



FIBERME Communications LLC.

Configuring FAG410X with Elastix

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OVERVIEW

This document describes basic configuration to interconnect Elastix and FAG410X. In this document, we are using FAG4108 as an example. The following methodology can be used for the FAG4104 as well. This is typically applied to the scenario where users would like to add a FAG410X not only as a remote extension but also as an external PSTN trunk.

There are two ways to set up the Elastix IP PBX with the FAG410X.

- **Method 1:** Configure FAG410X as a SIP Peer Trunk.
- **Method 2:** Register FAG410X on Elastix directly as an extension.



CONNECT Elastix TO FAG410X USING PEER SIP TRUNK

Create IVR On Elastix

On the Elastix web GUI, create an IVR extension under **PBX->PBX Configuration->IVR**.

In IVR settings, if "Direct Dial" is enabled, the calls dialing into the Elastix IVR will be able to reach the internal extensions registered to Elastix. Also, you can assign the "IVR Entries" to different destinations.

Edit IVR: FAG4108

[Delete IVR: FAG4108](#)

[Add IVR](#)
FAG4108
Unnamed

- IVR General Options

IVR Name [?] FAG4108

IVR Description [?]

- IVR Options (DTMF)

Announcement [?] Welcome

Direct Dial [?] Extensions

Timeout [?] 10

Invalid Retries [?] 3

Invalid Retry Recording [?] Default

Append Announcement on Invalid [?] ☐

Invalid Recording [?] Default

Invalid Destination [?] Terminate Call Hangup

Timeout Retries [?] 3

Timeout Retry Recording [?] Default

Append Announcement on Timeout [?] ☐

Timeout Recording [?] Default

Timeout Destination [?] Terminate Call Hangup

Return to IVR after VM [?] ☐

- IVR Entries

Ext	Destination	Return [?]	Delete
Reception	Extensions <input type="text"/>	<1005> Smith <input type="text"/>	<input type="checkbox"/> [?]
digits pressed	== choose one == <input type="text"/>	<input type="checkbox"/> [?]	

Figure 1: Create IVR on Elastix



Create Peer SIP TRUNK On Elastix

On the Elastix web GUI, create a peer SIP trunk under **PBX->PBX Configuration->Trunks**. In this example, the FAG4108 IP address is 192.168.99.239.

The screenshot shows the 'Edit SIP Trunk' configuration page for 'FAG4108'. At the top right, there is a box with 'Add Trunk', 'Channel g0 (dahdi)', and 'FAG4108 (sip)'. Below the title, there is a red delete button and a note 'In use by 1 route'. The 'General Settings' section includes fields for 'Trunk Name' (FAG4108), 'Outbound CallerID', 'CID Options' (Allow Any CID), 'Maximum Channels', 'Asterisk Trunk Dial Options' (with an 'Override' checkbox), 'Continue if Busy' (with a checkbox 'Check to always try next trunk'), and 'Disable Trunk' (with a 'Disable' checkbox). The 'Dialed Number Manipulation Rules' section has a rule editor with '(prepend)' and 'prefix' options, a 'match pattern' field, and buttons for '+ Add More Dial Pattern Fields' and 'Clear all Fields'. Below this is a 'Dial Rules Wizards' dropdown set to '(pick one)' and an 'Outbound Dial Prefix' field. The 'Outgoing Settings' section shows 'Trunk Name' (FAG4108) and a 'PEER Details' text area containing the following configuration:

```
host=192.168.99.239
type=peer
port=5060
context=from-internal
insecure=very
qualify=yes
```

Figure 2: Create Peer SIP Trunk on Elastix

Configure Outbound Rule on Elastix

On Elastix web GUI, go to **PBX->PBX Configuration->Outbound Routes** to create a new outbound rule. This would allow the extension on Elastix to reach numbers in PSTN network via the peer SIP trunk we just configured.



Edit Route

Delete Route To-FAG4108

Add Route

Outside

To-FAG4108

Route Settings

Route Name :

To-FAG4108

Route CID :

☐ Override Extension

Route Password :

Route Type :

☐ Emergency
☐ Intra-Company

Music On Hold?

default

Time Group :

---Permanent Route---

Route Position

---No Change---

Additional Settings

PIN Set :

None

Call Recording :

Allow

Dial Patterns that will use this Route

() + 9 | [. /]

(prepend) + prefix | [match pattern / CallerID]

+ Add More Dial Pattern Fields

Dial patterns wizards :

(pick one)

Export Dialplans as CSV :

Export

Trunk Sequence for Matched Routes

0

FAG4108

1

Add Trunk

Figure 3: Configure Outbound Rule on Elastix

In this example prefix "9", 9 is the first dialing digit and it will be stripped off when the call goes out.

Configure Inbound Rule on Elastix

On Elastix web GUI, go to **PBX->PBX Configuration->Inbound Routes** to create a new inbound rule. In this example, we set the DID Number as **20000**, which will be used in the FAG410X call forward setting.

Route: From-FAG4108

Delete Route From-FAG4108

Edit Extension 1002 (John)

Add Incoming Route

All DIDs (toggle sort)

User DIDs

General DIDs

Unused DIDs

From-FAG4108

20000 / any CID

Edit Incoming Route

Description :

From-FAG4108

DID Number :

20000

CallerID Number :

CID Priority Route :

☐

Options

Alert Info :

CID name prefix :

Music On Hold :

Default

Signal RINGING :

☐

Pause Before Answer :



The screenshot shows the Elastix configuration interface with the following sections and settings:

- Privacy:** Privacy Manager? : No (dropdown)
- Fax Detect:** Detect Faxes? : No (button), Yes (button)
- Language:** Language? : (empty text field)
- CID Lookup Source:** Source? : None (dropdown)
- Call Recording:** Call Recording? : Allow (dropdown)
- Set Destination:** IVR (dropdown), FAG4108 (dropdown)
- Buttons: Submit, Clear Destination & Submit

Figure 4: Configure Inbound Rule on Elastix

The default destination is configured to IVR. Ensure to select the proper IVR.

Connect FAG410X with Elastix

1. On the FAG410X web GUI, go to the **VoIP->SIP** page and enter the IP address of the Elastix that you are peering with.

The screenshot shows the FAG410X web GUI with the SIP Settings page. The Registrar IP Address is highlighted with a red box.

Setting	Value
SIP Address	LAN 1: 192.168.99.239
SIP Port	5060
Register Status	Unregistered
Register Gateway	No
Registrar IP Address	192.168.99.19
Registrar Port	5060
Spare Registrar Server	<input type="checkbox"/> Enable
Custom Host Of From Field	<input type="checkbox"/> Enable
DNS-SRV ENABLE	<input type="checkbox"/> Enable
Register Interval Time(ms)	0
Registry Validity Period (s)	3600
Multi-Registrar Server Mode	<input checked="" type="checkbox"/> Enable
SIP Transport Protocol	UDP

Figure 5: Connect FAG410X with Elastix: Registrar IP Address

2. Please make sure the **Register Gateway** option under **VoIP-> SIP** is set to **No**. In the following example, Elastix Server has IP address 192.168.99.19.



SIP Settings

SIP Address: LAN 1: 192.168.99.239
 SIP Port: 5060
 Register Status: Unregistered
Register Gateway: No
 Registrar IP Address: 192.168.99.19
 Registrar Port: 5060
 Spare Registrar Server: ☐ Enable
 Custom Host Of From Field: ☐ Enable
 DNS-SRV ENABLE: ☐ Enable
 Register Interval Time(ms): 0
 Registry Validity Period (s): 3600
 Multi-Registrar Server Mode: ☒ Enable
 SIP Transport Protocol: UDP

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Figure 6: Connect FAG410X with Elastix: Register Gateway

Configure FXO Port on FAG410X

1. Connect the PSTN line to the FAG410X FXO port.
2. On the FAG410X web GUI, go to the **Port->FXO** page and press Modify on the FXO port you will use.

FXO Settings

Port	Type	SIP Account	Display Name	Authentication Username	Forbidden Outgoing Call	Caller ID Detection	Reg Status	Echo Canceller	Server Index	Polarity Reversal Detection	Input Gain	Output Gain	Modify
1	FXO	8001	---	---	Disable	Enable	Unregistered	Enable	---	Disable	0	0	
2	FXO	8002	---	---	Disable	Enable	Unregistered	Enable	---	Disable	0	0	
3	FXO	8003	---	---	Disable	Enable	Unregistered	Enable	---	Disable	0	0	
4	FXO	8004	---	---	Disable	Enable	Unregistered	Enable	---	Disable	0	0	
5	FXO	8005	---	---	Disable	Enable	Unregistered	Enable	---	Disable	0	0	
6	FXO	8006	---	---	Disable	Enable	Unregistered	Enable	---	Disable	0	0	
7	FXO	8007	---	---	Disable	Enable	Unregistered	Enable	---	Disable	0	0	
8	FXO	8008	---	---	Disable	Enable	Unregistered	Enable	---	Disable	0	0	

8 Items Total 16 Items/Page 1/1 First Previous Next Last Go to Page 1 1 Pages Total

[Batch Modify](#)

Figure 7: Configure FXO Port on FAG410X: Modify Port

3. Enter the SIP Account Number **20000** to be matched with the DID number we configured in Elastix Inbound Route.

FXO-Modify

Port: 1
 Type: FXO
 Register Port: No
SIP Account: 20000
 Display Name:
 Authentication Username:
 Display Name preferred: ☐ Enable
 Server Index: 1:192.168.1.20
 Input Gain (dB): 0
 Output Gain (dB): 0
 Echo Canceller: ☒ Enable
 Forbidden Outgoing Call: ☐ Enable
 Caller ID Detection: ☒ Enable
 Polarity Reversal Detection: ☐ Enable
 Whitelist of FXO Out Calls:

Figure 8: Configure FXO Port on FAG410X: Port Configurations



Create Port Group on FAG410X

1. On the FAG410X web GUI, go to the **Port->Port Group** page and press “Add New”.

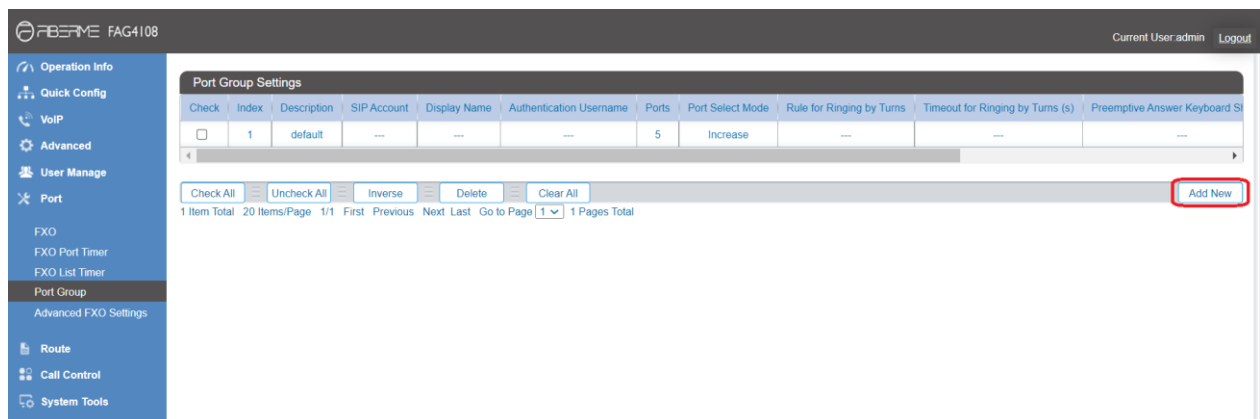


Figure 9: Create Port Group on FAG410X: Add New

2. Select the FXO port you will use.

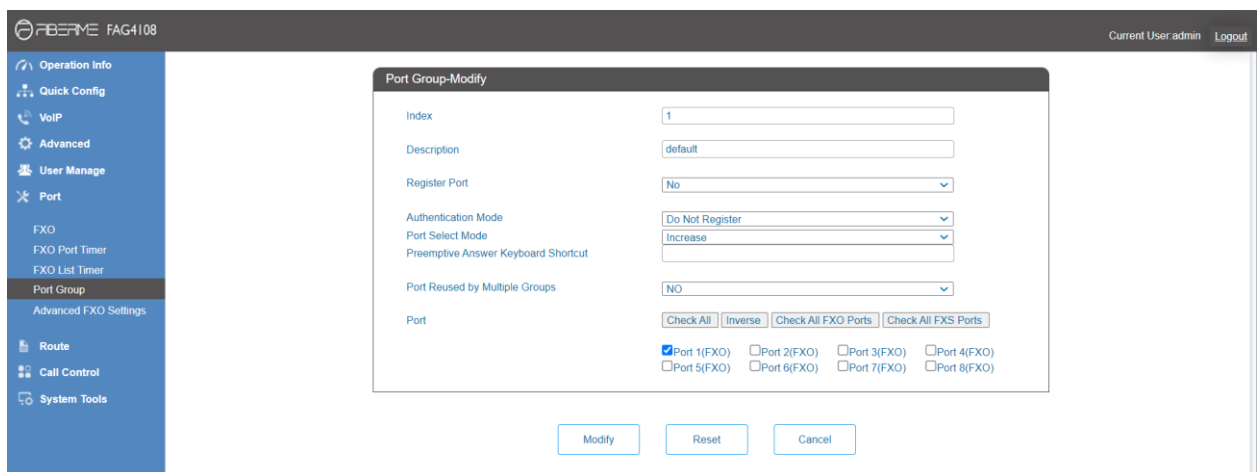


Figure 10: Create Port Group on FAG410X: Group Configurations



REGISTER FAG410X ON Elastix AS AN EXTENSION

Create SIP Extension on Elastix

To manually create new SIP user, go to Elastix web GUI **PBX->PBX Configuration->Extensions**. Click on "Add" and a new dialog window will show for users to fill in the extension information.

Figure 11: Create SIP Extension on Elastix

Configure FAG410X SIP Account as a Registered Extension on Elastix

Under FAG410X **web GUI->VoIP->SIP**, please set Register Gateway to Yes, then enter SIP Extension information created earlier in Elastix. In this example, extension 1002 is used in order to register FAG410X as an extension user on Elastix.

Figure 12: FAG410X SIP Account Settings



Under FAG410X web GUI, **VoIP->SIP**, please fill in Elastix information as explained in method 1.

The screenshot shows the 'SIP Settings' page in the FAG410X web GUI. The left sidebar contains navigation links: Operation Info, VoIP, SIP, SIP Compatibility, SIP Station, SIP Server, NAT Setting, Media, SIP Server Status, Advanced, User Manage, Port, Route, Call Control, and System Tools. The main content area displays various SIP configuration fields. A red box highlights the 'Registrar IP Address' and 'Registrar Port' fields, which are set to '192.168.99.19' and '5060' respectively. Other visible fields include SIP Address (LAN 1: 192.168.99.239), SIP Port (5060), Register Status (Registered), Register Gateway (Yes), SIP Account (1002), Password (*****), Spare Registrar Server (Enable), Custom Host Of From Field (Enable), DNS-SRV ENABLE (Enable), Register Interval Time(ms) (0), Registry Validity Period (s) (3600), and Multi-Registrar Server Mode (Enable).

Figure 13: FAG410X Registrar IP Address

We can check Elastix SIP Extension Status to see if FAG410X has been successfully registered as an extension device. go to **PBX->Tools->Asterisk-Cli**, In Command write “sip show peers” and press Execute. “OK” under Status means that the extension is registered successfully as below screenshot.

The screenshot shows the 'Asterisk-Cli' interface in the Elastix web GUI. The left sidebar contains links: Asterisk-Cli, Asterisk File Editor, Text to Wav, Festival, Recordings, History, Asterisk-Cli, PBX Configuration, Language, Dashboard, and Calendar. The main content area shows the command 'sip show peers' entered in the 'Command' field, with an 'Execute' button. Below the command, the output is displayed in a table format. A red box highlights the first two rows of the table, which show the status of the extensions 1002/1002 and 1005. The status for 1002/1002 is 'OK (14 ms)' and for 1005 is 'UNKNOWN'.

Name/username	Host	Dyn	Forceport	Comedia	ACL	Port	Status	Descr
1002/1002	192.168.99.239	D	No	No	A	5060	OK (14 ms)	
1005	(Unspecified)	D	No	No	A	0	UNKNOWN	
FAG4108	192.168.99.239	Auto	(No)	No		5060	OK (11 ms)	

3 sip peers [Monitored: 2 online, 1 offline Unmonitored: 0 online, 0 offline]

Figure 14: Elastix - SIP Extension Status

Now FAG410X is registered at Elastix as an extension device. Please refer to method 1 in the previous section to configure FXO Port settings on FAG410X.



FAG410X CALL Routing

Configure IP to Tel on FAG410X

1. On the FAG410X web GUI, go to the **Route-> IP→TEL** page, Press “Add New”.

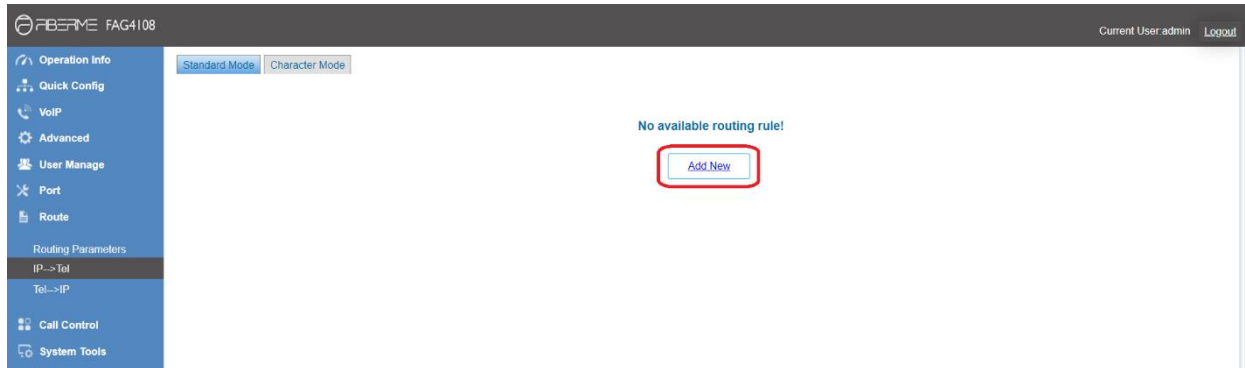


Figure 15: FAG410X – IP to TEL

2. Enter the Elastix Server IP address in “Source IP” and select the Port Group you will use from “Call Destination”.

Figure 16: IP to TEL Settings



Configure TEL to IP on FAG410X

1. On the FAG410X web GUI, go to the **Route-> TEL->IP** page, Press “Add New”.

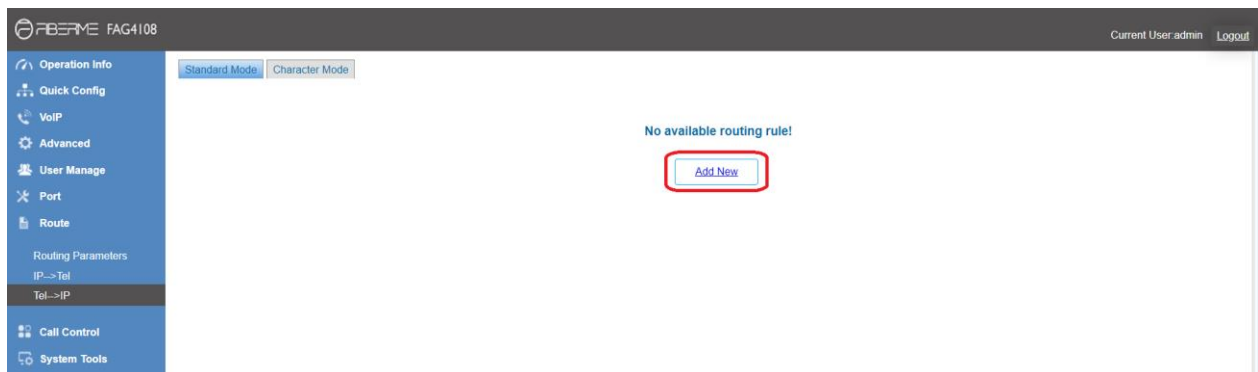


Figure 17: FAG410X – TEL to IP

2. Select the Port Group you will use from “Source Port Group” and enter the Elastix Server IP address in “Destination Address”.

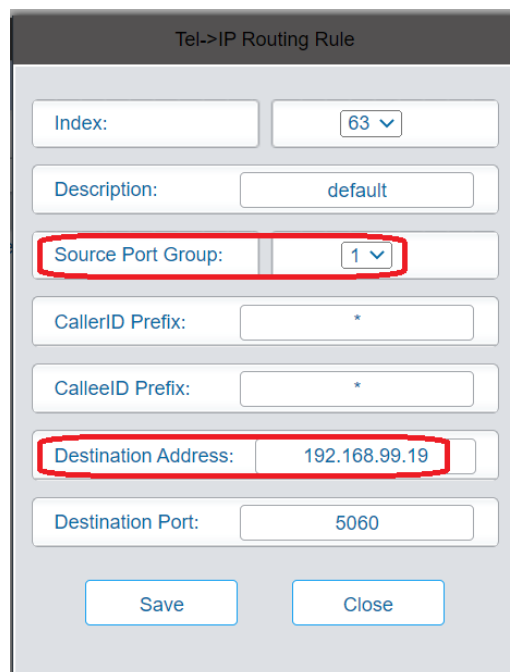


Figure 18: TEL to IP Settings

