



**DAHDI**  
User Guide

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- ▶ Modprobe Settings
- ▶ Digital Card Setup
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## Overview

The DAHDI module is designed to let you manage and configure your PSTN cards. The module currently supports Allo, Digium, OpenVox, Rhino and Sangoma Cards. DAHDI is the software drivers that connect your PBX to your PSTN using Analog, T1/E1/PRI or BRI's.

## Logging In

- Log into the DAHDI module and you should see a screen like this.
  - The main sections here are:
    - Global Settings
    - Modprobe Settings
    - Digital Card Setup
    - Analog Card Setup

### Digital Hardware

[Settings](#)  
[Global Settings](#)  
[Modprobe Settings](#)

Span	Alarms	Framing/Coding	Channels Used/Total	D-Channel	Signaling	Action
Digium - T4XXP (PCI) Card 0 Span 1 [1]	RED	ESF/B8ZS	24/24	24	Not Yet Defined	Edit
Digium - T4XXP (PCI) Card 0 Span 2 [2]	RED	ESF/B8ZS	24/24	48	Not Yet Defined	Edit
Digium - T4XXP (PCI) Card 0 Span 3 [3]	RED	ESF/B8ZS	24/24	72	Not Yet Defined	Edit
Digium - T4XXP (PCI) Card 0 Span 4 [4]	RED	ESF/B8ZS	24/24	96	Not Yet Defined	Edit
Rhino Equipment - Rhino R1T1 T1/PRI Card 0 [5]	OK	ESF/B8ZS	24/24	120	Not Yet Defined	Edit

### Analog Hardware

Type	Ports	Action
FXO Ports	125, 126, 127, 128	Edit
FXS Ports	121, 122, 123, 124	Edit

[Restart/Reload Dahdi](#)

DAHDI Version: 2.6.1 Echo Cancellor: HWEC, OSLEC

## Global Settings

Click on Global Settings on the upper right side of the DAHDI module.

- The Global Settings section lets you set common DAHDI settings for Asterisk. We set the common settings to recommend defaults, but you can change any of the following settings or add your own custom settings to be included in the chan\_dahdi.conf config files.
  - **Tone Region**- Please choose your country or your nearest neighboring country for default tones.
  - **Select Language**- Select from all support languages for DAHDI.

- **Enable Busy Detect**- On trunk interfaces (FXS) and E&M interfaces (E&M, Wink, Feature Group D etc.), it can be useful to perform busy detection either in an effort to detect hangup or for detecting busies. This enables listening for the beep-beep busy pattern and then hanging up the call.
- **Busy Detect Count**- If this is enabled, it's possible to specify how many busy tones to wait for before hanging up. The default is 3, but it might be safer to set to 6 or even 8. The higher the number the more time that will be needed to hangup a channel, but lowers the probability that you will get random hangups.
- **Use Caller ID**- Whether or not to use caller ID.
- **Enable Call Waiting**- Whether or not to enable call waiting on internal extensions. With this set to "yes," busy extensions will hear the call-waiting tone and can use hook-flash to switch between callers.
- **User Caller ID Presentation**- Whether or not to use the caller ID presentation for the outgoing call that the calling switch is sending.
- **Enable Three Way Calling**- Support three-way calling on FXS extensions.
- **Enable Transfer**- Support flash-hook call transfer (requires three way calling.)
- **Enable Call Forwarding**- Support call forward variable.
- **Enable Call Return**- Whether or not to support call return \*69 from the carrier.
- **Enable Echo Cancelling**- Note that if any of your DAHDI cards have hardware echo cancellers, then this setting only turns them on and off. There are no special settings required for hardware echo cancellers; when present and enabled in their kernel modules, they take precedence over the software echo canceller compiled into DAHDI automatically.
- **Enable EC when Bridged**- Generally, it is not necessary (and in fact undesirable) to echo cancel when the circuit path is entirely TDM. You may, however, change this behavior by enabling the echo canceller during pure TDM bridging below.
- **Enable Echo Training**- In some cases, the echo canceller doesn't train quickly enough and there is echo at the beginning of the call. Enabling echo training will cause DAHDI to briefly mute the channel, send an impulse and use the impulse response to pre-train the echo canceller so it can start out with a much closer idea of the actual echo. Value may be "yes," "no" or a number of milliseconds to delay before training (default = 400.) In some cases this option can make echo worse! If you are trying to debug an echo problem, it is worth checking to see if your echo is better with the option set to "yes" or "no." Use whatever setting gives the best results. Note that these parameters do not apply to hardware echo cancellers.
- **Answer Immediately**- Specify whether the channel should be answered immediately or if the simple switch should provide dialtone, read digits, etc.
- **Fax Detection**- Whether you want to try and detect if a call is a voice or fax call. Options are "yes," "no," "incoming" and "outgoing." We recommend settings this to "no" unless you want to detect fax calls, then set it to "incoming."
- **Receive Gain**- The values are in db (decibels). A positive number increases the volume level on a channel and a negative value decreases volume level.
- **Transmit Gain**- The values are in db (decibels). A positive number increases the volume level on a channel and a negative value decreases volume level.
- **Other Global DAHDI Settings**- Here you can set any custom DAHDI settings and the value. You should only use this option if you know what you are doing with DAHDI, know what each option does and know how it interacts with all the other options.

Global Settings

### Global Settings

Tone Region:

Select Language:

Enable Busy Detect:

Busy Detect Count:

Use Caller ID:

Enable Call Waiting:

Use Caller ID Presentation:

Enable Three Way Calling:

Enable Transfer:

Enable Call Forwarding:

Enable Call Return:

Enable Echo Canceling:

Enable EC when bridged:

Enable Echo Training:

Answer Immediately:

Fax Detection:

Receive Gain:

Transmit Gain:

Other Global Dahdi Settings:  =

\*\*\*\*\* NOTE: After making changes here, make sure you press the Reload Bar and then the Resert/Reload DAHDI button.

## Modprobe Settings

Click on Modprobe Settings on the upper right side of the DAHDI module.

- The Modprobe Settings let you change values and options for each DAHDI Kernel module. Different models of manufacturer cards have different kernel module settings and you should only change these if instructed by the manufacturer of your card or support. Please note making any changes here will require a reboot of your PBX for the changes to take effect.
  - **Module Name**- Specify the kernel module used by the installed analog hardware. Each module has a specific set of settings as it relates to that module, so please contact the manufacturer for more information on each setting.

**Modprobe Settings**

Module Name:

Opermode:  USA

A-law Override:  ulaw

FXS Honor Mode:  Apply Opermode to FXO Modules

Booststringer:  Normal

Fastringer:  Normal

Lowpower:  Normal

Ring Detect:  Standard

MWI Mode:  None

Other Modprobe Settings:  =

\*\*\*\*\* NOTE: After making changes here, make sure you press the Reload Bar and then reboot your PBX.

## Digital Card Setup

Click on the Edit button next to each digital card span. One single digital card span represents 1 port on a T1/E1/PRI Card or BRI card.

- In the example below, you can see we have a 4 Port Digium T1 card and a 1 Port Rhino T1 card. You also see that signaling is “Not Yet Defined,” which means the card has not been configured yet.

### Digital Hardware

Span	Alarms	Framing/Coding	Channels Used/Total	D-Channel	Signaling	Action
Digium - T4XXP (PCI) Card 0 Span 1 [1]	RED	ESF/B8ZS	24/24	24	Not Yet Defined	Edit
Digium - T4XXP (PCI) Card 0 Span 2 [2]	RED	ESF/B8ZS	24/24	48	Not Yet Defined	Edit
Digium - T4XXP (PCI) Card 0 Span 3 [3]	RED	ESF/B8ZS	24/24	72	Not Yet Defined	Edit
Digium - T4XXP (PCI) Card 0 Span 4 [4]	RED	ESF/B8ZS	24/24	96	Not Yet Defined	Edit
Rhino Equipment - Rhino R1T1 T1/PRI Card 0 [5]	OK	ESF/B8ZS	24/24	120	Not Yet Defined	Edit

- Clicking on the “Edit” button should bring up a screen like this, which lets you edit settings as it relates to the T1 card. For each T1 port we want to activate, we need to press the “Edit” button and save our changes.

Span: T4XXP (PCI) Card 0 Span 1

### General Settings

Alarms: RED

Framing/Coding: ESF /B8ZS

Channels: 23/24 (T1)

Signaling: PRI - Net

Switchtype: National ISDN 2 (default)

Sync/Clock Source: 2

Line Build Out: 0 db (CSU)0-133 feet (DSX-1)

Pridialplan: National

Prilocaldialplan: National

Priexclusive:

### Group Settings

Group: 0

Context: from-digital

Used Channels: 24 From: 1-23 Reserved: 24

Save Cancel

- **General Settings-** In General Settings you can define all the different information as it relates to your T1 card and settings. Please note most of these settings are defined by your telco carrier, so you will need to work with them to determine what the framing, signaling and switchtype is.

### General Settings

Alarms: RED

Framing/Coding: ESF /B8ZS

Channels: 23/24 (T1)

Signaling: PRI - Net

Switchtype: National ISDN 2 (default)

Sync/Clock Source: 2

Line Build Out: 0 db (CSU)0-133 feet (DSX-1)

Pridialplan: National

Prilocaldialplan: National

Priexclusive:

- **Group Settings-** When setting up a DAHDI card, you break channels (T1 or analog) into groups shorthand known as g0 for group 0. In our example we are going to setup our Port 1 as group 0. We are also going to setup the other 3 ports on the digium card and the single port on the rhino Card as group 0. So all 5 ports will be group 0, but you could setup any port to be any group number.

Span: T4XXP (PCI) Card 0 Span 1 ✕

### General Settings

---

Alarms: RED  
Framing/Coding: ESF /B8ZS ⬇  
Channels: 23/24 (T1)  
Signaling: PRI - Net ⬇  
Switchtype: National ISDN 2 (default) ⬇  
Sync/Clock Source: 2 ⬇  
Line Build Out: 0 db (CSU)/0-133 feet (DSX-1) ⬇  
Pridialplan: National ⬇  
Prilocaldialplan: National ⬇  
Priexclusive: ⬇

### Group Settings

---

Group: 0  
Context: from-digital  
Used Channels: 24 ⬇ From: 1-23 Reserved: 24

- Don't forget to press the "Save" button when done.

- Press the "Reload" bar at the top of the page.

- Then press the “Restart/Reload Dahdi” button at the bottom of the page so DAHDI will have your changes.

Restart/Reload Dahdi

\*\*\*\*\* TIP: You can also setup ranges of channels on your T1 to be different groups if you want to break up your T1 into different trunk groups for different companies or divisions.

## Group Settings

Group:	<input type="text" value="0"/>
Context:	<input type="text" value="from-digital"/>
Used Channels:	<input type="text" value="10"/> From: 25-34 Reserved: 48
Group:	<input type="text" value="1"/>
Context:	<input type="text" value="from-digital"/>
Used Channels:	<input type="text" value="8"/> From: 35-42 Reserved: 48
Group:	<input type="text" value="2"/>
Context:	<input type="text" value="from-digital"/>
Used Channels:	<input type="text" value="5"/> From: 43-47 Reserved: 48

## Analog Card Setup

For an analog card we will display each port on the card under the “Analog” section. Ports on an analog card are either FXO or FXS.

- FXO are ports on the card that you connect to your phone lines from your telco.
- FXS are ports you can plug analog extensions into and create DAHDI extensions in your PBX to use those FXS ports.
- In the example below we have both FXS and FXO cards installed and we can see what port number they are in DAHDI. DAHDI will load digital cards first and assign them channel numbers starting from 1 then load FXO and FXS channels. As we can see below, FXO ports on our setup are 125-128 and FXS are 121-124.

## Analog Hardware

Type	Ports	Action
FXO Ports	125 <sup>?</sup> , 126 <sup>?</sup> , 127 <sup>?</sup> , 128 <sup>?</sup>	Edit
FXS Ports	121, 122, 123, 124	Edit

- **FXO Channel Setup**

- Clicking on the “Edit” button next to FXO should give us a screen like this. From here, the only thing you would normally change is the group that analog port belongs to. Just like with digital cards, any port can belong to any DAHDI group such as group 0.

The screenshot shows a dialog box titled "FXO Settings" with a close button (X) in the top right corner. The dialog is organized into three sections, one for each port:

- Port 125 Settings:**
  - Signaling:  (dropdown menu)
  - Group:
  - Context:
- Port 126 Settings:**
  - Signaling:  (dropdown menu)
  - Group:
  - Context:
- Port 127 Settings:**
  - Signaling:  (dropdown menu)
  - Group:
  - Context:

At the bottom right of the dialog, there are two buttons: "Save" and "Cancel".

- The signaling can either be “Kewl Start” or “Loop Start,” but most of the time it will be “Kewl Start” unless your telco specifically states they need you to use “Loop Start.” The context for your PBX should always be “from-analog,” so do not change this unless you know what you are doing.

FXO Settings

**Port 125 Settings:**

Signaling:  Kewl Start  
 Loop Start

Group:

Context:

- We will setup our 3 FXO ports on our PBX as Group 1 since we are using group 0 for our T1's. This way when we setup our trunks we will tell the PBX to always try group 0 lines first and only fail to group 1 if the call can not be processed on any of the T1's that were all assigned to group 0.

FXO Settings

**Port 125 Settings:**

Signaling:  Kewl Start  Loop Start

Group:

Context:

**Port 126 Settings:**

Signaling:  Kewl Start  Loop Start

Group:

Context:

**Port 127 Settings:**

Signaling:  Kewl Start  Loop Start

Group:

Context:

Save Cancel

## • FXS Channel Setup

- Clicking on the “Edit” button next to FXS should give us a screen like this. From here the only thing you would normally change is the signaling type, but this should almost always be “Kewl Start.”

## Port 121 Settings:

Signaling: ?  ▾

- All other settings for a FXS channel are done when creating your extension in the PBX DAHDI extension setup since each FXS channel is mapped to an extension on the PBX.

\*\*\*\*\* TIP: Now that you have setup your cards, make sure you go into the Trunks module in your PBX and create your trunk. When creating a trunk, you will be given a drop down of which group you want that trunk to be paired with based on what groups you created in this module.

✓ Group 0 Ascending  
Group 0 Descending  
Group 1 Ascending  
Group 1 Descending  
Group 2 Ascending  
Group 2 Descending  
Analog Channel 125  
Analog Channel 126  
Analog Channel 127  
Analog Channel 128



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