

Linksys SPA400



Trixbox Integration Guide



Access Point – Connecting You & Your Customers.

Contact : support@voipshop.com.au

Overview:

The Linksys SPA400 is a 4 Line FXO gateway capable of connecting 4 PSTN lines to your asterisk system to make and receive calls. This guide is a step by step on how to configure Trixbox to utilize the features of the SPA400. Limitations:

- * The voicemail function of the SPA400 cannot be used.
- * You cannot select which line of the SPA400 to use. They are treated as a single group of 1-4 lines. The SPA400 will know which lines are available by the line voltage when plugged in.

Configure the SPA400:

Step 1 – Obtain the IP address if the SPA400

Option 1(Easiest): You will need to check your DHCP server to see what IP address has been allocated to the SPA400 (Will usually be in the Status area of your Modem/Router).

Option 2(Harder): If you only have a few devices on your network you can use angry IP scanner (<http://www.angryziber.com>) which will search your network for devices. You should be able to work out the SPA400 address. Try searching for port 5060 also to help identify.

Option 3: You can download the SPA9000 setup utility from <http://www.linksys.com> it will scan the network for SPA400s and show the IP address.

Note the IP Address: _____

Step 2 – Access the SPA400

In your favourite web browser type the IP address of the SPA400, it should ask for a username and password.

The **default username** is Admin (Note capital A)

The **default password** is *blank*



Step 3 – Set the SPA400 to a Fixed IP address

Asterisk needs to access your SPA400, so it needs to be set to a fixed ip address. To do this: -

Under Setup -> Basic Setup

- Select Fixed IP address and enter a valid fixed IP address for your network.
- Be sure to enter a DNS server, if you do not know enter the Telstra DNS server 139.130.4.5 – You can leave the secondary blank
- Set your time zone.
- Click Save Settings
- Restart System

The screenshot shows the SPA400 web interface with the following configuration:

- Setup** (Main menu)
- Setup** (Sub-menu)
- Administration** (Sub-menu)
- Status** (Sub-menu)
- Event Logs** (Sub-menu)
- Basic Setup** (Selected sub-menu)
- SPA9000 Interface** (Selected sub-menu)
- Network Setup** (Section header)
- Dynamic IP Address: (DHCP Client)
- Fixed IP Address: 192 . 168 . 1 . 56
- IP Subnet Mask: 255 . 255 . 255 . 0
- Gateway IP Address: 192 . 168 . 1 . 1
- Domain Name Server (DNS) Address** (Section header)
- Primary DNS: 139 . 130 . 4 . 5
- Secondary DNS: [] . [] . [] . []
- NTP** (Section header)
- NTP Server 1: time.nist.gov
- Time Zone: (GMT+10:00) Australia
- Save Settings** (Button)
- Cancel Changes** (Button)

Sample Config – Use Address Valid For Your Network
Check with the network administrator if unsure.

Note the IP address in the Notes Section.

Step 4 – Setup the SPA400 Voice Configuration.

Open the SPA400 in your web browser using the new IP address.

Select Setup->SPA9000 Interface.

- Enter SPA400 in the User ID:
- Leave SPA9000 on discover automatically
- No other changes should need to be made
- Click Save Settings (You Do Not Need To Restart)

The screenshot displays the configuration interface for a SPA9000 interface. The page is titled "SPA9000 User ID" and includes a navigation menu at the top with options: Basic Setup, SPA9000 Interface, Voice, Voicemail Server, and Voicemail Users. The configuration is organized into several sections:

- SPA9000 User ID:** User ID: SPA400
- SPA9000 Address:** Discover Automatically, Static Address. IP Address: 192.168.0.70, Port: 5060
- Port ID:** Port ID 1: FXO_Port_ID_1, Port ID 2: FXO_Port_ID_2, Port ID 3: FXO_Port_ID_3, Port ID 4: FXO_Port_ID_4
- Signaling:** Signaling Port: 5060
- RTP:** RTP Port: 10000
- IP ToS/DiffServ:** Call Signaling Packets: 7 (2 Hex digit byte value), RTP Packets: b0 (2 Hex digit byte value)
- Session:** Enable Session Timer, Desired Refresh Time: 0 (sec), Minimum Refresh Time: 0 (sec)

At the bottom right, there are two buttons: "Save Settings" and "Cancel Changes".

Screenshot of Setup -> SPA9000 Interface

Select Setup -> Voice

For Australia you need to change: -

- Impedance : 220 Ohms + (820 Ohms || 120nF)
- On-Hook speed : 26ms

The screenshot shows the 'Setup' page of a SIP phone configuration interface. The left sidebar contains navigation menus for 'Voice Coders', 'Voice Setting', and 'Line Settings'. The main content area is divided into sections: 'Preferred Coder', 'Voice Coders', 'Calling Timers', 'Dialing Parameters', and 'Line Settings'. The 'Line Settings' section is expanded, showing various configuration parameters. The 'Impedance' is set to '220 Ohms + (820 Ohms || 120 nF)' and 'On-Hook speed' is set to '26ms (Australia)'. Other parameters include 'Transmit Gain', 'Receive Gain', 'Tip/Ring voltage', 'Operational loop current Min', 'Ring frequency Min/Max', 'Ring Validation Time', 'Ring Indication Delay', 'Ring Timeout (ms)', 'Ring Threshold (vrms)', 'Ringer Impedance', 'DC current Limiting', and 'Caller Id Method'. At the bottom, there are radio buttons for 'Battery reversal as disconnect signal' and 'Loop period shut-down as disconnect signal'.

Section	Parameter	Value
Preferred Coder	G.711U	<input checked="" type="radio"/>
	G.711A	<input type="radio"/>
	G.729	<input type="radio"/>
Voice Coders	G.711U Packetization	20ms
	G.711A Packetization	20ms
	G.729 Packetization	30ms
Calling Timers	Wait-for-Answer time	180 sec
	Call Limit	65535 sec
Dialing Parameters	Tone out on	200 msec
	Tone out off	200 msec
	DTMF power	-130 (-400 ~ 30) * 0.1 dB
	Answer after	1 rings
	Dial out wait	400 msec
	Dial out battery threshold	20 volts
Line Settings	Transmit Gain	0 dB
	Receive Gain	0 dB
	Impedance	220 Ohms + (820 Ohms 120 nF)
	Tip/Ring voltage	3.5 (default)
	Operational loop current Min	10mA (default)
	On-Hook speed	26ms (Australia)
	Ring frequency Min	10
	Ring frequency Max	100
	Ring Validation Time	256 (default)
	Ring Indication Delay	512 (default) ms
	Ring Timeout (ms)	640 (default)
	Ring Threshold (vrms)	13.5 - 16.5 (default)
	Ringer Impedance	High (default)
	DC current Limiting	Enable (default)
	Caller Id Method	UK
	<input type="radio"/> Battery reversal as disconnect signal	
	<input checked="" type="radio"/> Loop period shut-down as disconnect signal	

Step 5 – Configure Trixbox Trunk.

Open your FreePBX interface: <http://trixbox.ip/admin/>

Select Trunks -> Add SIP trunk

Complete the form with the details below:

Outbound Caller ID: Blank

Never Override CallerID : Unticked

Maximum Channels: (the number of pstn lines plugged into the SPA400)

Dial Rules: Leave Empty

Outbound Dial Prefix: Empty

Trunk Name: SPA400 (Can be anything you wish)

Peer Details:

```
allow=ulaw
canreinvite=no
context=from-trunk
dtmfmode=rfc2833
host=x.x.x.x
insecure=very
type=friend
user=SPA400
```

USER Context: Leave Blank

USER Details: Blank (Delete the default information)

Register String:

SPA400@x.x.x.x/SPA400

Note : **x.x.x.x** should be where you enter the IP address of the SPA400

Click Submit Changes.

Step 6 – Configure Outbound Route.

You can now treat the SPA400 like any other trunk. To add an outbound router (eg, dial 9 to dial out the SPA400)

Outbound Routes -> Add Route

Route Name: SPA400PSTN (*this can be anything*)

Route Password: Blank

Emergency Dialing: Unticked

Intra Company Route: Unticked

Dial Patterns: 9|.

Trunk Sequence: SPA400

Click Submit Changes

Step 7 – Configure Inbound Route.

This will setup an inbound route for people who call the PSTN lines plugged into the SPA400.

Setup -> Inbound Routes -> Add Incoming Route

DID Number: SPA400 (*case sensitive*)

Caller ID Number: Blank

Zaptel Channel: Blank

Fax Handling

Leave as is

Select the Destination

Click Submit

Click the Red "Apply Configuration Changes" to reload asterisk

Complete:

You should now be able to make and receive calls via your SPA400.

Email support@voipshop.com.au for further support if required.

Congratulations

Notes:

SPA400 IP Address: _____

SPA400 Username: _____

SPA400 Password: _____

Number of Lines: _____

Installed By: _____

Date: _____