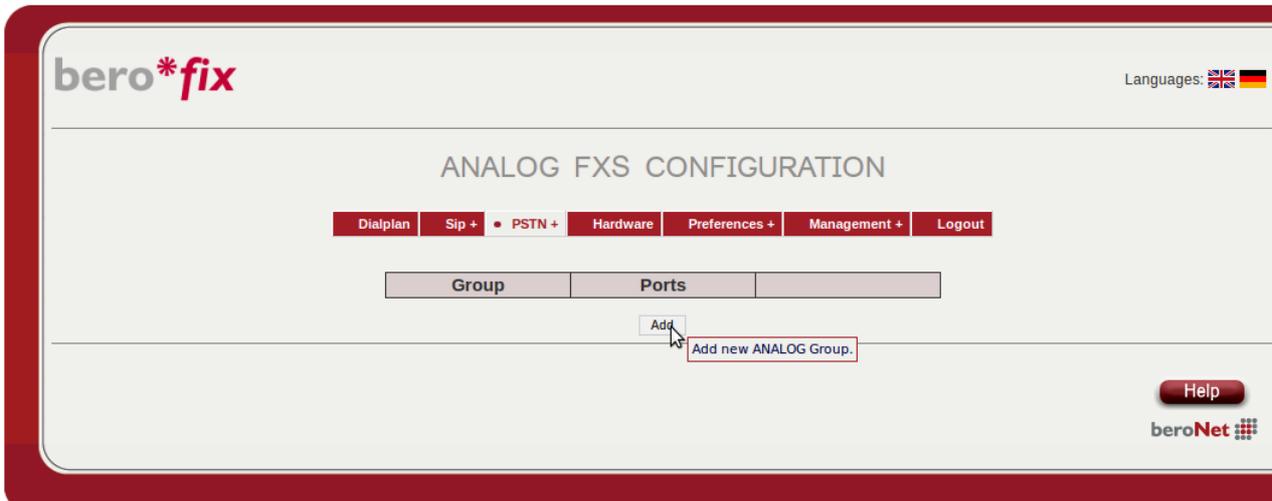
beroFix will reboot now.

The wizard generates the SIP account, the ISDN group and a set of dialplan rules for inbound and outbound calls (SIP->ISDN and ISDN->SIP).

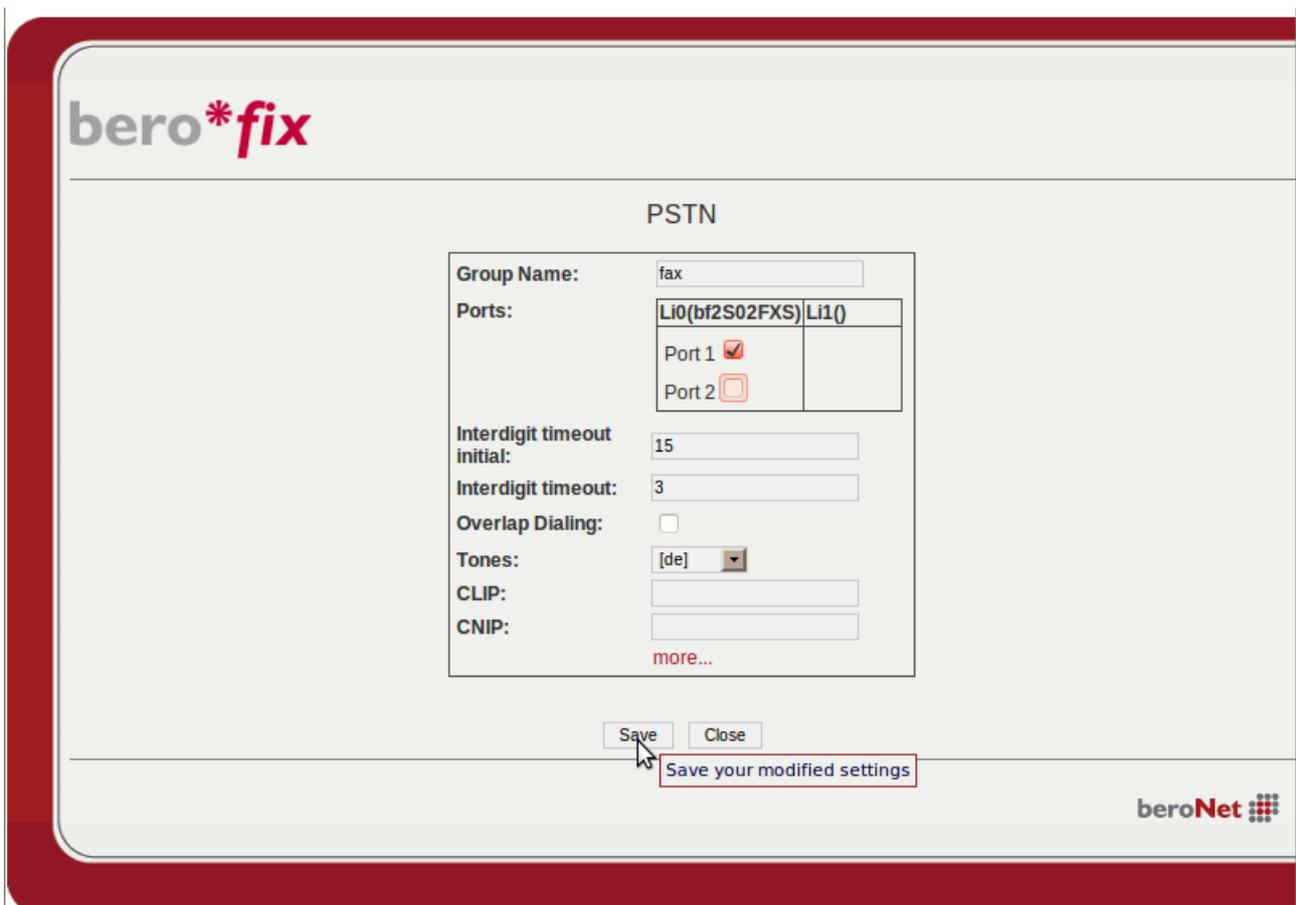
5.3 FAX Setup

The appliance beroFix should be capable of routing calls to the Fax Extensions to the local FXS port and calls coming from the FXS port directly to the PSTN group. So we must add an analog group for the Fax port (we use an analog phone as Fax simulator to make this example easier to test).

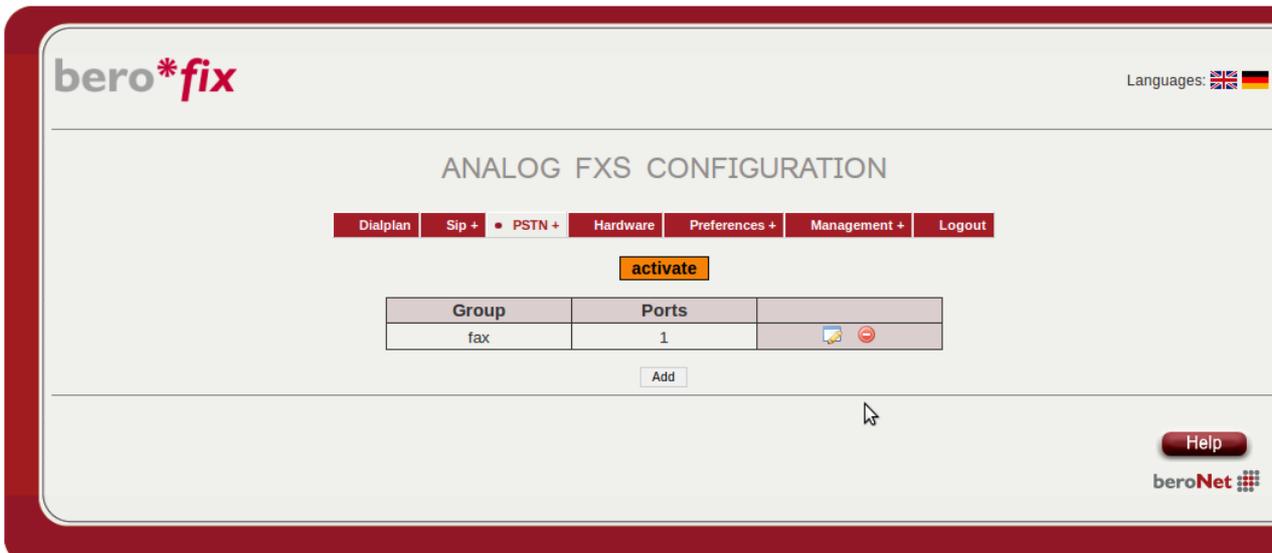
First of all we add an analog group in PSTN->Analog FXS (don't forget to enable pop-ups).



We give this group a name (fax in this case) and we put port 1 into the group:



After clicking save, you can see the new analog group in the analog group list:

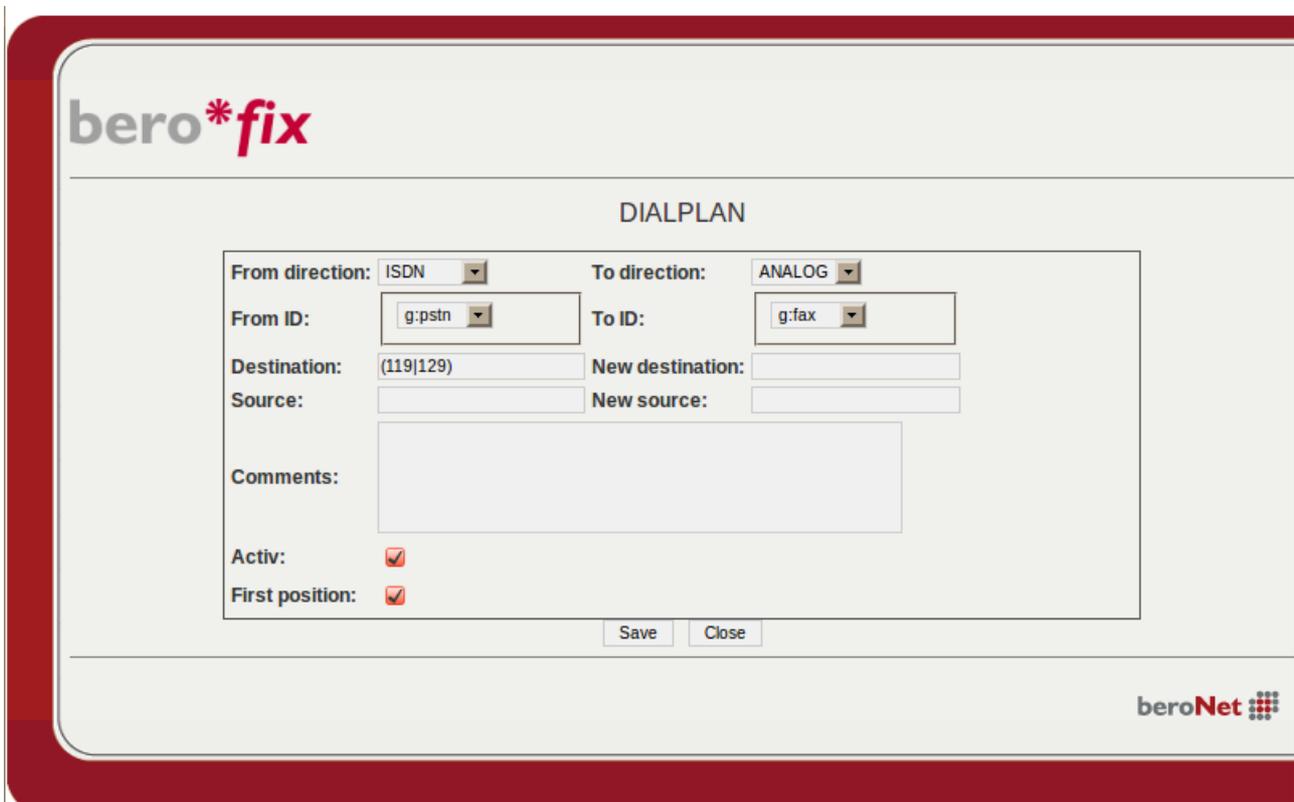


Note, that this time we have only an orange activate button.

Now we need to configure the Fax Call Routing.

5.4 FAX Routing

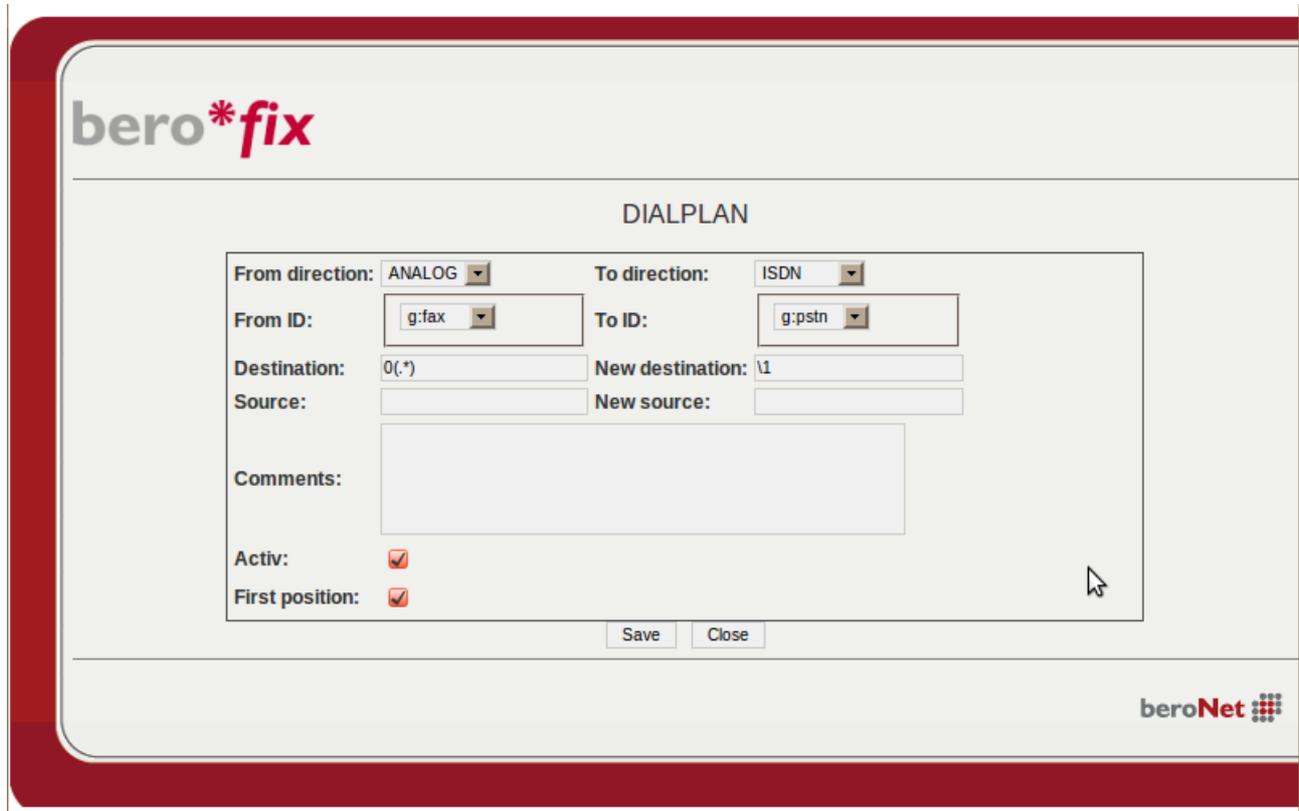
The Fax Call Routing must be configured in the Dialplan. There we just add a new rule to the existing two rules which looks like:



We need an inbound rule coming from ISDN, so the From Direction is ISDN and we use the From ID "pstn", the name of the PSTN Group. Now we use the Destination field to tell beroFix that this rule only applies when either the

number 119 or the number 129 is dialed. In this examples these numbers are both the Fax extensions. Then this calls should be routed to analog, to the Fax Group. Make sure to set the First-Position flag because the Dialplan's priority works from up to down like in a Firewall (first rule matches first).

Next we need also an outbound rule:



The screenshot shows the 'bero*fix' DIALPLAN configuration window. The title bar reads 'DIALPLAN'. The form contains the following fields and options:

- From direction:** ANALOG (dropdown)
- To direction:** ISDN (dropdown)
- From ID:** g:fax (dropdown)
- To ID:** g:pstn (dropdown)
- Destination:** 0(.*) (text input)
- New destination:** \1 (text input)
- Source:** (empty text input)
- New source:** (empty text input)
- Comments:** (empty text area)
- Activ:**
- First position:**

At the bottom of the form are 'Save' and 'Close' buttons. The 'beroNet' logo is visible in the bottom right corner of the window.

Since we normally want that the clients prefix their dialed numbers with a 0 and we want them to have the same experience on the Fax Machine, we must skip the preceding 0.

This rule goes from analog (group Fax) to ISDN (Group PSTN), the destination is 0(.*)

It means that this rule only applies when anything is called that begins with a 0. The Destination and the Source Field uses regular expressions for matching certain numbers. A .* means any number, everything what is outside of the round braces () will not be used as NewDestination. So when somebody dials 0123 it goes into the Destination, the 0 is stripped of and 123 will be the NewDestination which goes out via ISDN.

Put this rule also at the first position by enabling the "First position" flag.

The dialplan of the appliance beroFix should now look like:

bero*fix Languages:

DIALPLAN

• Dialplan Sip + PSTN + Hardware Preferences + Management + Logout

Direction: all Search: Entries per page: 15

Direction	From ID	To ID	Destination	New destination	Source	New source	Position
analog-isdn	g:fax	g:pstn	0(*)	\1	(*)	\1	1
isdn-analog	g:pstn	g:fax	(119 129)	\1	(*)	\1	2
sip-isdn	p:asterisk	g:pstn	(*)	\1	(*)	\1	3
isdn-sip	g:pstn	p:asterisk	(*)	\1	(*)	\1	4

Add

Pages: 1

Help

beroNet

The first two rules are for the Fax handling. And the second two rules are for the ISDN->SIP and SIP->ISDN Routing.

Note that there are 2 conflicting rules coming from ISDN. Rule 2 and rule 4. Since rule 2 is more explicit (only the 2 extensions 119 and 129) and rule 4 is more generic (* = everything), rule 2 must be higher in the dialplan.

5.5 SIP Configuration

Some PBX require that you register at the PBX. You can do that with beroFix by enabling the Register flag in the SIP Account for this PBX. The “Easy Configuration Wizard” doesn't registers by default, so you need to modify this at SIP->SIP:

The screenshot shows the SIP configuration interface in the bero*fix application. The form is titled "SIP" and contains the following fields and options:

Name:	asterisk
Server Address:	172.20.70.31
User:	test
Secret:	test
Register:	<input checked="" type="checkbox"/>
Registration interval:	60
Register option:	validate
Hard reregister:	<input type="checkbox"/>

Below the form, there are two buttons: "Save" and "Close". A tooltip is visible over the "Save" button, containing the text "Save this SIP settings." A "more..." link is also present below the form.

Here you simply need to enable the Register flag and provide a Registration Interval (300 is an adequate value).

6 Appliance and beroFix Configuration with 3CX

The configuration process starts by adding a PSTN Gateway to 3CX. The 3CX Wizard guides you through this process and finally gives you the option to configure beroFix with the 3CX Wizard. The complete configuration of the appliance beroFix can be done via the 3CX Wizard in beroFix.

6.1 Add a PSTN Gateway to 3CX

The first step is to click on PSTN Gateways with the right mouse click and choose add PSTN Gateway. You will get a screen where you can define a name and choose a manufacturer:

PSTN-Gateway hinzufügen

Name	<input type="text" value="BeroNet"/>	?
Hersteller	<input type="text" value="BeroNet"/>	?
Modell	<input type="text" value="bero*fix BRI (400/1600/6400)"/>	?
Beschreibung	BeroNet bero*fix BRI (400/1600/6400) 4 or 8 Ports	
URL	 http://www.beronet.com	
Weitere unterstützte Gateways finden Sie hier:	http://wiki.3cx.com/gateway-configuration/vendor-supported	

choose the Name “beroNet” and the manufacturer beroNet.

Click on Next and provide the IP address of your PBX beroFix device:

VoIP-Gateway

Hostname oder IP-Adresse	<input type="text" value="10.172.0.212"/>	?
Port (Standard: 5060)	<input type="text" value="5060"/>	?
Port-Anzahl	<input type="text" value="1"/>	?
Typ	<input type="text" value="BRI"/>	?
Anzahl der Kanäle je Port	<input type="text" value="2"/>	?

Click on next and change the password to 10000 to keep things simple:

Ports erstellen

Die folgenden Ports werden auf der Seite „Ports erstellen“ eingerichtet. Vor der Erstellung können Sie die Port-Kennung und Authentifizierungseinstell. Identifizierung dient. Die „Interne Nummer“ wird von der 3CX IP-Telefonanlage zum Ansprechen der mit dem VoIP-Gateway-Port verbundenen Leitung sollte sich daher von dem der Nebenstellennummern unterscheiden. Abhängig von der Uhrzeit des Anrufeingangs (innerhalb/außerhalb der Geschäfts werden (eingehende Route).

Auswahl entfernen	Virtuelle Nebenstelle	Authentifizierungs-ID	Authentifizierungspasswort	Kanäle	Port-Kennung
<input type="checkbox"/>	10000	10000	10000	2	10000

Here you can also define if you want to have more than 2 channels, but leave it at 2 for the moment.

The next step is that 3CX prompts you to create an outbound rule for beroFix:

The screenshot shows the 'PSTN-Geräte' configuration page in 3CX. It is titled 'Erstellen Sie eine Regel, über welche(n) PSTN-Port, VoIP-Provider oder Bridge ausgehende Anrufe getätigt werden sollen.' The 'Allgemein' section has 'Regelname' set to 'Regel für BeroNet bero'fix'. The 'Diese Regel anwenden auf' section is titled 'Legen Sie fest, auf welche ausgehenden Anrufe diese Regel anzuwenden ist.' It contains three fields: 'Anrufe für Nummern, die beginnen mit (Präfix)' with the value '0', 'Anrufe von Nebenstelle(n)', and 'Anrufe für Nummern mit einer Länge von'. The 'Ausgehende Anrufe durchführen über' section is titled 'Legen Sie bis zu 3 Routen für ausgehende Anrufe fest. Die zweite und dritte Route dienen als Backup. Die zweite und dritte Routen'. It shows a table with one route: Route 1, 'BeroNet bero'fix', 'Ziffern entfernen' (set to 1), and 'Ziffern voranstellen'.

Just define, that beroFix can be reached with a preceding 0 and skip 1 digit, so that the 0 is skipped.

In the next step 3CX shows you what it has configured, here you can click on "Configure beroFix Gateway" and 3CX sends you to the 3CX wizard in beroFix. beroFix will prompt you for a username:password (admin:admin).

Now you can configure beroFix with the 3CX Wizard:

The screenshot shows the '3CX Wizard' configuration page. It is divided into three main sections: 'PSTN Outgoing options', 'PSTN to FXS Redirection (for example analog Fax devices)', and '3CX options'. The 'PSTN Outgoing options' section includes: 'Select your external ISDN BRI lines.' with 'Available Ports Lif0:' checked for 1 and 2; 'Are lines Point to Point (PTP) or Point to Multi Point (PMTP) ?' with 'PTP' selected; 'For wich country should the tonset be configured ?' with '[de]' selected; 'Is "CLIP No Screening" activated on the lines ?' with 'no' selected; and 'Is "Call Deflection Partion Rerouting" activated on the lines ?' with 'no' selected. The 'PSTN to FXS Redirection' section has two input fields: 'Enter MSN/DID to redirect to/from FXS Port'1' with the value '119' and 'Enter MSN/DID to redirect to/from FXS Port'2'. The '3CX options' section has three input fields: 'IP-Address of the 3CX Phone System machine:' with '172.20.70.31', 'Auth-ID of the port created for gateway (eg 10000):' with '10000', and 'AuthPassword of this port:' with a masked password. A 'Save' button is at the bottom.

First of all you need to define which ports you want to use, just choose port 1 from Lif0. Leave the other settings at their defaults and add the number 119 as MSN/DID Fax redirection for port 1.

At the 3CX options you need to define the IP address of your PBX and use the previously configured Auth ID and Auth Password (10000 and 10000).

After clicking “save” and “ok” you will be redirected to the Login Page of beroFix. Before clicking on “Activate” we check the created Dialplan Rules by going to “Dialplan”:

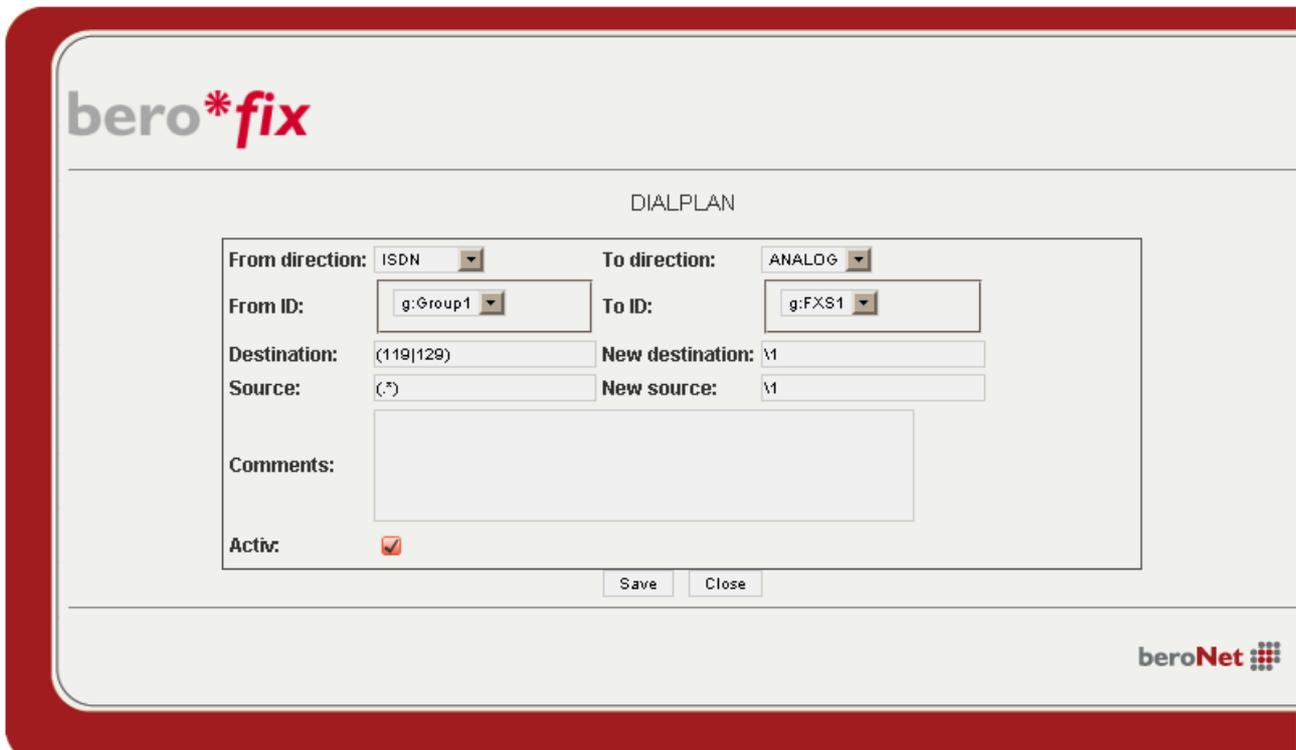
The screenshot shows the 'DIALPLAN' management interface in the bero*fix system. At the top, there is a navigation menu with tabs for 'Dialplan', 'Sip', 'PSTN', 'Hardware', 'Preferences', 'Management', and 'Logout'. Below the navigation is an 'activate' button. The main content area displays a table of dialplan rules. The table has columns for 'Direction', 'From ID', 'To ID', 'Destination', 'New destination', 'Source', 'New source', and 'Position'. There are 5 rules listed in the table. Below the table is an 'Add' button and a 'Pages: 1' indicator.

Direction	From ID	To ID	Destination	New destination	Source	New source	Position
isdn-analog	g:Group1	g:FXS1	(119)	∅	(*)	∅	1
analog-isdn	g:FXS1	g:Group1	(*)	∅	(*)	119	2
isdn-sip	g:Group1	p:10000	(*)	∅	(*)	∅	3
sip-isdn	d:10000	g:Group1	CF(*)	∅	(*)	∅	4
sip-isdn	d:10000	g:Group1	(*)	∅	(*)	∅	5

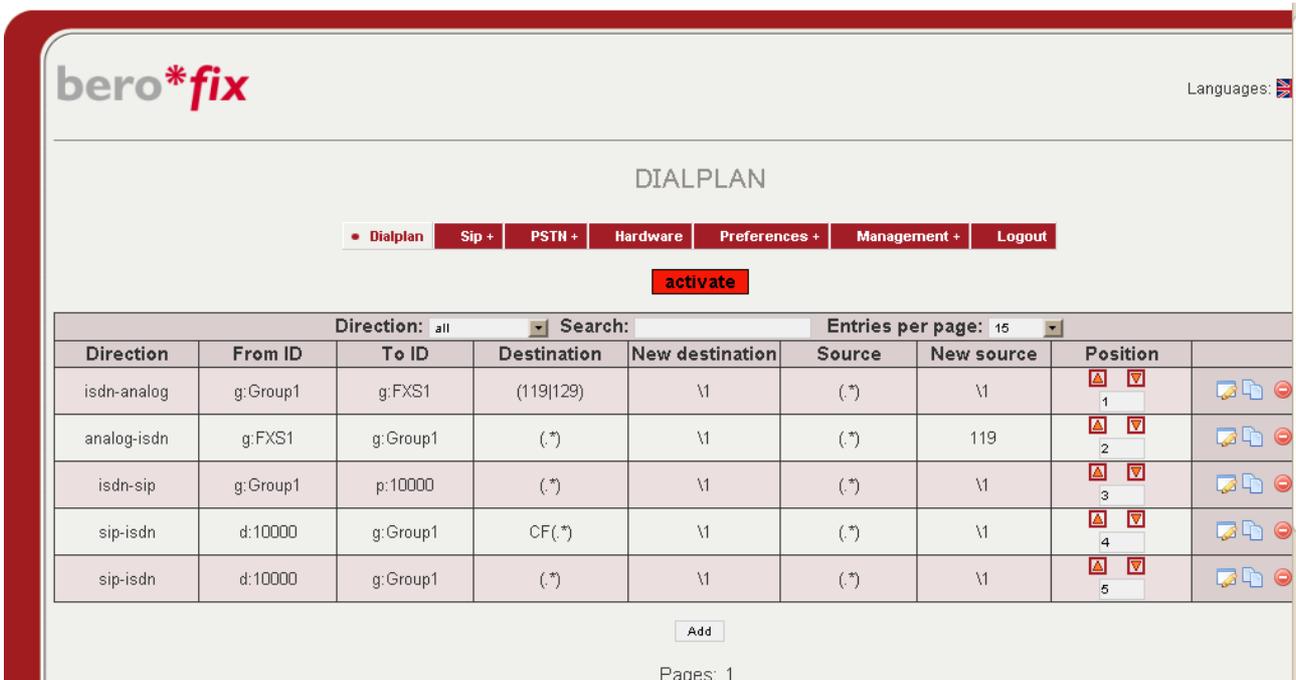
The wizard generates a pair of rules (1 and 2) for the routing of the Fax calls, group1 is the ISDN Group and FXS1 is the analog Fax group here. Note that calls coming from ISDN (Group1) will only go to FXS1 if the dialed number is 119.

The wizard also generates 3 rules for the SIP routing. Rule 3 is the Inbound Rule, coming from ISDN (group1) everything should go to 3CX (SIP Account 10000). The fourth rule is for Call-Forwarding which is not important now and will be discussed separately. The last rule is for outbound calling from 3CX (SIP account 10000) to ISDN (Group1).

To reach the same configuration level like in chapter 5 we need to modify the inbound Fax rule a little bit. So click on the modify icon of the first dialplan rule and change the Destination from (119) to (119|129):



After clicking “save” the dialplan list should now look like:



Now we can click activate and proceed with the test calls. Please read chapter 5.4 for more details on how the dialplan rules work.

7 Test Calls

After everything is configured according to this documentation you should be able to send out calls from your SIP PBX in the appliance with berofix via ISDN. These calls should then go to the PSTN simulator where the analog phone should ring. You should also be able to call from the analog phone on the PSTN simulator via ISDN into your appliance berofix which should route these calls either to the SIP PBX or to the Fax simulator.

7.1 Call into the appliance

Use the analog phone on the PSTN simulator and dial 101, which should now ring a phone in your SIP PBX.

7.2 Call out from the appliance

Dial a 0123 on your SIP PBX with a SIP phone which should go to the PBX berofix and from there to the PSTN simulator and should now ring the analog phone.

7.3 Call out via Fax

Use the analog phone on the appliance berofix (FAX simulator) and dial 0321, which should directly go to the PSTN simulator and ring the analog phone there.

7.4 Call into Fax

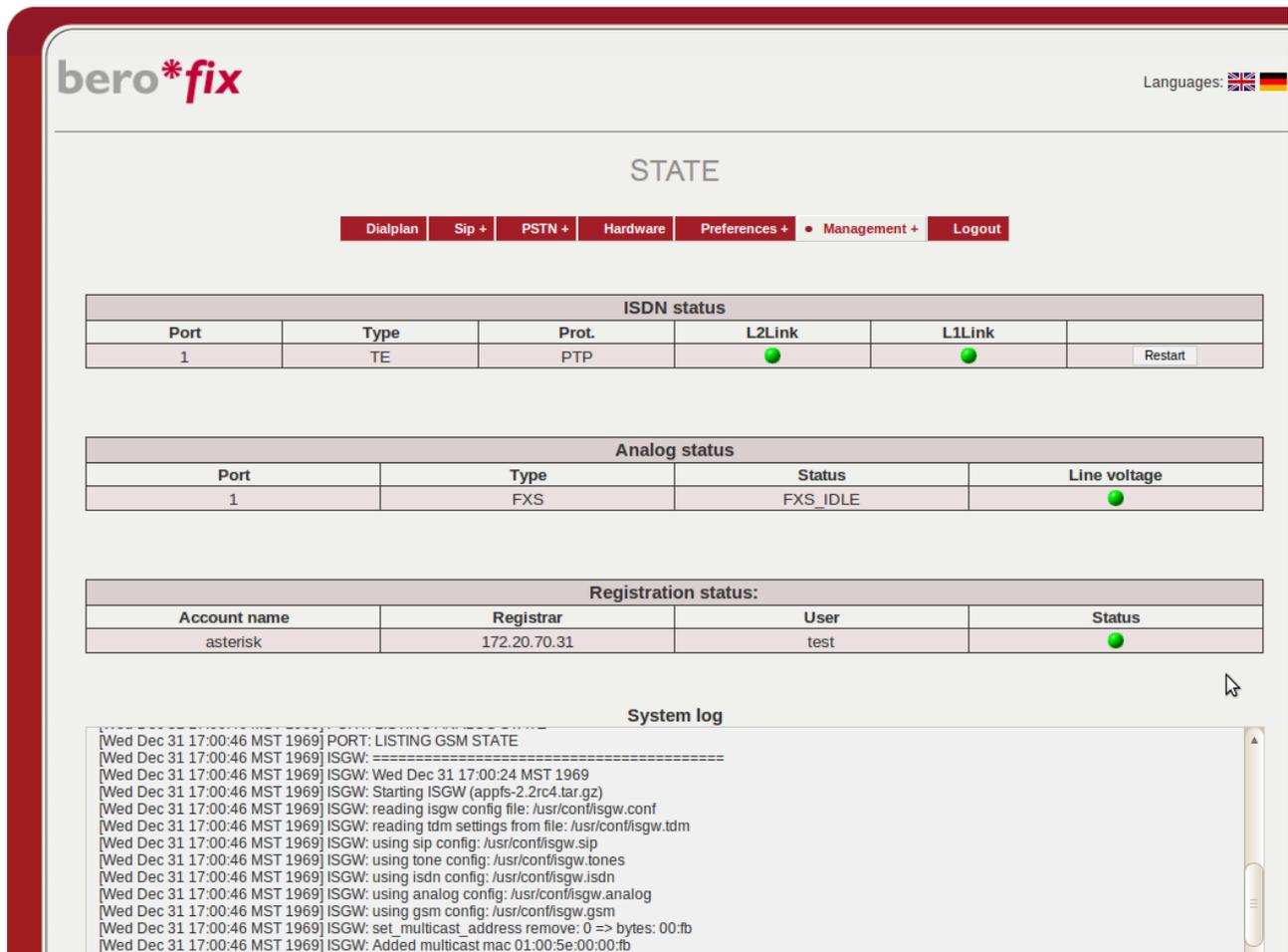
Dial one of the Fax extensions (119 and 129) on the PSTN simulator phone which should be routed to the appliance berofix and there directly to the analog phone (Fax Simulator) and ring this phone.

8 Troubleshooting

There are several Logging and Status screens in beroFix that help you to troubleshoot problems with the routing and the destination number and callerids.

8.1 State Screen

If everything went well the state screen should now look like:



The screenshot shows the 'STATE' screen in the bero*fix interface. At the top left is the logo 'bero*fix' and at the top right are language flags for UK and Germany. Below the title is a navigation menu with buttons for 'Dialplan', 'Sip +', 'PSTN +', 'Hardware', 'Preferences +', 'Management +', and 'Logout'. The main content area is divided into three sections:

- ISDN status:** A table with columns 'Port', 'Type', 'Prot.', 'L2Link', and 'L1Link'. Row 1: Port 1, Type TE, Prot. PTP, L2Link (green dot), L1Link (green dot). A 'Restart' button is in the bottom right.
- Analog status:** A table with columns 'Port', 'Type', 'Status', and 'Line voltage'. Row 1: Port 1, Type FXS, Status FXS_IDLE, Line voltage (green dot).
- Registration status:** A table with columns 'Account name', 'Registrar', 'User', and 'Status'. Row 1: Account name asterisk, Registrar 172.20.70.31, User test, Status (green dot).

At the bottom is a 'System log' section with a scrollable list of messages:

```
[Wed Dec 31 17:00:46 MST 1969] PORT: LISTING GSM STATE
[Wed Dec 31 17:00:46 MST 1969] ISGW: =====
[Wed Dec 31 17:00:46 MST 1969] ISGW: Wed Dec 31 17:00:24 MST 1969
[Wed Dec 31 17:00:46 MST 1969] ISGW: Starting ISGW (appfs-2.2rc4.tar.gz)
[Wed Dec 31 17:00:46 MST 1969] ISGW: reading isgw config file: /usr/conf/isgw.conf
[Wed Dec 31 17:00:46 MST 1969] ISGW: reading tdm settings from file: /usr/conf/isgw.tdm
[Wed Dec 31 17:00:46 MST 1969] ISGW: using sip config: /usr/conf/isgw.sip
[Wed Dec 31 17:00:46 MST 1969] ISGW: using tone config: /usr/conf/isgw.tones
[Wed Dec 31 17:00:46 MST 1969] ISGW: using isdn config: /usr/conf/isgw.isdn
[Wed Dec 31 17:00:46 MST 1969] ISGW: using analog config: /usr/conf/isgw.analog
[Wed Dec 31 17:00:46 MST 1969] ISGW: using gsm config: /usr/conf/isgw.gsm
[Wed Dec 31 17:00:46 MST 1969] ISGW: set_multicast_address remove: 0 => bytes: 00:fb
[Wed Dec 31 17:00:46 MST 1969] ISGW: Added multicast mac 01:00:5e:00:00:fb
```

The ISDN Status shows the L1 and the L2 Link of the configured (grouped) ISDN ports. You should see a green L1 and L2 indicator when the PBX Device is connected to the PSTN simulator.

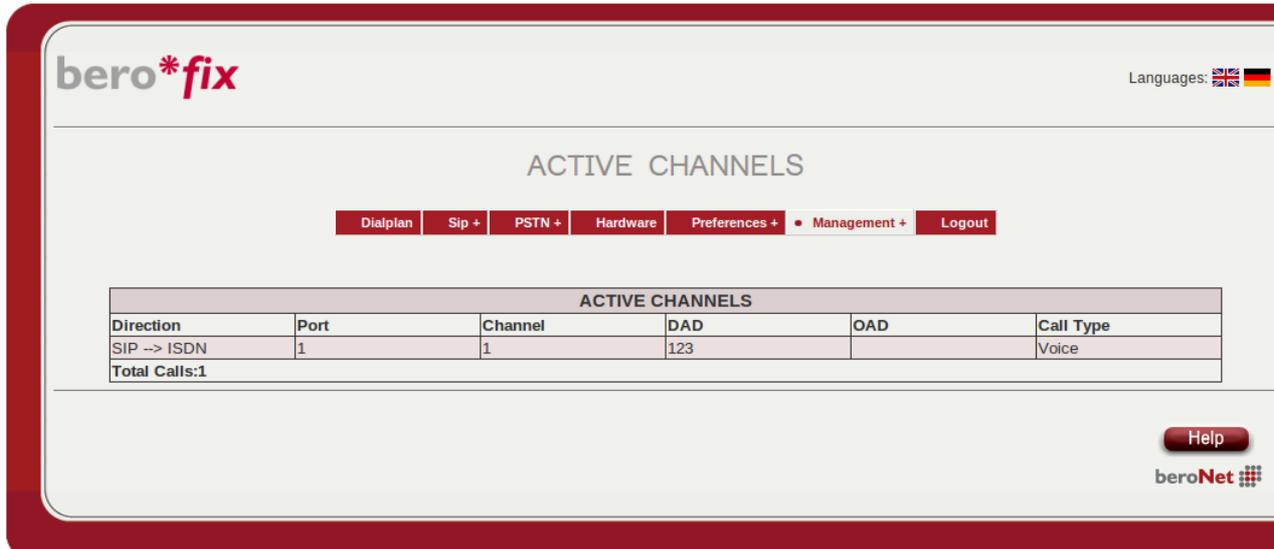
The analog status shows that the port has powered up properly with a green indicator.

The "Registration Status" should show a green lamp indicator when beroFix has successfully registered with the SIP PBX.

NOTE: When you hover over the L1 of the ISDN port, you will receive more detailed information like the physical link switches and the CRC errors for this port.

8.2 Channel State

The Channel State gives you an overview of the currently running calls. You can reach the channel state via Management->Channel State. You can create a SIP to ISDN call like in chapter 7.2 and then you can reload the channel state page, which should now look like:



The screenshot shows the 'ACTIVE CHANNELS' page in the bero*fix web interface. The page has a navigation menu with 'Management +' selected. Below the menu is a table titled 'ACTIVE CHANNELS' with the following data:

Direction	Port	Channel	DAD	OAD	Call Type
SIP -> ISDN	1	1	123		Voice
Total Calls:1					

The interface also includes a 'Help' button and the beroNet logo in the bottom right corner.

Make a screen shot of this channel state screen.

8.3 Create Dialplan Debug

The next step in troubleshooting is the Dialplan Debug. It can be enabled under Management->Dialplan Debug.

Simply click on "Start Dialplan Debugging":

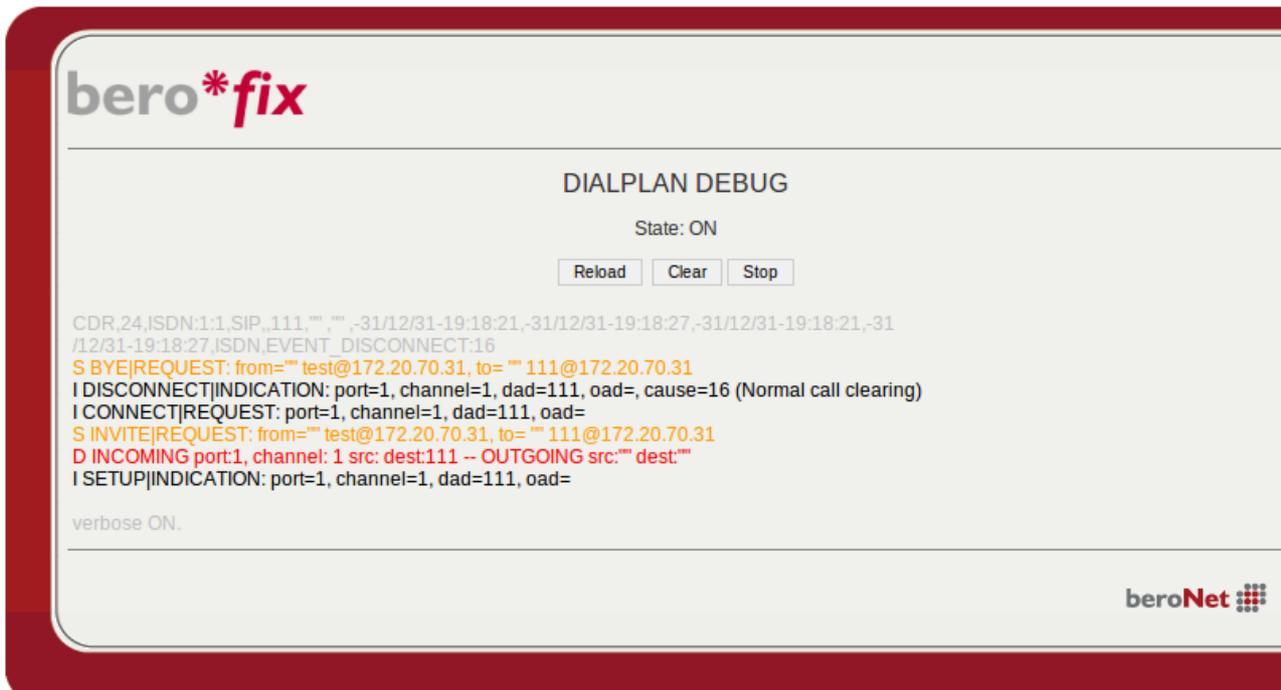


The screenshot shows the 'DIALPLAN DEBUG' page in the bero*fix web interface. The 'Management +' menu item is selected. A 'Debug Dialplan' dialog box is open, showing a 'Status:' field with a red indicator and a 'Start dialplan debugging' button. A mouse cursor is hovering over the button, and a tooltip with the same text is visible. The interface also includes a 'Help' button and the beroNet logo in the bottom right corner.

Now a PopUp opens, which displays a live call log.

For the Partner Approval you need to do the test calls from chapter 7 and create screen shots of the dialplan debug output. Make sure to always stop and restart the dialplan debug for every test.

The Dialplan Debug for 7.1 looks like:



bero*fix

DIALPLAN DEBUG

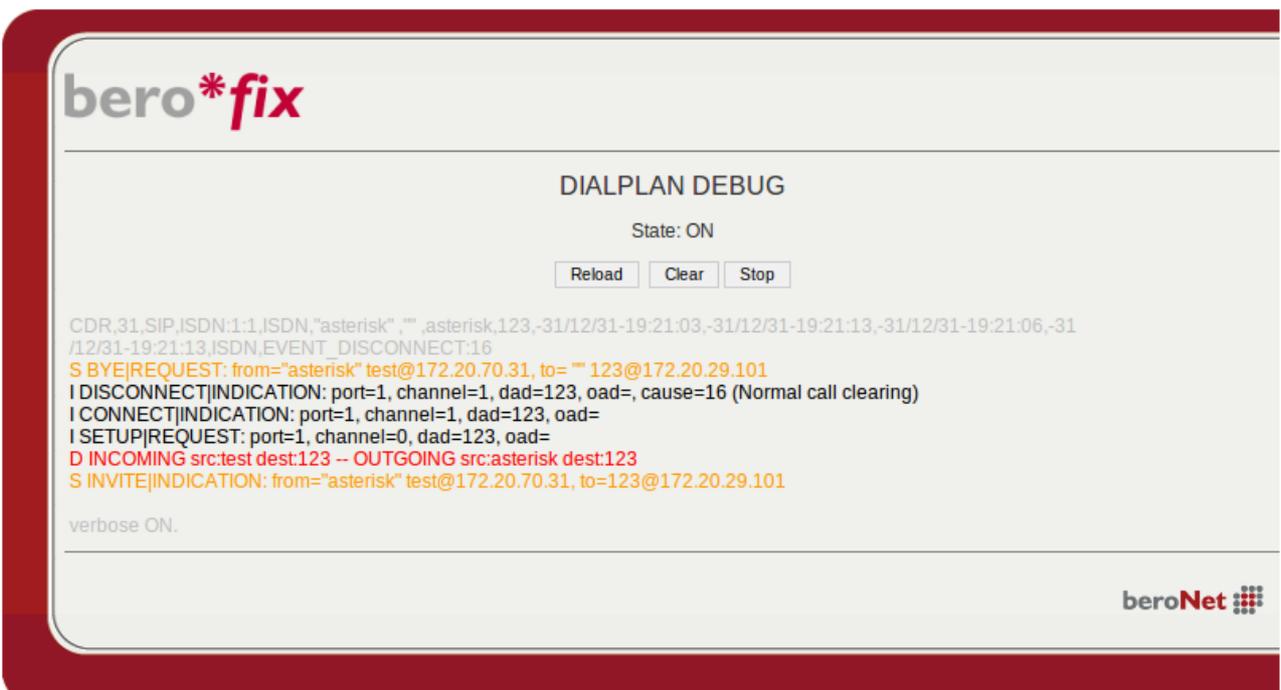
State: ON

```
CDR,24,ISDN:1:1,SIP,111,"",-31/12/31-19:18:21,-31/12/31-19:18:27,-31/12/31-19:18:21,-31/12/31-19:18:27,ISDN_EVENT_DISCONNECT:16
S BYE|REQUEST: from="" test@172.20.70.31, to= "" 111@172.20.70.31
I DISCONNECT|INDICATION: port=1, channel=1, dad=111, oad=, cause=16 (Normal call clearing)
I CONNECT|REQUEST: port=1, channel=1, dad=111, oad=
S INVITE|REQUEST: from="" test@172.20.70.31, to= "" 111@172.20.70.31
D INCOMING port:1, channel: 1 src: dest:111 -- OUTGOING src:"" dest:""
I SETUP|INDICATION: port=1, channel=1, dad=111, oad=
```

verbose ON.

beroNet 

7.2 gives you this Dialplan Debug:



bero*fix

DIALPLAN DEBUG

State: ON

```
CDR,31,SIP,ISDN:1:1,ISDN,"asterisk", "",asterisk,123,-31/12/31-19:21:03,-31/12/31-19:21:13,-31/12/31-19:21:06,-31/12/31-19:21:13,ISDN_EVENT_DISCONNECT:16
S BYE|REQUEST: from="asterisk" test@172.20.70.31, to= "" 123@172.20.29.101
I DISCONNECT|INDICATION: port=1, channel=1, dad=123, oad=, cause=16 (Normal call clearing)
I CONNECT|INDICATION: port=1, channel=1, dad=123, oad=
I SETUP|REQUEST: port=1, channel=0, dad=123, oad=
D INCOMING src:test dest:123 -- OUTGOING src:asterisk dest:123
S INVITE|INDICATION: from="asterisk" test@172.20.70.31, to=123@172.20.29.101
```

verbose ON.

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The Test 7.3 shows the following Dialplan Debug log:



bero*fix

DIALPLAN DEBUG

State: ON

```
CDR.29,ANALOG:1,SIP_0123,-31/12/31-19:20:21,-31/12/31-19:20:36,-31/12/31-19:20:30,-31/12/31-19:20:34,SIP,NUA_1_BYE:200
A ANALOG_EVENT_IDLE|INDICATION: port=1
CDR.30,SIP,ISDN:1:1,ISDN,"",123,-31/12/31-19:20:26,-31/12/31-19:20:34,-31/12/31-19:20:30,-31
/12/31-19:20:34,ISDN.EVENT_DISCONNECT:16
S BYE|REQUEST: from="" @172.20.29.101, to="" ISDNZUISDN00001c48a60f6123@172.20.29.101
I DISCONNECT|INDICATION: port=1, channel=1, dad=123, oad=, cause=16 (Normal call clearing)
A OFFHOOK|REQUEST: port=1
I CONNECT|INDICATION: port=1, channel=1, dad=123, oad=
I BRIDGE|REQUEST: ISDN/ANALOG ports=1/1, channels=1/1, dads=123/0123, oads=/
I SETUP|REQUEST: port=1, channel=0, dad=123, oad=
D INCOMING src: dest:ISDNZUISDN00001c48a60f6123 -- OUTGOING src: dest:123
S INVITE|INDICATION: from="" @172.20.29.101, to=ISDNZUISDN00001c48a60f6123@172.20.29.101
A ANALOG_EVENT_OFFHOOK|INDICATION: port=1
```

verbose ON.

beroNet 

The result of the test 7.4 is:

bero*fix

DIALPLAN DEBUG

State: ON

```
CDR,28,SIP,ANALOG:1:1,ANALOG,"",,"",129,-31/12/31-19:19:42,-31/12/31-19:19:55,-31/12/31-19:19:46,-31/12/31-19:19:53,SIP,NUA,I,BYE:200
A ANALOG_EVENT_IDLE|INDICATION: port=1
CDR,27,ISDN:1:1,SIP,,129,"",,"",-31/12/31-19:19:42,-31/12/31-19:19:53,-31/12/31-19:19:46,-31/12/31-19:19:53,ISDN,EVENT_DISCONNECT:16
S BYE|REQUEST: from="" @172.20.29.101:5060, to="" ISDNZUISDN00001c21a3a09129@172.20.29.101:5060
I DISCONNECT|INDICATION: port=1, channel=1, dad=129, oad=, cause=16 (Normal call clearing)
I CONNECT|REQUEST: port=1, channel=1, dad=129, oad=
I BRIDGE|REQUEST: ISDN/ANALOG ports=1/1, channels=1/1, dads=129/129, oads=/
A ANALOG_EVENT_OFFHOOK|INDICATION: port=1
A RINGING|REQUEST: port=1
D INCOMING src: dest:ISDNZUISDN00001c21a3a09129 -- OUTGOING src: dest:129
S INVITE|INDICATION: from="" @172.20.29.101, to=ISDNZUISDN00001c21a3a09129@172.20.29.101
S INVITE|REQUEST: from="" @172.20.29.101:5060, to="" ISDNZUISDN00001c21a3a09129@172.20.29.101:5060
D INCOMING port:1, channel: 1 src: dest:129 -- OUTGOING src:"" dest:""
I SETUP|INDICATION: port=1, channel=1, dad=129, oad=
CDR,25,ISDN:1:1,SIP,,119,"",,"",-31/12/31-19:19:16,-31/12/31-19:19:26,-31/12/31-19:19:19,-31/12/31-19:19:26,SIP,NUA,I,BYE:200
I RELEASE|INDICATION: port=1, channel=1, dad=119, oad=, cause=16 (Normal call clearing)
I DISCONNECT|REQUEST: port=1, channel=1, dad=119, oad=, out_cause=16 (Normal call clearing)
CDR,26,SIP,ANALOG:1:1,ANALOG,"",,"",119,-31/12/31-19:19:16,-31/12/31-19:19:26,-31/12/31-19:19:19,-31/12/31-19:19:26,ANALOG,ANALOG_EVENT_IDLE:0
S BYE|REQUEST: from="" @172.20.29.101, to="" ISDNZUISDN00001c21a3a09119@172.20.29.101
A ANALOG_EVENT_IDLE|INDICATION: port=1
I CONNECT|REQUEST: port=1, channel=1, dad=119, oad=
I BRIDGE|REQUEST: ISDN/ANALOG ports=1/1, channels=1/1, dads=119/119, oads=/
A ANALOG_EVENT_OFFHOOK|INDICATION: port=1
A RINGING|REQUEST: port=1
D INCOMING src: dest:ISDNZUISDN00001c21a3a09119 -- OUTGOING src: dest:119
S INVITE|INDICATION: from="" @172.20.29.101, to=ISDNZUISDN00001c21a3a09119@172.20.29.101
S INVITE|REQUEST: from="" @172.20.29.101:5060, to="" ISDNZUISDN00001c21a3a09119@172.20.29.101:5060
D INCOMING port:1, channel: 1 src: dest:119 -- OUTGOING src:"" dest:""
I SETUP|INDICATION: port=1, channel=1, dad=119, oad=
```

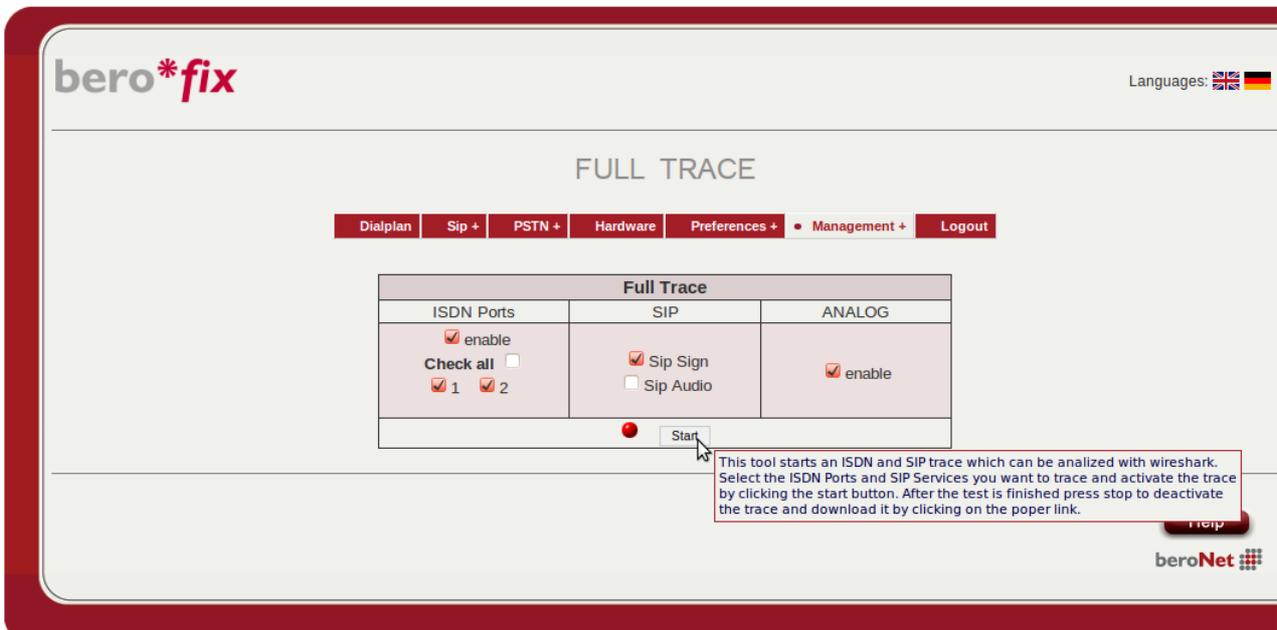
verbose ON.

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NOTE: This dialplan debug log contains 2 Calls, on the 119 and on the 129.

8.4 Create Fulltrace

The most detailed analyzing tool is the fulltrace, which can be found at 'Management->Fulltrace'.



The fulltrace is started like the dialplan debug, but it does not create a live log. Instead it stores a trace and after you have clicked on the button 'Stop', it creates a debug file which can be downloaded. This debug file contains three important items:

1. a trace of the PSTN side
2. a trace of the SIP side
3. the complete configuration of the beroFix device

These traces and configurations can help us resolving your issue quickly.

You might want to look at the fulltrace yourself to understand what's happening. The most important file in the fulltrace is the "tcpDump" file, which can be opened with Wireshark.

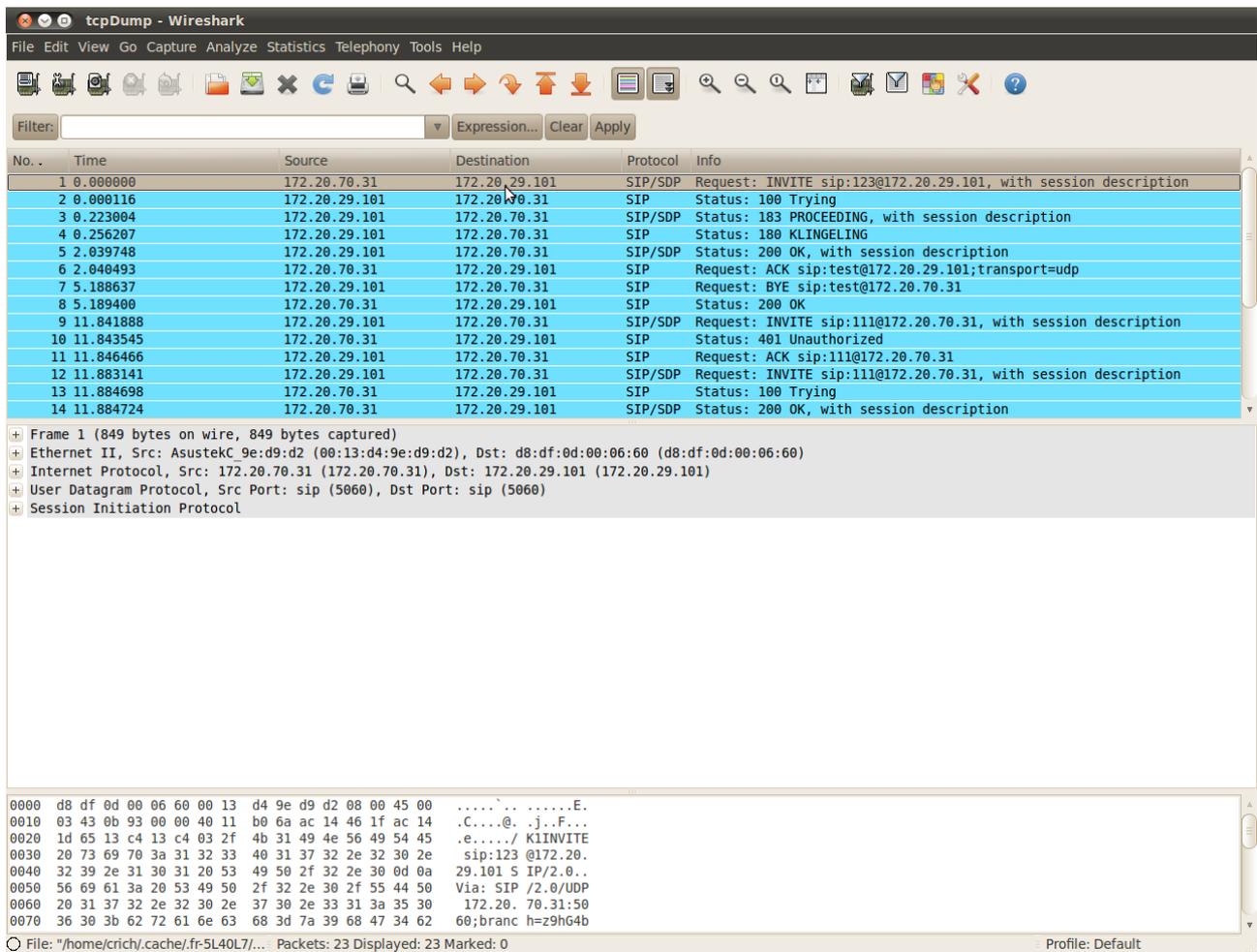
The fulltrace package is a gzipped tarball. Under Linux it can be opened directly, using tar or one of its frontends (file-roller, etc.). If you're using Windows, a tool like 7zip or winrar is needed to open this file.

The contents of this package is shown below:

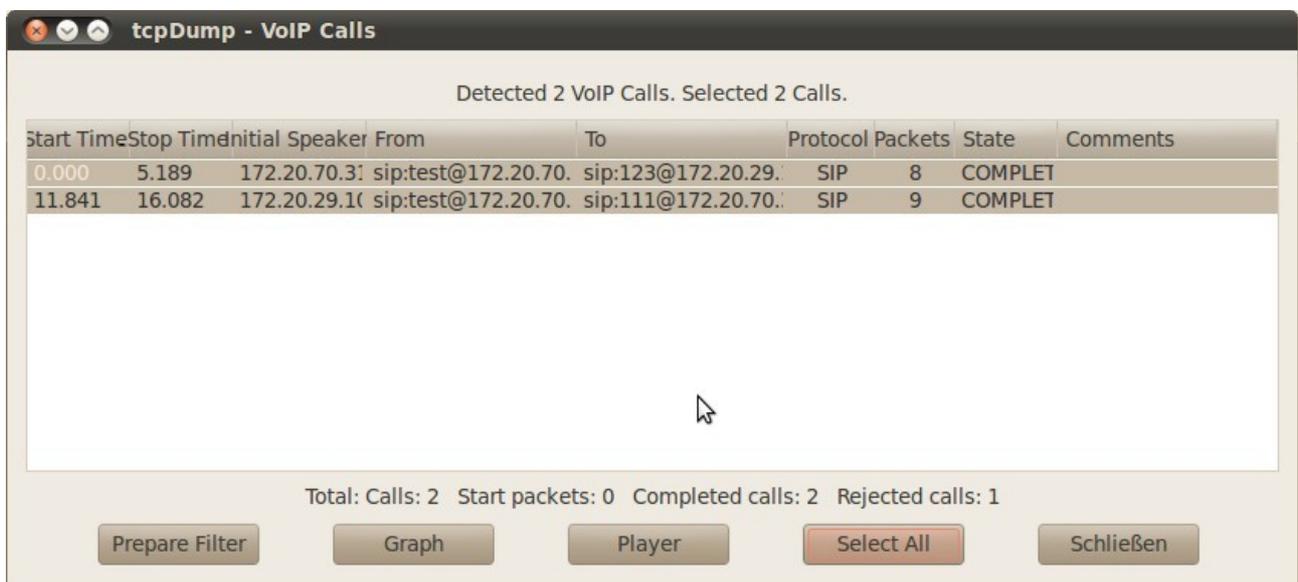
The screenshot shows a file manager window titled "DebugFiles.tar.gz [schreibgeschützt]". The window has a menu bar with "Datei", "Bearbeiten", "Ansicht", and "Hilfe". Below the menu bar is a toolbar with icons for "Öffnen" (Open), "Entpacken" (Extract), and a close button. The current location is shown as "/".

Name	Größe	Typ	Änderungsdatum
usr	73,3 KB	Ordner	
analog_debug.log	143,8 KB	Anwendung...	01. Januar 1970, 03:23
debug.txt	17,0 KB	Einfaches T...	01. Januar 1970, 03:22
fulltrace-info.txt	14,2 KB	Einfaches T...	01. Januar 1970, 03:23
ISDNdebug-1	764 Bytes	Unbekannt	01. Januar 1970, 03:23
ISDNdebug-2	6 Bytes	Unbekannt	01. Januar 1970, 03:23
isgw.info1	720 Bytes	Unbekannt	01. Januar 1970, 03:23
isgw.info2	720 Bytes	Unbekannt	01. Januar 1970, 03:22
isgw.log.1	151,7 KB	Unbekannt	01. Januar 1970, 03:22
isgw.log.2	700 Bytes	Unbekannt	01. Januar 1970, 01:03
l1_stats	88 Bytes	Unbekannt	01. Januar 1970, 03:23
l2_stats	0 Bytes	Unbekannt	01. Januar 1970, 03:23
sofia.log	17,3 KB	Anwendung...	01. Januar 1970, 02:24
system.log	23,1 KB	Anwendung...	01. Januar 1970, 03:15
tcpDump	14,6 KB	Unbekannt	01. Januar 1970, 03:23
tcpDump.lo	24 Bytes	Unbekannt	01. Januar 1970, 03:23

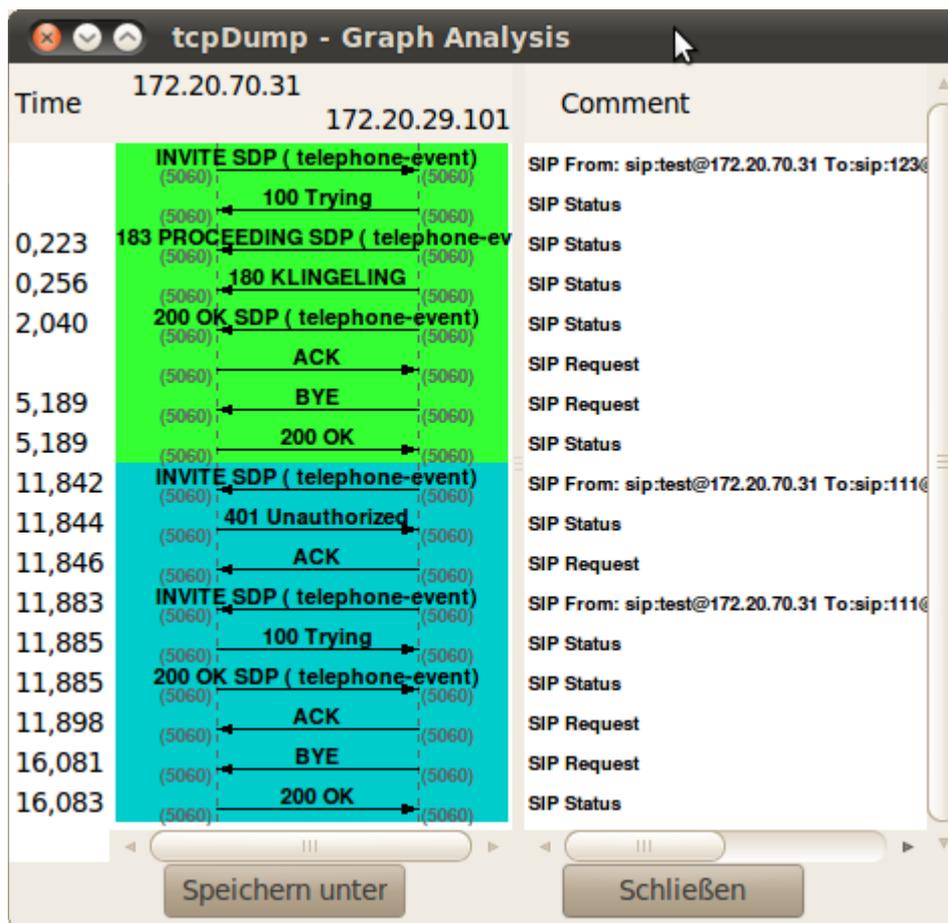
By opening the file 'tcpDump' with wireshark, you will see all SIP packets:



There is a very nice Feature of wireshark, that helps you to keep an overview of all the signaling, just go to "Telephony->VoIP Calls" and wireshark generates a list of calls:



Now you can select some of those calls and click on Graph. Then a diagram of all SIP packets will be shown:



You need to create a fulltrace with at least one inbound (chapter 7.1) and one outbound (chapter 7.2) call for the partner approval.

9 beroCloud

Now you need to register your beroFix to the beroCloud, to upload its configuration of your appliance beroFix into your beroCloud account.

9.1 Initial Setup

After you've received your initial login-credentials, you can go to the URL <http://berocloud.beronet.com/> to login.

The landing page is the Dashboard which gives you an overview of all the cloud items. Here you can see the location of your devices in a map, get a list of the five recently managed beroFixes, See your configurations, firmwares and projects. The Dashboard can be customized by dragging and dropping items in it.

The first thing you should do is:

1. change your password
2. add your locations

To change your password, go to Settings->My Account:



Then click on update user:

A screenshot of the 'View Users' page. The top navigation bar includes the 'beroCloud' logo and tabs for 'Home', 'Devices', 'Customers', 'Projects', and 'Settings'. Below the navigation, the page title is 'View Users #'. A breadcrumb trail shows 'Home / View Users #'. On the right side, there is a 'Logged in as '' indicator. The main content area features a table with the following columns: 'Idusers', 'Username', 'Active', 'First name', 'Last name', 'Organization', 'Tel', 'Fax', 'Mail', and 'User role'. To the right of the table, there is an 'Operations' column with links for 'To organization', 'Settings', 'Update User', and 'Delete User'. A mouse cursor is pointing at the 'Update User' link.

Idusers	Username	Active	First name	Last name	Organization	Tel	Fax	Mail	User role	Operations
										To organization
										Settings
										Update User
										Delete User

The form displayed lets you change your password and other user-specific information. To save your changes, click the 'Save' at the bottom of this form.



Update User

[Home](#) / [View Users #](#) / Update User

Logged in as "

Fields with * are required.

Operations
[View User](#)
[To organization](#)

Username *

First name

Active

Contact information

Tel

Email

Password

Generate random password

Last name

User Role

Fax

beroFix devices must be registered at the beroCloud. They need to be assigned to locations, so first thing to do is to add locations of your company.

You can create a location at Settings->My Company:

Home Devices Customers Projects **Settings**

Logged in as "

My Account
My Company
 Logout

Click on "Create Location" to add a new location:



View Company

[Home](#) / View Company berotest

Logged in as "

Parent	
Name	
Device register key	
Tel	
Fax	
Mail	
Organization role	
VAT number	

Operations
[List Company](#)
[Create Customer](#)
[Update Company](#)
[Delete Company](#)
[Create Location](#)
[Create User](#)

And here you can fill in your details and finally click save.



Create Location

Home / View Company berotest / Create Location

Logged in as "

Fields with * are required.

Operations

[Back to customer](#)

Address *

Friedrichstraße 231

Zip *

10696

City *

Berlin

Country *

Germany

Contact information

Tel

Fax

Email

Cancel Save

Now you're able to register berofix devices to your cloud account.

9.2 Register appliance berofix @ Cloud

The berofix registration procedure is very simple: you just need your login credentials of the berocloud which you use in the berofix cloud settings:

Open the berofix GUI and navigate to 'Management->Remote Management'. There you can enter your user credentials and register your device by clicking the button 'Register'.

Cloud Username:	admin
Cloud password:	•••••
Register	

The registration process might take a while, but after the device has been registered successfully, a notification will inform you of success:

REMOTE MANAGEMENT

Dialplan Sip + PSTN + Hardware Preferences + **Management +** APPS + Logout

activate

A query of your device was registered and will be executed. Device was registered. Now you can use it in your beroCloud Account!

Cloud	
Cloud enable:	<input type="checkbox"/>
Cloud key:	<input type="text" value=""/>
Save	

Cloud Username:	<input type="text" value="admin"/>
Cloud password:	<input type="password" value=""/>
Register	

SNMP	
SNMP enable:	<input type="checkbox"/>
Save	
Download BEROFIX-MIB	

Help

beronet

Finally you need to enable the berocloud by clicking the „cloud enable“ checkbox, then save and „activate“.

Now you'll have to switch back to the beroCloud, where you will find your freshly registered device under 'Device->Device List'.

That's it! Your berofix device is now connected to the Cloud.

9.3 Backup configuration to beroCloud

You can instantly generate a single backup with the "Backup Config" Task. The backup will appear in the list of backup in the view 'Device Details', after the task has been completed.

To create a backup, go to the Device Details View, and click on "Task

Scheduler”:



View Device #003

Home / Manage Devices / View Device #003

Logged in as ”

Monitoring

Status of the last month



Alive

Monitoring date	Alive
No results found.	

SIP

Name	Monitoring date	State
No results found.		

beroFix details

Serial	
Name	
Firmware version	
IP address	
Access IP address	
MAC address	
API port	
Berofix type	
Location	
Customer	
Project	
Change date	
Line Interface 0	
Line Interface 1	
Config	
Uptime	
Isgw Uptime	
Regular Backup	
Cloud key	
Download Log	
Cloud API version	
Watchdog intervall (Min)	

Task scheduler

Task	Execution Time
Query	01.10.2012 13:02:50

Patches

Name
No results found.

Operations

- Device
 - [List Devices](#)
 - [Update Device](#)
 - [Deregister Device](#)
- Alert
 - [List alert](#)
 - [Manage alert list](#)
- Patch
 - [List patch](#)
 - [Create patch](#)
- Miscellaneous
 - [List SIP Peers](#)
 - [List Backups](#)
 - [Task scheduler](#)
 - [Monitoring ISDN Ports](#)
 - [Monitoring GSM Ports](#)
 - [Statistic](#)
 - [Request Support](#)



Enable 'backupConfig' in the 'Task Scheduler', click then on the calendar and click on "Now". To start the backup, click on 'Save':

Manage task scheduler (0031)

[Home](#) / [Manage Devices](#) / [View Device #003147](#) / Manage task scheduler (0031)

Logged in as "

- Query
- updateFW
- reboot
- activate
- updateConfig
- backupConfig
- updateAPI
- createTunnel Access restriction

Operations
[Back to device](#)

Regular backup

The backup process takes a few minutes. When completed, the backup should appear in the 'BackupList' under 'Device Details'.

10 Partner Approval Process

The partner approval process is finished after you have completed this tutorial, sent us the traces created in chapter 7 and 8 and uploaded a Backup of the configuration of the PBX beroFix to the beroCloud as described in chapter 9. The zipped traces can be sent to training@beronet.com.

To receive help while completing this tutorial, but also for questions that might come up later, you can always contact the beroNet Support-Team via support@beronet.com or call our support hotline.

Further documentation can be found at <http://wiki.beronet.com/>