





Allo 2nd Gen Quad E1/T1 PRI card and Elastix Server

Setup Guide



1.0 Setup Diagram

Figure 1-1 is a setup diagram for a single Allo 2nd Gen Quad E1/T1 PRI Interface Card configuration. In this guide we set the ports to use E1 transmission format moving the little switches that comes in the card.

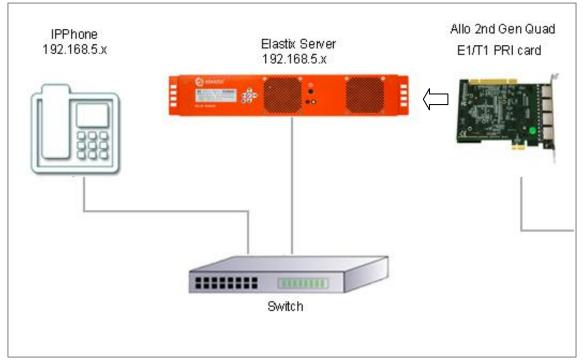


Figure 1-1. Setup Diagram

2.0 Host PC Environment

	Description
Hardware Type	Elastix Appliance ELX-Series
Hardware Version	ELX-5000
Software Type	Elastix
Software Version	2.4

3.0 Test Setup Equipment

Table 3-1.	Test Setup	Equipment
	I cot octup	Equipment

E. Summer	NA .	Manatan
Equipment	Model	Version
IP (SIP) Phone	N/A	N/A
Allo	2nd Gen Quad E1/T1 PRI card	dahdi-2.6.1-4
Switch	N/A	N/A

— 2 —

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4.0 Setup Procedure

To set up the Elastix Server for the Allo 2nd Gen Quad E1/T1 PRI card 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 192.168.5.186 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 Dashboard4. Once inside, click on the System tab on the menu at the top of the screen

Figure 4-2. Dashboard

	System Agenda	Email Fax	PB	IM	Reports V		
Dashboard Network	Users S	hutdown Hardware D	etector Updates	Backup)/Restore Preferences		
Dashboard 🕨	Dashboard						k ?
Dashboard Applet Admin	System Resources		S	Process	ses Status		63
History					Telephony Service	RUNNING	-
Dashboard					Instant Messaging Service	NOT RUNNING	-
Language	1.4%	13.1%	0.0%		Fax Service	RUNNING	•
Themes	CPU	RAM	SWAP		Email Service	RUNNING	-
PBX Configuration	CPU Info:	Test-1(D) A terre (TAA)) CPU D525 @ 1.80GHz		Database Service	RUNNING	-
Hardware Detector	Uptime:	18 days, 19 hour(Web Server	RUNNING	-
	CPU Speed: Memory usage:	1,800.21 MHz RAM: 2,009.84 Mb	SWAP: 4,094.68 Mb	2	Elastix Call Center Service	NOT INSTALLED	-
	Hard Drives		S	Perform	nance Graphic		63
		🛢 0% Used 🛢 100%	Available	4.0	Simultaneous calls, memory	and CPU 1.015 _ 300 و	
		Hard Disk Capacity: Mount Point: / Manufacturer: ST950		3.0 2.0 1.0	0	1.010 1.005 1.000 200 0.995	
	Logs: 93M		kups: 102M	0.0	09:50 12:22 13:00 12:23 20:130 12:135 12	6.990 J ₁₅₀	
	Emails: 8.0K	Configura	tion: 76M			8 #	
ttps://172.25.2.0/index.php?menu=pbxco	Voicemails: 104K	Recording	js: 8.0K		Sim. calls — CPU usage (%) — Mem. usage (MB)		

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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

	System Ag	enda Email	Fax	PBX	IM Repo	irts 🗸		6 9 i ¥ 1
Dashboard Network	Users	Shutdown Ha	irdware Detector	Updates	Backup/Restore	Preferences		
Hardware Detector Detect New Hardware Advanced	prants were deter	ted on your system	Please press th	ne "Detect N	k ew Hardware" butto	Г	Channel detect Channel detect Undetected Cha Empty Channel Hardware Cont	
		Elastix is lice	nsed under GPL by	PaloSanto Soli	utions, 2006 - 2012.			

6. Click on "Advance" checkbox and select "Replace file chan_dahdi.conf" option. Now click on "Detect New Hardware" (Figure 4-4).

Figure 4-4. Hardware Detector

O elastix*	System Agenda	Email	Fax	PBX	IM	Reports 🗸	<u> </u>
Dashboard Network	Users	Shutdown Har	dware Detector	Updates	Backup/Re:	store Preferenc	ces
Hardware Detector Detect New Hardware Advanced Replace file chan_ Detect Sangona h Detect ISDN hardwa Installed)							Port Status C thannel detected and not in service C channel detected and in service C undetected Channel Empty Channel HG Hardware Control
					k		
No cards were detected on your system. Please press the "Detect New Hardware" button to detect new hardware.							
		Elastix is licen	sed under GPL b	y PaloSanto Solu	utions. 2006 - 20	012.	

7. If the interface card is successfully detected you should see the 31 channels shown at the bottom of the page. They should say "Detected by Asterisk". (Figure 4-5).

Figure 4-5. Hardware Detection

	riguit	, т -Ј.	IIai	uvai		cuon						
Span # 1: TE4/0/1 "T4XXP (PCI) Card 0 Spa	n 1" HDB3/CCS/C	CRC4 Cloc	kSource-									
	PRI	PRI 2	PRI 3	PRI 4	PRI 5	PRI 6	PRI 7	PRI	PRI 9	PRI 10	PRI 11	PRI 12
	Detected D by Asterisk by	etected Asterisk	Detected by Asterisk									
You can set the parameters for these ports here. Configuration of Span	PRI 13	PRI 14	PRI 15	PRI HC	PRI 17	PRI 18	PRI 19	PRI 20	PRI 21	PRI 22	PRI 23	PRI 24
Span Parameters	Detected D by Asterisk by	etected Asterisk	Detected by Asterisk									
	PRI 25	PRI 26	PRI 27	PRI 28	PRI 29	PRI 30	PRI 31					
	Detected D by Asterisk by	etected Asterisk	Detected by Asterisk									

8. You can configure ports for echo cancellation and timing/framing/coding clicking on "Configuration of Span" (Figure 4-6). and "Span Parameters" (Figure 4-7) links respectively located on the left side of the detected ports

- 4 -



rigure	-0. CU		igui auto	n or Span
				(PCI) Card 0 ClockSource
1 PRI	none	•	2 PRI	none 🔻
3 PRI	none	•	4 PRI	none 🔻
5 PRI	none	•	6 PRI	none 🔻
7 PRI	none	•	8 PRI	none 🔻
9 PRI	none	•	10 PRI	none 🔻
11 PRI	none	•	12 PRI	none 🔻
13 PRI	none	•	14 PRI	none 🔻
15 PRI	none	•	16 PRI	none 🔻
17 PRI	none	•	18 PRI	none 🔻
19 PRI	none	•	20 PRI	none 🔻
21 PRI	none	•	22 PRI	none 🔻

Figure 4-7. Span parameters

Span # 1: TE4/0/	/1 "T4XXP (PCI) Card 0 Span 1" HDB3/CCS/CRC4
	ClockSource
Timing source:	1
Line build out:	0 db (CSU) / 0-133 feet (DSX-1) ▼
Framing:	CCS V
Coding:	ami 🔻

9. Change all this values 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)



	System Agenda Email Fax PBX IM Reports V	
PBX Configuration Operator Par	el Voicemail Monitoring Endpoint Configurator Conference Batch of Extensions Tools	Flash Operator Panel 🛛 VoIf < 🖒
PBX Configuration		☑ ⊪ ★ ?
Basic		
Extensions	Add an Extension	Add Extension
Feature Codes		
General Settings	Please select your Device below then click Submit	
Outbound Routes		
Trunks	Device	
Inbound Call Control		
Inbound Routes	Device Generic SIP Device	
Zap Channel DIDs		
Announcements	Submit	
Blacklist		

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 4-6 Configuration of Span

5 –

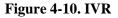


Figure 4-9. Add SIP Extension

Add Extension	
User Extension	302
Display Name	IPPhone
CID Num Alias	
SIP Alias	
[
Device Options	
This device uses sip t	echnology.
secret	h7Dka3Rf9si0t
dtmfmode	rfc2833

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:
 - \circ * Phone book.
 - o 0 302 Extension
 - $\circ~t~$ Repeat the options of IVR (Add this option by modifying the IVR after creation)



	Digital Recep Edit Menu Welco Save Delete Digit Used as Destination	meIVR al Receptionist WelcomeIVR			
	Change Name Announcement Timeout	WelcomeIVR welcome 10			
*		Phonebook Directory I Return to IVR 🛛 🛱 <302> IPPhone I Return to IVR 💭 🛱			
t Increas	IVR WelcomeIVR Return to IVR Crease Options Save Decrease Options				

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:

- 6 -

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

Add Incoming	Route
Add Incoming Route	
Description: DID Number: Caller ID Number: CID Priority Route:	Incoming_Calls
Set Destination	
IVR	VelcomeIVR V
Submit Clear De	stination & Submit

Figure 4-11. Incoming Route

14. Click on "Submit" 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).

	Add DAHDI Trunk		
	General Settings		
	Trunk Name: TestTrunk Outbound Caller ID:		
0	Dutgoing Settings		
DAHDI Identifier: g0			
Submit Changes			

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:

- 7 -

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

Add Route						
Route Settings						
Route Name: Route CID:	9_Outside_Test	Override Ext	tension			
Dial Patterns that wil	l use this Route					
(prepend) + 9		/ CallerId				
+ Add More Dial Patte Dial patterns wizarc		<u> </u>				
0 TestTrunk •	latched Routes		-			
Submit Changes						

17. Click on "Submit Changes" and Apply configuration. If you want to make a call through our PRI port, we just have to dial the number with "9" as prefix.

18. Configure the other IP (SIP) Phone with the correct parameters (Check out figure 4.9). This step completes the procedure for making and receiving calls using an Allo 2nd Gen Quad E1/T1 PRI Interface Card.

Note: If you need to generate the clock signal from the card, edit the file /etc/asterisk/dahdi_channels.conf and replace the parameter **pri_cpe** to **pri_net** in the span you want to generate the clock. After that, restart amportal service. Make sure the other end is not generating clock signal as well, this may damage your card.

[root@ehcpelastix ~]# vim /etc/asterisk/dahdi-channels.conf
<pre>group=0,11 iontext=from-pstn switchtype = euroisdn signalling = pri_net channel == 1-15,17-31 context = default group = 63</pre>
[root@ehcpelastix ~]# amportal restart

- 8 -



APPENDIX

DAHDI Identifier

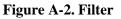
When you create a DAHDI Trunk you need to specify the span that will be used for the trunk. The default value is "g0" (group 0). This value means that DAHDI will choose the available span in the order that shows the hardware detector section of Elastix Web Interface. If you want to use a particular span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

	System Agenda Email Fax PBX IM Reports 🗸	6 9 i 4 1	
PBX Configuration Operator Panel	Voicemail Monitoring Endpoint Configurator Conference Batch of Extensions Tools	Flash Operator Panel 🛛 VoIP Pro🧹 🕨	
Asterisk-Cli	Z Asterisk File Editor	ाट ना ★ ?	
Asterisk File Editor	- New File 🌱 Show Filter 👻	[∢ ∢ Page 1 of 8 ▶ ▶]	
Text to Wav	File Name	File Size	
Festival	additional a2billing lax.conf	0	
Recordings	additional a2billing sip.conf	0	
	adsi.conf	140	
History	agents.conf	2760	
Asterisk File Editor	ais.conf	2904	
Hardware Detector	alarmreceiver.conf	2084	
	alsa.conf	3498	
Dashboard	amd.conf	767	
Asterisk-Cli	app_mysql.conf.sample	1044	
Monitoring	applications.conf	8523	
	asterisk.adsi	3254	
	asterisk.conf	367	
	calendar.conf	4803	

Figure A-1. Asterisk File Editor

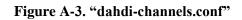
2. In the filter field write "dahdi-channels.conf" without quotes and press ENTER (Figure A-2).



									6 9 i 7 1		
	System	Agenda	Email	Fax	PBX	IM	Reports	×			
PBX Configuration Operator Pane	Voicen	nail M	onitoring	Endpoint Configurator	Conference	e Batch	of Extensions		Flash Operator Panel	VoIP Press	
Asterisk-Cli	🛃 Aste	risk File Edito	r						ि भ	* ?	
Asterisk File Editor	📥 New	File 🍸 Sh	ow Filter 🗢						I∢ ∢ Page 1	of 1 🕨 🕅	
Text to Wav	Filter appl	ied File = daho	li-channels.co	nf 🔀							
Festival	File Name							File Size			
Recordings	dahdi-channe	els.conf						0			
		N									
History											
Asterisk File Editor											

3. Click on "dahdi_channels.conf" file. Check the "group" parameter, the first one. In this example 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" or "g0" in this example. Make sure the other ports don't use the same group.

- 9 -



in a	
	Asterisk File Editor
	Keload Asterisk Reload Asterisk
	; Autogenerated by /usr/sbin/dahdi_genconf on Wed Nov 21 13:22:07 2012 ; If you edit this file and execute /usr/sbin/dahdi_genconf again, ; your manual changes will be LOST. ; Dahdi Channels Configurations (chan_dahdi.conf)
	; This is not intended to be a complete chan_dahdi.conf. Rather, it is intended ; to be #include-d by /etc/chan_dahdi.conf that will include the global settings
	<pre>span 1: WCT1/0 "Digium Wildcard TE110P T1/E1 Card 0" (MASTER) group=0,11</pre>
	<pre>context=from-pstn switchtype = euroisdn signalling = pri_cpe channel => 1-15,17-31</pre>
	context = default group = 63