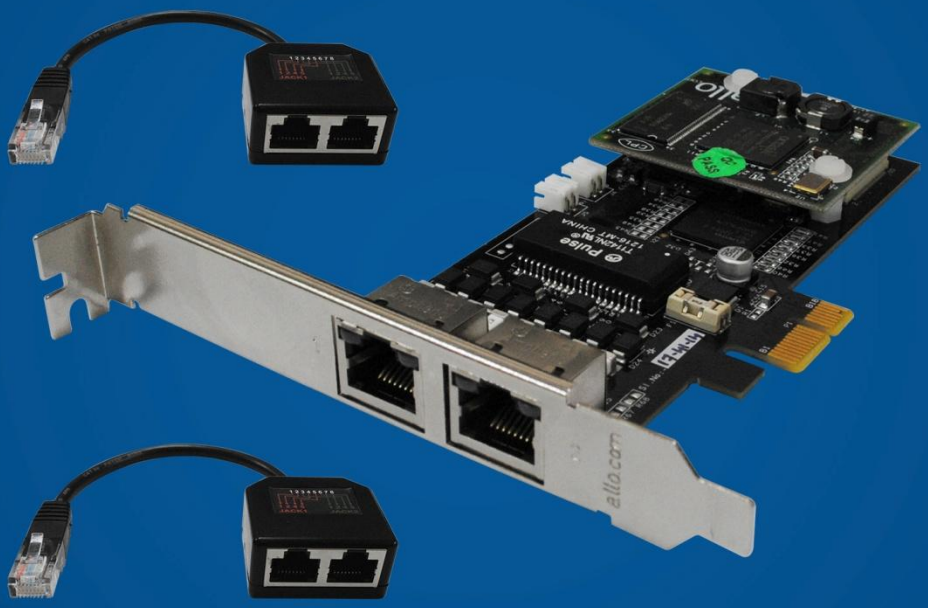
E1/ T1/J1 Upgradable PRI Card

Quick Installation Guide



allo.com

Copyright

Copyright © 2015 Allo. All rights reserved.

No part of this publication may be copied, distributed, transmitted, transcribed, stored in a retrieval system, or translated into any human or computer language without the prior written permission of Allo.com. This document has been prepared for use by professional and properly trained personnel, and the customer assumes full responsibility when using it.

Proprietary Rights

The information in this document is Confidential to Allo and is legally privileged. The information and this document are intended solely for the addressee. Use of this document by anyone else for any other purpose is unauthorized. If you are not the intended recipient, any disclosure, copying, or distribution of this information is prohibited and unlawful.

Disclaimer

Information in this document is subject to change without notice and should not be construed as a commitment on the part of **allo.com.** And does not assume any responsibility or make any warranty against errors. It may appear in this document and disclaims any implied warranty of merchantability or fitness for a particular purpose.

About this manual

This manual describes the Allo product application and explains how to work and use it major features. It serves as a means to describe the user interface and how to use it to accomplish common tasks. This manual also describes the underlying assumptions and users make the underlying data model.

Document Conventions

In this manual, certain words are represented in different fonts, typefaces, sizes, and weights. This highlighting is systematic; different words are represented in the same style to indicate their inclusion in a specific category. Additionally, this document has different strategies to draw User attention to certain pieces of information. In order of how critical the information is to your system, these items are marked as a note, tip, important, caution, or warning.

Icon	Purpose
	Note
	Tip/Best Practice
	Important
	Caution
	Warning

- **Bold** indicates the name of the menu items, options, dialog boxes, windows and functions.
- The color blue with underline is used to indicate cross-references and hyperlinks.
- Numbered Paragraphs - Numbered paragraphs are used to indicate tasks that need to be carried out. Text in paragraphs without numbering represents ordinary information.
- The Courier font indicates a command sequence, file type, URL, Folder/File name
- e.g. www.allo.com

Support Information

Every effort has been made to ensure the accuracy of the document. If you have comments, questions, or ideas regarding the document contact online support: http://support.allo.com

Table of Contents

About this manual 3

Document Conventions 3

Support Information 3

1. Introduction 6

1.1 Overview 6

1.2 Y- Splitter 7

1.3 Splitter End 8

1.4 Connection Diagram 8

1.5 Slot Compatibility 9

2. ALLO Card Licensing 9

3. Hardware Installation 10

3.1 Hardware Setup 11

4. Software Installation Steps 12

4.1 Installation of LibPRI package 12

4.2 Installation of Dahdi Driver 13

4.3 Installation of Asterisk 13

5. Software Configurations 14

5.1 T1 mode settings 14

5.2 Dahdi Configuration 14

6. Digital E1/T1 card Installation through GUI 16

6.1 Installation of GUI software 16

6.1.1 Manual Configuration for Webserver 17

6.2 Installation & Configuration of Digital card through GUI 17

6.3 Dashboard 20

6.4 AMI Configuration (Asterisk Manager Interface) 21

6.5 E1/T1 Settings 21

6.6 Module Options 23

6.7 E1/T1 Span Status 24

6.8 Re-Install Card 25

7. Welcome Administrator 25

1. Introduction

In an industry that is ever changing, Allo has introduced a new series of license based digital cards that are field upgradable to more number of ports (Max 4 ports). Allo PRI cards are high-performance and cost effective digital telephony interface cards which support T1/E1 interfaces. Allo cards have an optional hardware base Octassic™ DSP Line Echo Cancellation that can help you achieve the highest voice quality with today's technology.

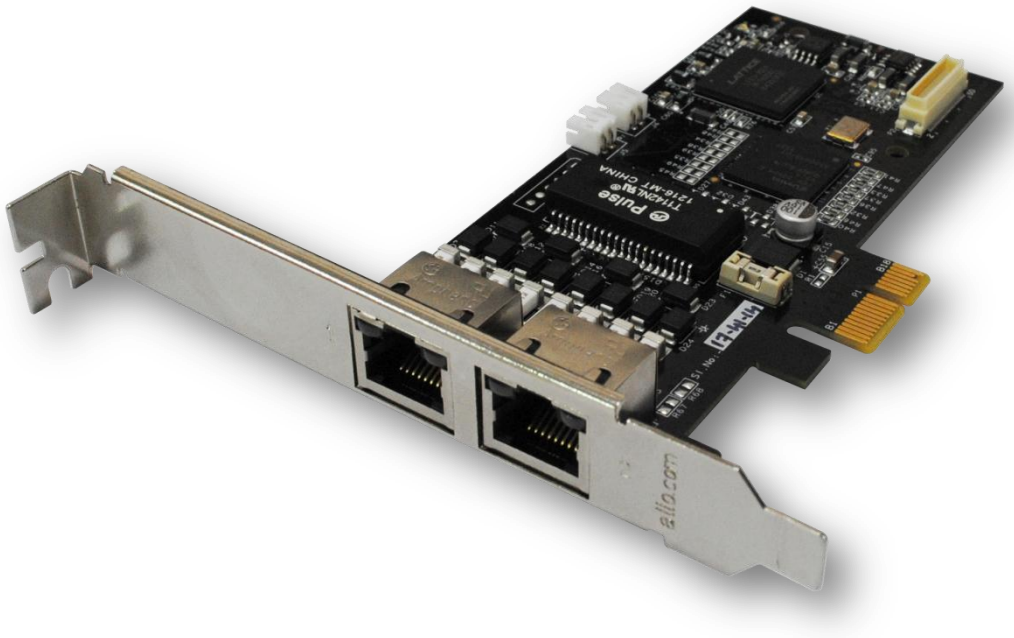
This is a card with an affordable price tag proven to handle very high density of calls in hardcore call center/Telco environments. Allo cards (DAHDI) are compatible with Asterisk®, FreeSWITCH®, Yate™, Elastix, Trixbox, as well as other open source and proprietary PBX, Switch, IVR, or VoIP gateway applications.

Model No	Product Description
3aCP1e/3aCP2e/3aCP4e	1/2/4 Port PRI PCIe card
3aCP1eL/3aCP2eL/3aCP4eL	1/2/4 Port PRI PCIe card with Line Echo Cancellation

1.1 Overview

Allo license based digital cards allow users to upgrade the firmware as well as ports based on their requirements. These cards are available with two RJ45 ports which provide two E1/T1 interfaces and can be extended to four E1/T1 interfaces by using a splitter.

Since these are license based cards the user can purchase a 1/2 port card and can later upgrade to a maximum of four ports by purchasing the license from Allo.



License Based Allo Digital Card

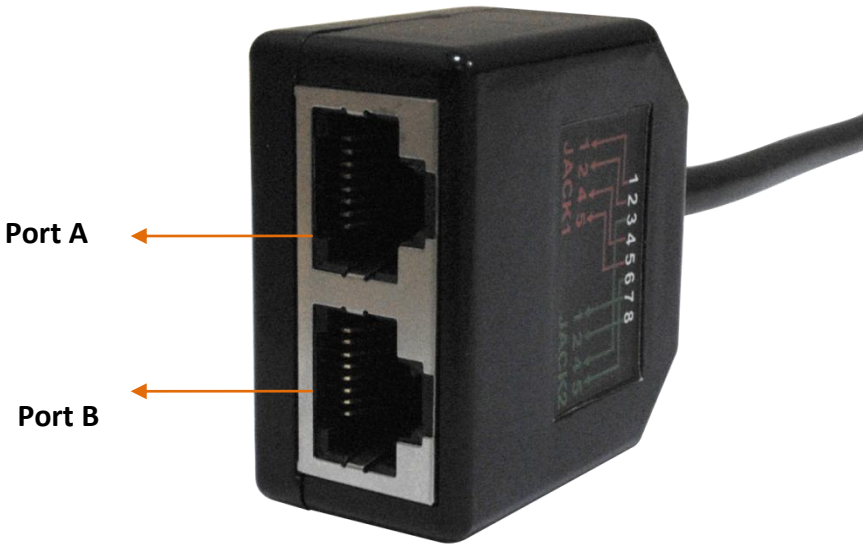
1.2 Y- Splitter

The Y-splitter is provided for accessing all four ports on the Allo License based digital series cards.

The following figure helps to identify a splitter and its end ports.

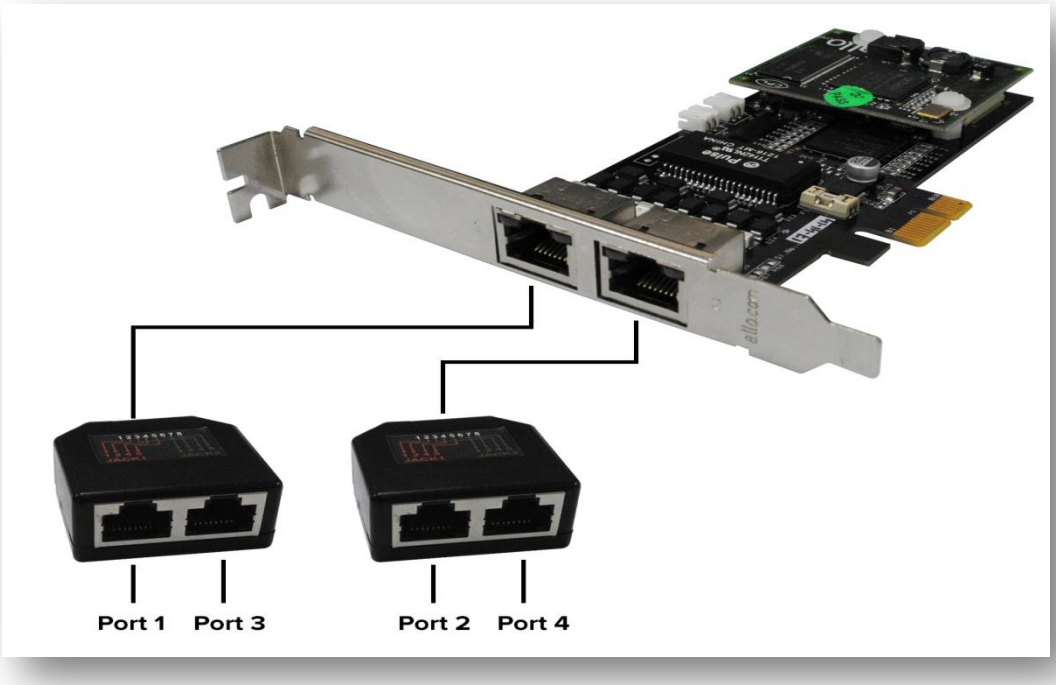
Y-Splitter

1.3 Splitter End



Splitter End

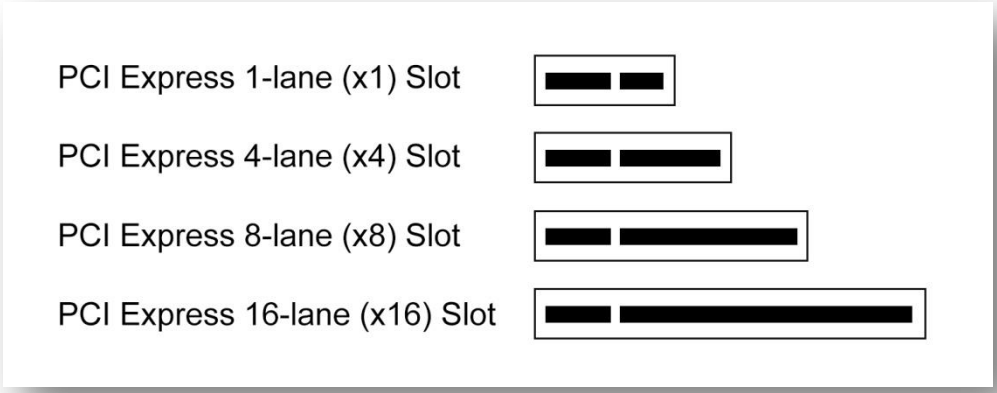
1.4 Connection Diagram



Connection Diagram

1.5 Slot Compatibility

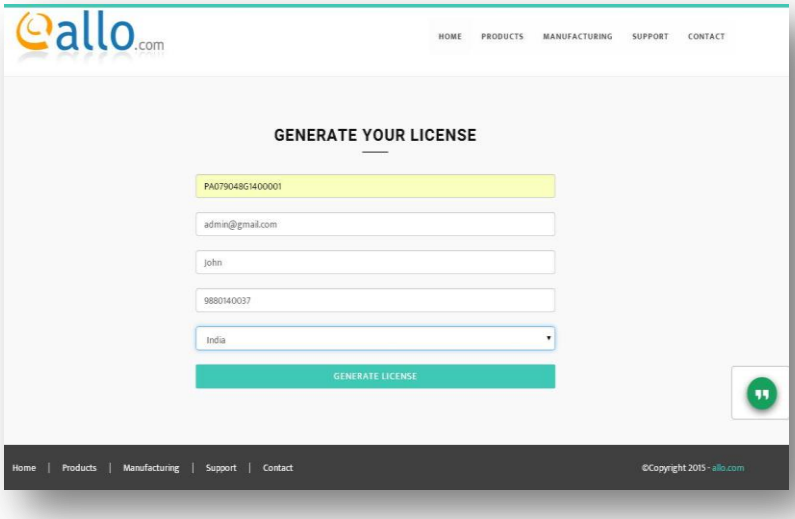
Check your motherboard to verify that a compatible slot is available for an Allo digital E1/T1 card. To determine which slots you have on your motherboard.



Motherboard slots

The Digital E1/T1 cards work with PCIe slot like x1, x2, x4, x8 and x16.

2. ALLO Card Licensing



Generate your License

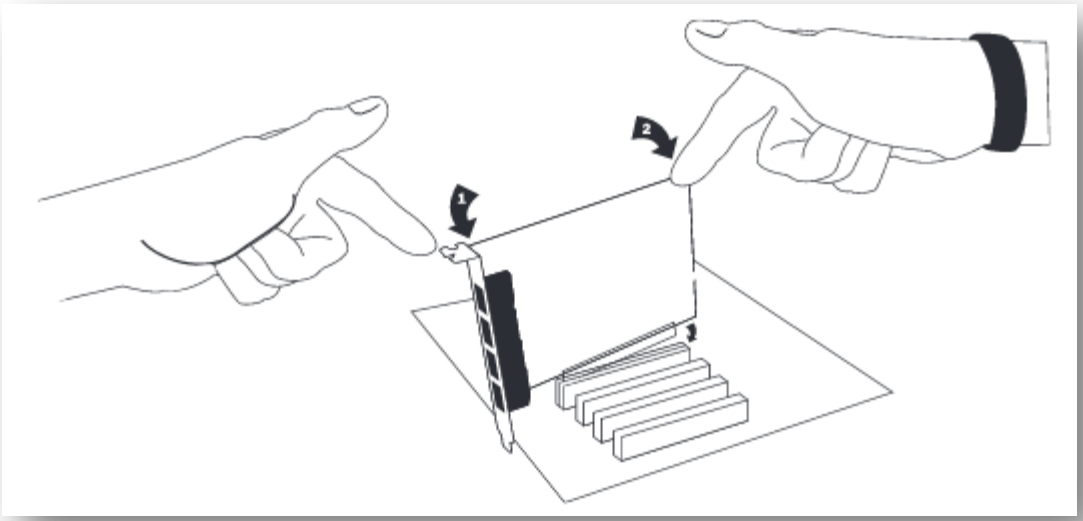
1. Log on to the http://license.allo.com
2. Enter the particular details of the card (Serial Number) along with your Email id, Phone number, and select the country.
3. Click generate license button, to generate the license.
4. After submitting, user will receive the license to the email id provided.

5. Download and copy the License file to the machine where the card is being installed in the following directory “lib/firmware”.

In case the license email is not received please check in spam or contact Allo support.

3. Hardware Installation

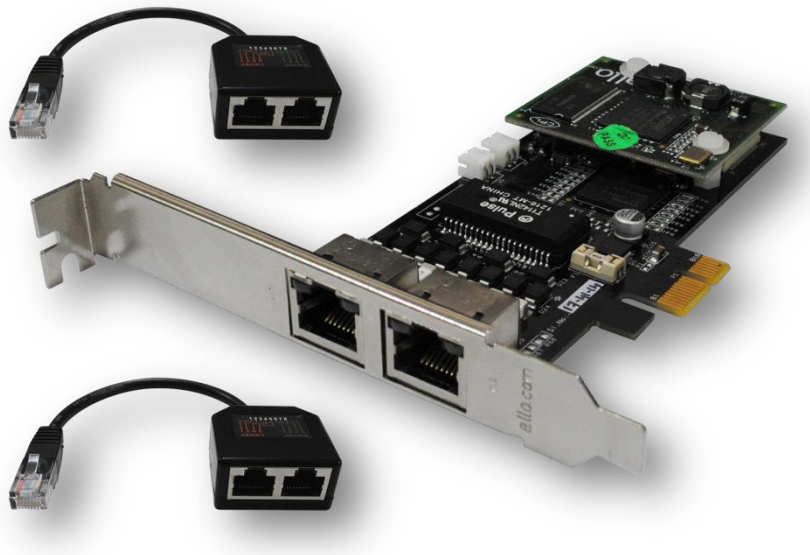
1. ***Now that you are acquainted with the 3aCP1e/3aCP1eL series cards, power down your computer and unplug it from its power source.***
2. Attach a static strap to your wrist and open the case.
3. Take away the section place holder and addition the card into a PCI or PCI Express Slot.



4. Replace the cover to your computer
5. Plug the T1 or E1 equipment cable into the RJ45 port.

Use only shield cables to ensure compliance with the international EMC standards.

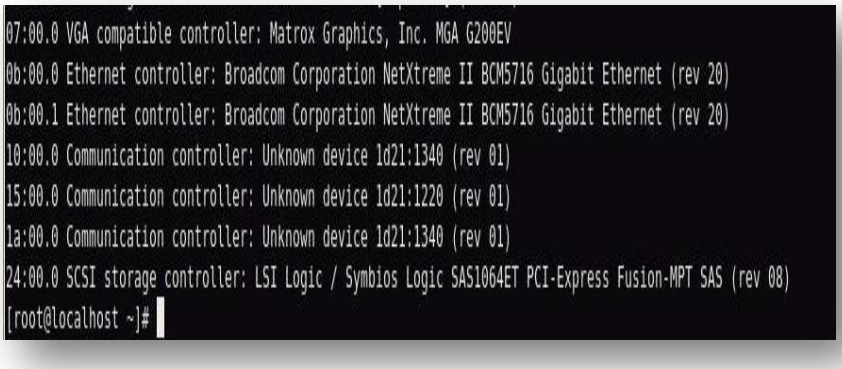
3.1 Hardware Setup



License Based Digital Card

1. Insert the Digital E1/T1 card in the PCIe slot of the Server.
2. Check if the installed PRI card is detected using the “lspci” command.
3. If the card is recognized, the following output will be displayed. Please search for Allo ID (1d21).

 # lspci



Below Table lists the device ID and the number of ports supported.

Device Id	Model Number	Card Type
1310	3aCP1e	1 port PRI Card
1320	3aCP2e	2 ports PRI Card
1340	3aCP4e	4 ports PRI Card

If the PRI card is not recognized by the system, you have to power off and take out the card, and re-insert it in another PCIe slot.

4. Software Installation Steps

This section describes about the installation of LibPRI, Dahdi and Asterisk.

Test Environment (Example)

Libpri-1.4.14

ALLO Dahdi Driver - 2.9.1

asterisk-11.4.0

centos 6.2 (kernel version: 2.6.32)

Telephony Card : 4 port PRI PCIe card (Model:3aCP4e)

Installation of dependency packages

Install Asterisk's dependencies that are required to compile asterisk. Run the followings commands to install the required packages.

```
[root@localhost ~]# yum install bison bison-devel ncurses ncurses-devel zlib
zlib-devel openssl openssl-devel gnutls-devel gcc gcc-c++ libxml2
```

4.1 Installation of LibPRI package

Go to /usr/src directory and Download LibPRI by running the following command

```
#wget http://downloads.asterisk.org/pub/telephony/libpri/libpri-1.4.14.tar.gz
```

After downloading LibPRI extract the LibPRI tar file by the following command

```
[root@localhost src]# tar -xvzf libpri-1.4.14.tar.gz
```

Install the LibPRI by the following commands

```
[root@localhost src]# cd libpri-1.4.14
# make clean
# make
# make install
```

4.2 Installation of Dahdi Driver

Download latest ALLO Dahdi Drivers from Allo web site and install the Dahdi version as per your requirement. Please find the link here for download http://allo.com/pri-upgradable-card.html.The link is also available in the "Guides & Drivers" section on www.Allo.com

Extract the downloaded file by executing the below command.

```
#tar -xvzf dahdi-linux-complete-2.9.1.1+2.9.1.tar.gz
```

Use the following commands to install DAHDI drivers

```
#cd dahdi-linux-complete-2.9.1.1+2.9.1
#make
#make install
#make config
```

Successful Dahdi Driver installation shows the similar output & lists the detected Dahdi devices

```
########################################################
###
### DAHDI tools installed successfully.
### If you have not done so before, install init scripts with:
###
###   make config
###
########################################################
make[1]: Leaving directory `/usr/src/dahdi-linux-complete-2.9.1.1+2.9.1/tools'
make -C tools config
make[1]: Entering directory `/usr/src/dahdi-linux-complete-2.9.1.1+2.9.1/tools'
install -D dahdi.init /etc/rc.d/init.d/dahdi
/usr/bin/install -c -d /etc/udev/rules.d
/usr/bin/install -c -D -m 644 dahdi.rules /etc/udev/rules.d/
install -D ifup-hdlc /etc/sysconfig/network-scripts/ifup-hdlc
/sbin/chkconfig --add dahdi
DAHDI has been configured.

List of detected DAHDI devices:

pci:0000:01:00.0     alloPL4xxp-  1d21:1340 Allocard 3aCP4e (3rd Gen)

run 'dahdi_genconf modules' to load support for only
the DAHDI hardware installed in this system.  By
default support for all DAHDI hardware is loaded at
DAHDI start.
make[1]: Leaving directory `/usr/src/dahdi-linux-complete-2.9.1.1+2.9.1/tools'
[root@jaikumar-laptop dahdi-linux-complete-2.9.1.1+2.9.1]#
```

Dahdi driver Installation output log

4.3 Installation of Asterisk

Download the latest version of asterisk. Asterisk is available for download from: http://downloads.asterisk.org/pub/telephony/asterisk/ after downloading asterisk, extract the asterisk tar file by giving following command.

#wget http://downloads.asterisk.org/pub/telephony/asterisk/asterisk-11-current.tar.gz

Go to asterisk folder and compile the packages as following

To install asterisk give the following commands:

```
[root@pbx1 asterisk-11.4.0]#./configure
# make
# make install
# make config
```

If this is your first Asterisk Install, you should install the sample configuration files, to do this run:

 # make samples

5. Software Configurations

Add "alloPL4xxp" at the end of /etc/dahdi/modules file, so that while starting dahdi driver Allo card modules will load automatically.

Add the line <include "dahdi-channels.conf"> in /etc/asterisk/chan_dahdi.conf file.

By default the card is ready to use in E1 mode

5.1 T1 mode settings

To configure the card in T1 signaling mode, please add the following,

(i) Add "**options alloPL4xxp default_linemode=t1"**at the end of /etc/modprobe.d/dahdi.conf

5.2 Dahdi Configuration

After Dahdi driver installation to list out the Dahdi hardware devices run the command "*dahdi_hardware*" from the command prompt a sample output is shown below.

```
[root@pc]# dahdi_hardware
pci:0000:01:00.0     allo4xxp-    1d21:1220 Allocard 2aCP2e (2nd Gen)
pci:0000:03:00.0     alloPL4xxp-  1d21:1340 Allocard 3aCP4e (3rd Gen)
```

After compiling and installing DAHDI and Asterisk, load the Dahdi driver by running:

```
# /etc/init.d/dahdi start
# dahdi_genconf –vvvvv
```

By running **"dahdi_genconf"**, it will generate /etc/dahdi/system.conf and etc/asterisk/dahdi-channels.conf automatically. Check whether the generated files information agrees with your hardware setup, if not, you should modify to your specific requirements.

Dahdi_genconf-vvv channels configure with Asterisk

Do not forget to include"dahdi-channels.conf" in "chan_dahdi.conf" to configure Dahdi channels with asterisk, if not, run command:

```
# echo "#include dahdi-channels.conf" >> /etc/asterisk/chan_dahdi.conf
```

Execute the following command:

```
# dahdi_cfg-vvvvv
```

This command is used for the entire spans channels configuration.

Start the Asterisk by executing

```
# asterisk -gvvvvvvvvvc
```

Make sure that PRI spans are up and active, before making calls. Here is the command to check the PRI span status

CLI>pri show spans

PRI Span Status (4 Ports PRI Card)

6. Digital E1/T1 card Installation through GUI

6.1 Installation of GUI software

Download latest ALLO PRI card GUI/ Free Conference Server software available from http://allo.com/pri-upgradable-card.html under "Free Conference Software".

1. The file downloaded will need to be extracted before compiling. Use the GNU tar application to extract the source code from compressed archive. This is a simple process that can be achieved through the following command:

   `$tar xvfz conferenceserver_<version>.tar.gz`

2. Go to PCS folder executes.

   `$cd PCS`

3. Run Install Script

   `$./install_gui.sh`

If user have own web server they can configure it by using the steps given below. Otherwise choose installation script to install the packages and configure it.

While installing webserver, using the installation script choose the type of OS in use.

I. Select the installer script to install the webserver `(lighttpd-1.4.35)`

II. Select the installer script to install sqlite3 `(v3080702)`

III. Select the installer script to install php5 `(v5.5.16)`

IV. `php- sqlite3 binding: success`

V. Enter the path to copy the GUI related files in webserver `("/var/www"[default])`

VI. Enter the webserver user name `("www-data"[default])`

VII. Copied GUI files to `/var/www/GUI`

If everything goes fine "`success`" will be printed.

4. Configure AMI (Asterisk Manager Interface) in manager.conf .You can use the previous settings if any.

Eg:-

```
[general]
enabled = yes
webenabled = yes
port = 5038
bindaddr = 0.0.0.0
[admin]
secret = admin

read = system,call,log,verbose,agent,user,config,dtmf,reporting,cdr,dialplan
write = system,call,agent,user,config,command,reporting,originate,message
```

6.1.1 Manual Configuration for Webserver

Add root permission for the web server user.

Edit the file Vi /etc/sudoers.

1. Add the following line to the end of the file.

   `<http-server-username> ALL= NOPASSWD: ALL`

   `Ex. www-data ALL= NOPASSWD: ALL`

The web server user may vary for different web server.

2. If line present *`defaults requiretty`* comment it out.

   `Ex. #Defaults requiretty`

3. Add *`default secure path`*

   `Ex. Defaults`
   `secure_path="/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:`
   `/sbin:/bin"`

6.2 Installation & Configuration of Digital card through GUI

Go to address bar of the browser, enter the IP address e.g.: 192.168.0.62/GUI

Login using the default username & password

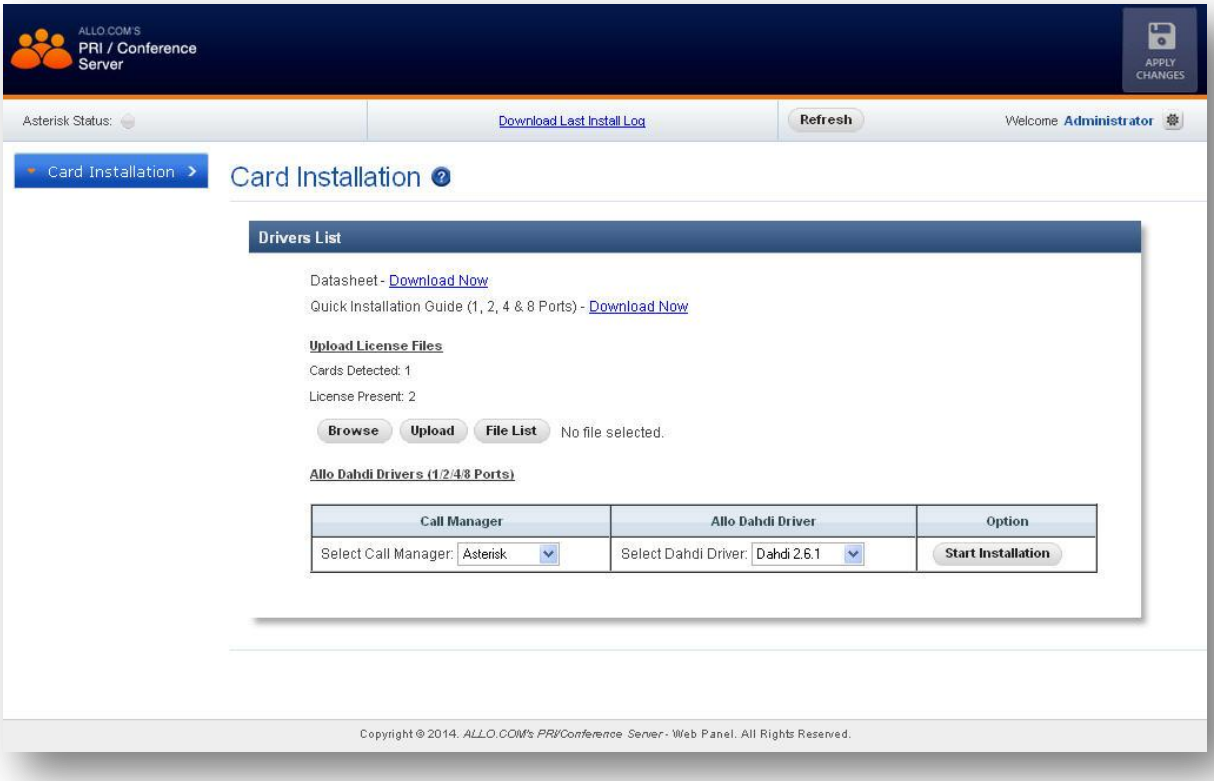
Default:

Username: install-pri

Password: install-pri

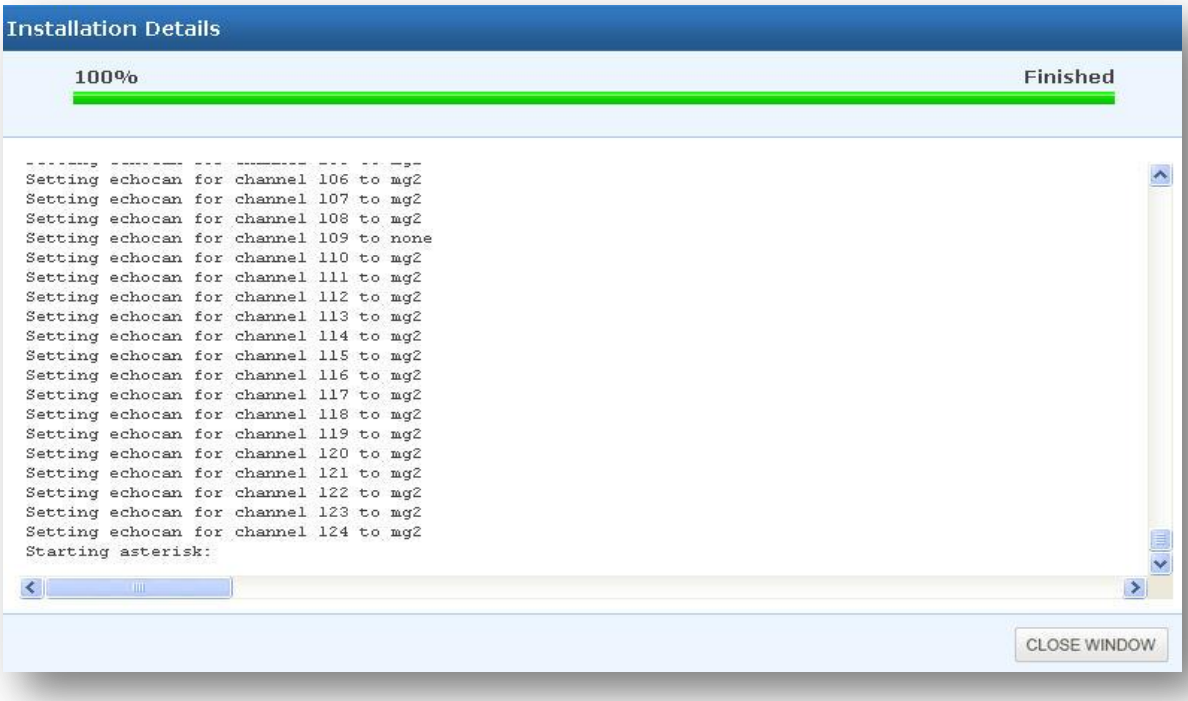
Successful login takes you to the ALLO.COM'S E1/T1 Card GUI.

Login page



Card Installation Page

- Click the **browse** button, browse your license file and click open.
- Click the **Upload** button, to upload the chosen file to the web server.
- Click the **File List** that will display a list of license files already uploaded.
- User can select the Call Manager (Default: Asterisk) and appropriate dahdi driver from the drop down list.
- Click Start Installation.



Installation Details

Click "**CLOSE WINDOW**" button, it will re-direct to the login page.

Login using the default username & password

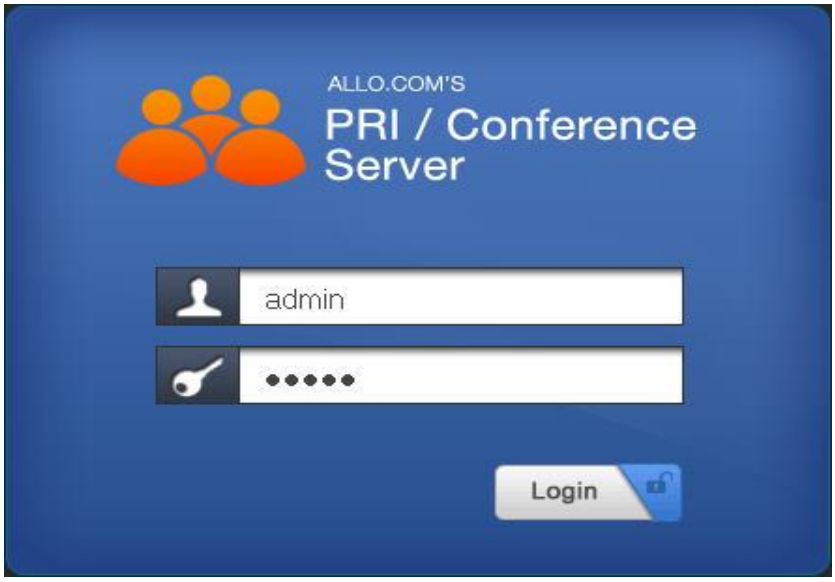
Default:

Username: admin

Password: admin

Successful login takes you to the ALLO.COM'S E1/T1 Card GUI.

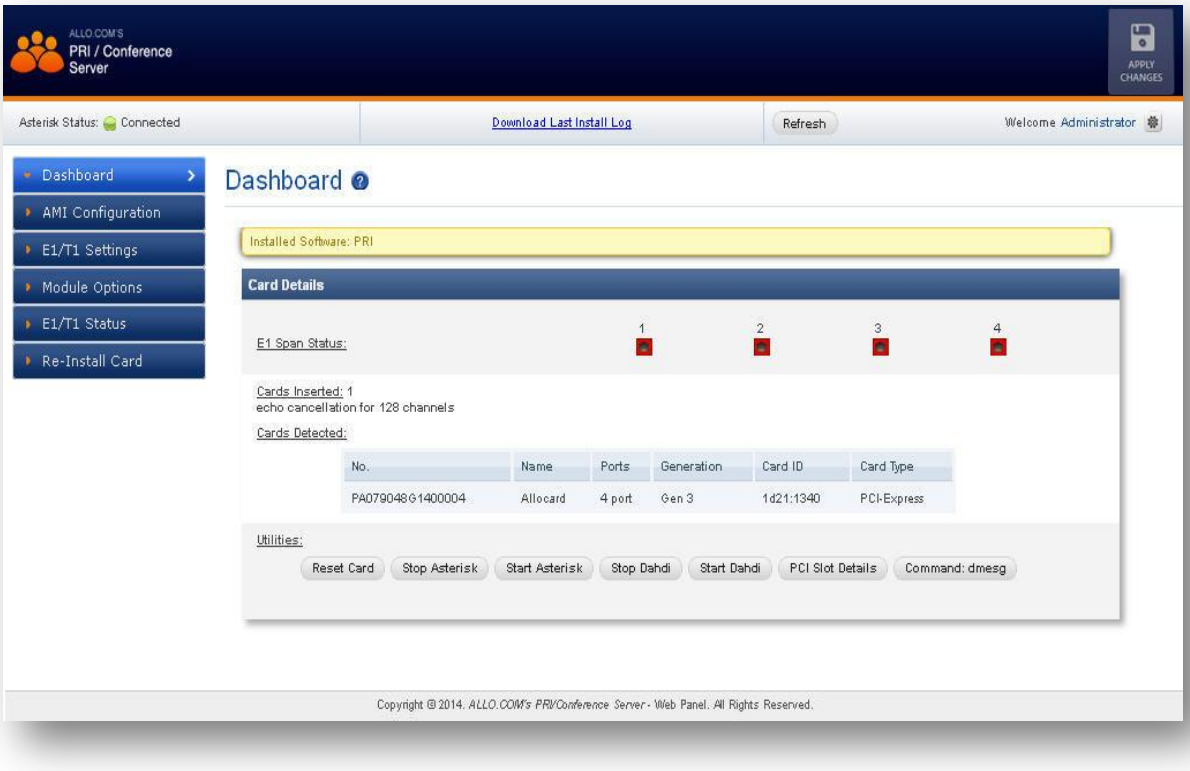
Admin login will only be available once the card install's successfully.



Login Page

6.3 Dashboard

ALLO Upgradable E1/T1 Digital Card Dashboard summarizes the card status. User can download the last install logs from the dashboard page. The Dashboard shows Card details, Span details, number of cards inserted along with echo cancellation details (if available), detected cards and utilities etc.



Dashboard

6.4 AMI Configuration (Asterisk Manager Interface)

The PRI GUI will communicate with asterisk using the AMI. Enter the AMI configuration details. (Please refer installation steps)

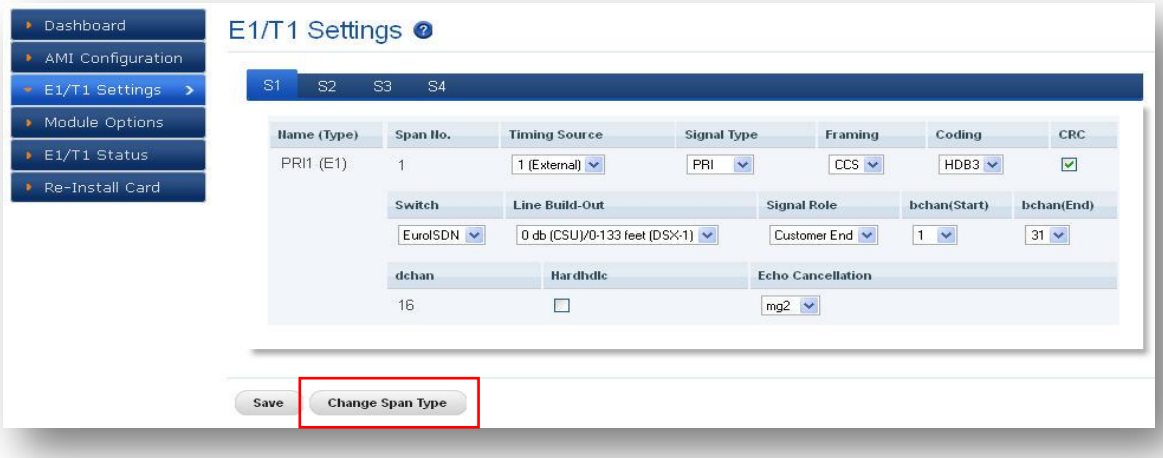
AMI Configuration

Configuration Parameters

IP Address	Default: 127.0.0.1 (Readable only)
Port	Enter the Port number used for AMI. Default: 5038
Username	Enter the AMI username. Default: admin
Password	Enter the AMI password. Default: admin

6.5 E1/T1 Settings

This section provides the ability to modify the E1/T1 PRI settings depending on the carrier (E1/T1), signal type, switch type etc with respect to the service provider.



E1/T1 Settings

Click **Change Span Type** button, to set the span type either E1 or T1.

Change Span Type

Select the carrier type, E-carrier (E1) or T-carrier (T1) depending upon lines provided in your country. Default: **E1.**

Name (Type)	It shows the name of the PRI card with type.
Span No	It shows the span number of E1/T1 PRI card.
Timing Source	It specifies the Timing Source: 0(internal), 1...n (External)
Signal Type	Select the signaling type from the drop down menu. Options for E1 : PRI, E1-R2 Options for T1: PRI, E & M, and E&M Wink
Framing/Coding	Select Proper Framing & Coding by checking with your service Provider. If CRC is enabled from Telco side, Please select checkbox on CRC4 to enable CCS/HDB3/CRC4. If not select CCS/HDB3. Default for E1: **CCS/HDB3** Default for T1: **ESF/B8ZF** Default for MFCR2:**CAS/HDB3**
CRC	User can either enable or disable this option.
Switch	Select the switch type as indicated by the ISDN service provider. Default: **E1- Euro ISDN & Q.SIG.**
Line-Build-Out	It depends on the line length for which attenuation is defined. Default: **0 db**. Check with your service provider for appropriate Line build out settings if you face any issue.

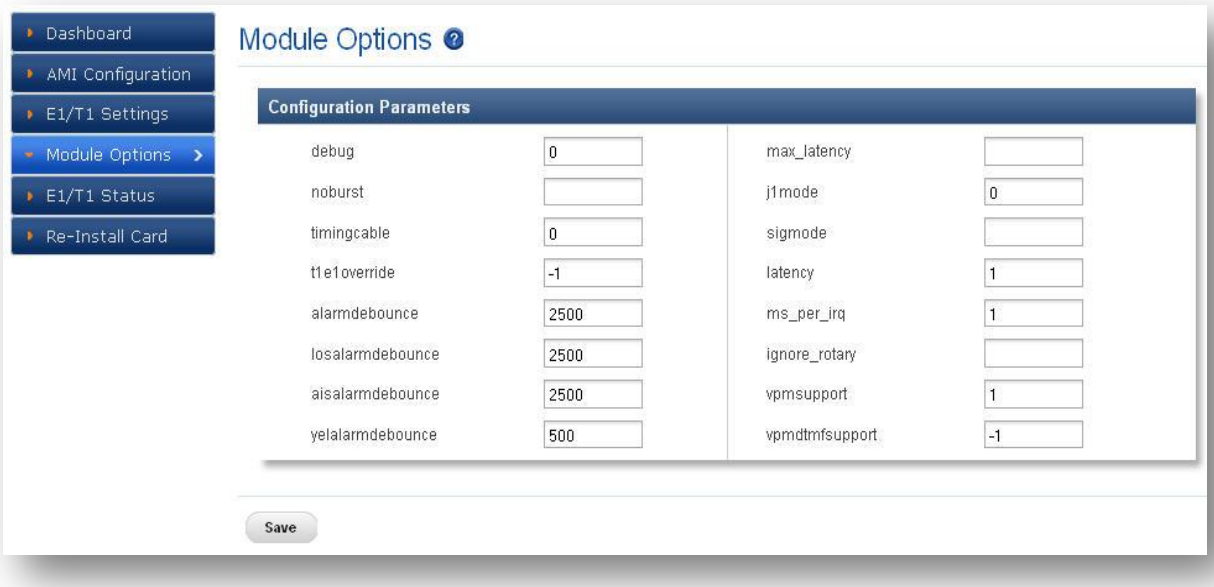
Signal Role	User can select either Customer End or Network End from the dropdown menu.
bchan Start/End	B-channel carries data, voice and other services.
Echo Cancellation	User can select the different echo cancellation channels from the drop down menu.

6.6 Module Options

User can set the module options if it's required. Default settings will work automatically.

The modules can be used in T1 or E1 networks, selectable by software configuration. The integrated channel service unit/data service unit (CSU/DSU) function allows customers to consolidate customer premises equipment (CPE). The modules support balanced and unbalanced E1 connectivity and conform to the G.703 and G.704 standards for unframed and framed E1 modes.

The Channelized T1/E1 modules work with the digital module in the Allo PRI Card series.



Module Options

6.7 E1/T1 Span Status

This page displays a detailed status of each E1/T1 Port with individual channel information, available on the E1/T1 PRI Card.

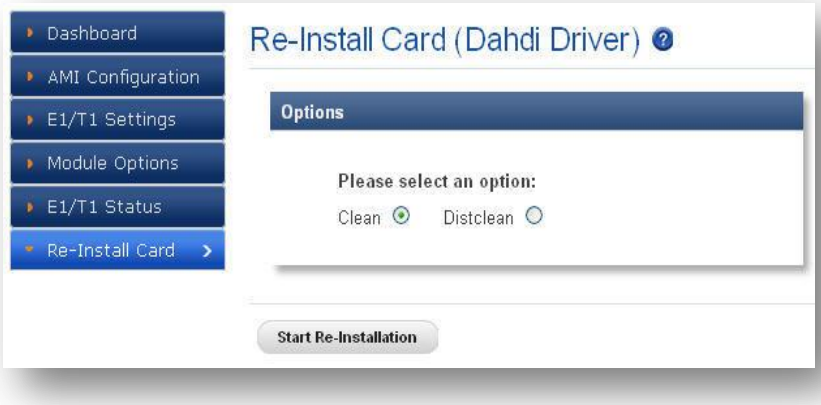
E1/T1 Span Status

Channel Status	Description
	Not in Service
	Remote Alarm Indication
	Active
	Device Undetected

Channel Status	Description
	Busy
	Idle
	Disabled

6.8 Re-Install Card

User can select an option either clean or distclean to re-install the E1/T1 PRI card.

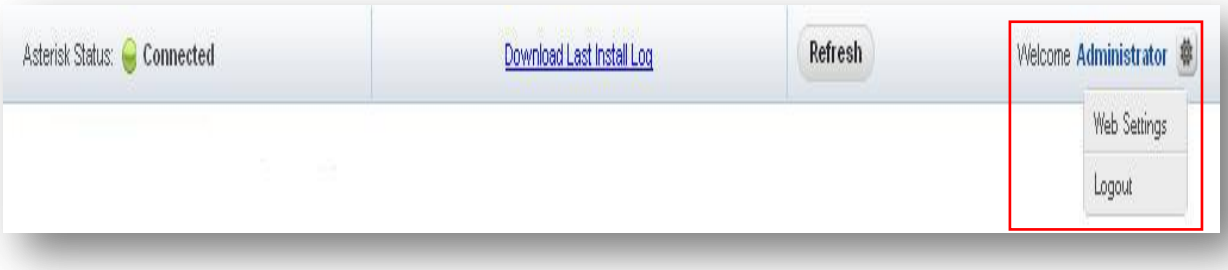


Re-install Card (Dahdi Driver)

Click **Start Re-installation**, to re-install your Dahdi Driver.

If you change the options (clean & distclean) to your Dahdi driver, it's necessary to re-install the card.

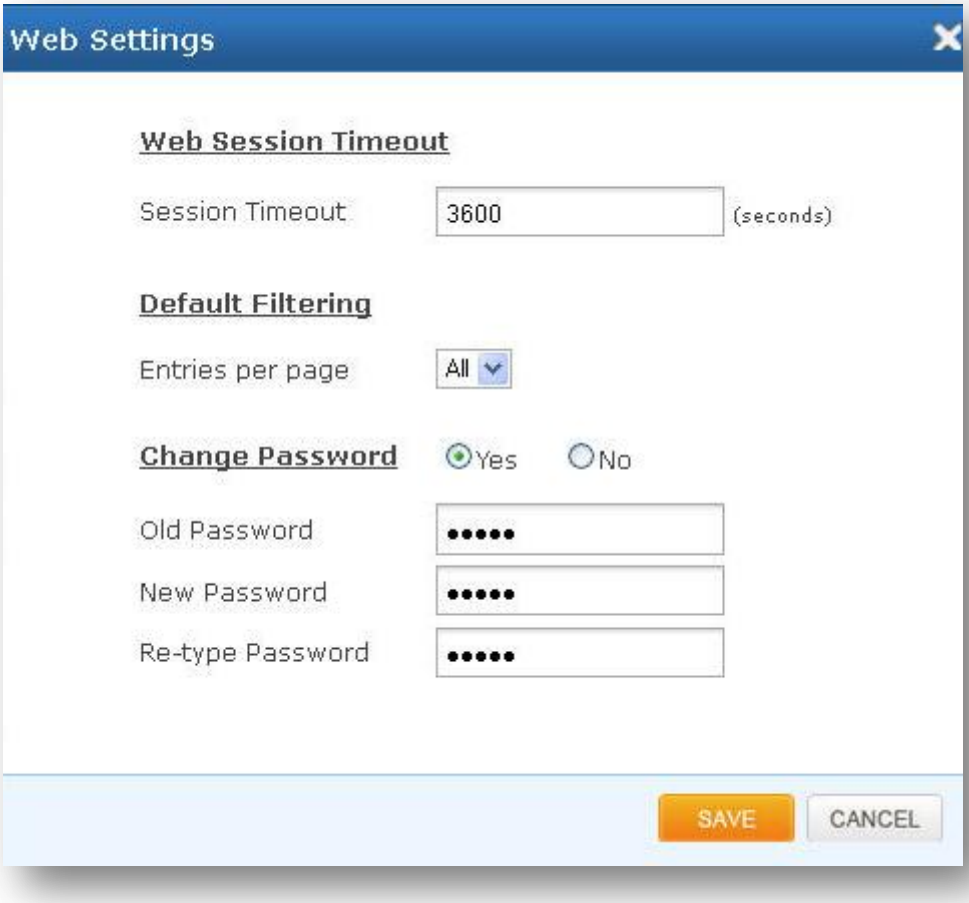
7. Welcome Administrator



Welcome Administrator

Web Settings

Navigation through Welcome **Administrator** > change the **Web Settings.** Here you can change the administrator password.



Web settings

Web Session Timeout	It specifies the duration after which current web login session expires. Default: 3600 sec.
Default Filtering	It specifies the number of entries in a table per page to be displayed.
Change Password	User can modify the Administrator password here.

Click on **"SAVE** "button, followed by "**APPLY CHANGES**" button to update the configuration changes.

Logout: It will take you out of the web interface.

If you face any issues, please contact the reseller from whom you have purchased the ALLO product or submit a support ticket http://support.allo.com/

Thank you for choosing

allo.com

Adarsh Eco Place, #176, Ground Floor, EPIP Industrial Area, Kundalahalli
KR Puram Hobali, Whitefield, Bangalore - 560066.

Email: globalsales@allo.com
indiasales@allo.com

Phone: +91 80 67080808