

PERFORMING A DEBIAN 8 JESSIE INSTALL

1. Install hard drive to motherboard.
2. Install cd drive to motherboard.
3. Check all power connections.
4. Turn motherboard on.
5. Verify that cd drive is the bootable device.
6. Turn off all sound cards that are not going to be used (Performed in BIOS)
7. Install Debian 8 Jessie installation disk
8. Turn machine off.
9. Turn machine on.

CD SHOULD NOW BOOT AND START UNLOADING!!!!

1. Debian 8 will now show on the start screen. Highlight “Text Install” and then hit enter.
2. The next screen will ask you what language you want to use. You would select english.
3. The next screen will ask you to choose what region you reside in. You would select North America.
4. The next screen will ask you to choose a location for your time zone. You would choose United States.

System will now start the formatting and installation of DEBIAN 8

5. It will stop and ask you what password you would like to use to access the node when installation is complete.
6. You will be asked again to confirm your password installation.
7. The next screen will ask you to set the clock preferences by “time zone” You would choose “Pacific”.
8. The next screen will ask you to configure your package manager. You would use “United States”.
9. The next screen will ask you what “Debian Mirror Site” you want to obtain your downloads from. **If in doubt choose ftp.us.debian.org**
10. The installation will now complete and the CD will eject. You will now be able to login as root with your password.

At this point I would shut down or reboot the node to verify set up is working as it should.

You should now be at [irlp login]. Log into the node as using your password “XXXXXXX” you created in the above installation. You should now be at `root@IRLP:~#`

Type in the following to get the needed IRLP install files.

```
wget ftp://ftp.irlp.net/get-irlp-files
chmod +x get-irlp-files
./get-irlp-files
```

Choose if it’s going to be a “new install” or “re-install” Hit enter.

Insert USB stick with backup file on it. **(only done for a re-install)**
After it recognizes file hit “Y” for yes to mount file, Hit enter.

Type REINSTALL in all capital letters, Hit enter.

After all prerequisites are satisfied press enter to continue.

Hit yes to assign a static ip address. It will then assign the new static ip address “192.168.1.XX” write this down for later use!!!! (NOTE: ip address might differ from the example provided)

Installation of the IRLP files should now be complete.

As `root@stnXXXX:~#` type in `/home/irlp/custom/rc.irlp` this will reboot the node without reloading the entire system.

Type in the following to get the needed IRLPvCON install files.

```
wget ftp://ftp.irlp.net/pub/irlpvcon\_debian/irlpvcon\_debian\_install
chmod +x irlpvcon_debian_install
./irlpvcon_debian_install
```

Type in the following to get the needed IRLPvAUX files.

```
Type “cd /home/irlp” Hit enter. root@stnXXXX:/home/irlp#
Type “wget -nd -nc k6ib.com/downloads/irlpvaux-3.0.tar” Hit enter
Type “tar -xvf irlpvaux-3.0.tar” Hit enter
Type “rm irlpvaux-3.0.tar” Hit enter
```

As `root@stnXXXX:~#` type in `/home/irlp/custom/rc.irlp` this will reboot the node without reloading the entire system.

Hint:

Now is probably a good time to test the port forwarding of the node. As `repeater@stnXXXX:~$` type `troubleshoot-irlp` hit enter. It will now run a script testing all ports and items related to operation of the node. If all pass you should be able to move the node to a reflector. Using the IRLPvCON screen on a personal computer or as `repeater@stnXXXX:~$` in a putty session type `decode XXXX` hit enter and the node should connect to your reflector of choice. Under the address bar of your favorite search engine type the following: <http://stnXXXX.ip.irlp.net/irlpvcon/> assuming all is working you should now see the IRLPvCON control box. Under admin you should assign a password for protection of your control box. If IRLPvCON password protection is ever lost or forgotten the protection can be removed by doing the following: Log into node as root and enter this command `/var/www/irlpvutil/remove_pwd`

Known issue with IRLPvCON is all the boxes being greyed out with no control. This is caused by a file that needs to be deleted. Look in /tmp directory for a file named (vput_locked)

Now that the node has the basic operating system to function you should adjust the sound card for audio in and out settings. It is easiest to put the node on reflector #9990 for this purpose. Run a putty session as `repeater` (since your logged in as root you need to change it by the following `root@stnXXXX:~# type su - repeater` to switch to repeater and it will look like this when performed `repeater@stnXXXX:~$ type decode 9990` to get node to move to this reflector) you will now be able to transmit your audio out and here it come back for setting adjustment.

Hint:

While connected to this reflector on the putty screen at `repeater@stnXXXX:~$ type decode XXXX` any reflector or node number and hit enter. A sound wave file will play saying your connected to node #9990. This will allow you to quickly adjust the audio incoming signal to your preference. Outgoing audio will have to be done keying the microphone and hearing the signal come back. For quick or reparative playing of the incoming file hit the up arrow and it will automatically repopulate the last typed line of command, speeding up the process.

Perform the following as `root@stnXXXX:~#` “alsamixer” to adjust your sound card. After you are satisfied with the incoming and out sound settings hit escape, taking you back to the `root@stnXXXX:~#` type the following to save the settings, “alsactl store”

CHANGING THE NODES PORTFORWARDING

From a terminal or putty:

As `root@stnXXXX:~#` type the following: `cd /etc/ssh` hit enter.

Type `pico -w sshd_config` hit enter.

Look for `#port 22....` Remove `#` sign and change number to your choosing. Hit `control-O` to save and `control-x` to exit. To exit back to `repeater@stnXXXX:~$` type `su - root` you will now be `root@stnXXXX:~#` in a root login in session.

Hint:

Changing of the port can also be done with WinSCP in the following folders and files.

`/etc/ssh/sshd_config` (TABLE A)

THIS SHOULD COMPLETE A NORMAL IRLP NODE INSTALLATION!!!!

LOOK FURTHER IN THIS DOCUMENT FOR ADDED MODIFICATIONS TO ALLOW THE NODE TO EXECUTE OTHER PERFORMANCE INHANCING DEVICES.


```
#      $OpenBSD: sshd_config,v 1.69 2004/05/23 23:59:53 dtucker Exp $

# This is the sshd server system-wide configuration file.  See
# sshd_config(5) for more information.

# This sshd was compiled with PATH=/usr/local/bin:/bin:/usr/bin

# The strategy used for options in the default sshd_config shipped with
# OpenSSH is to specify options with their default value where
# possible, but leave them commented.  Uncommented options change a
# default value.

Port XXXX
Protocol 2
#ListenAddress 0.0.0.0
#ListenAddress ::

# HostKey for protocol version 1
#HostKey /etc/ssh/ssh_host_key
# HostKeys for protocol version 2
#HostKey /etc/ssh/ssh_host_rsa_key
#HostKey /etc/ssh/ssh_host_dsa_key

# Lifetime and size of ephemeral version 1 server key
#KeyRegenerationInterval 1h
#ServerKeyBits 768

# Logging
#obsoletes QuietMode and FascistLogging
#SyslogFacility AUTH
SyslogFacility AUTHPRIV
#LogLevel INFO

# Authentication:

#LoginGraceTime 2m
#PermitRootLogin yes
#StrictModes yes
#MaxAuthTries 6
```

REMOVE # SIGN AND ADD YOUR NEW PORT NUMBER XXXX

Line: 1/111 Column: 1 Character: 35 (0x23)

TABLE (A)

The next thing I would recommend doing is to verify what node you're working with:

To do this look in “/home/irlp/custom/environment” This should tell you the “CALLSIGN” of node and the “STATIONID” of the node. (NOTE: It's a good idea when owing multiple nodes)

TABLE (B)

Adding control codes (PX-PPX) for reboot/shutdown & enabling/disable of node

These need to be added in “/home/irlp/custom/custom_decode”

TABLE (C)

Adding file and line of command to reboot node....

These need to be added in “home/irlp/custom/reboot_node”

TABLE (D)

Adding file and line of command to shutdown node....

These need to be added in “/home/irlp/custom/shutdown_node”

TABLE (E)

Adding file and line of command to make shutdown -r/-h work....

These need to be added in “/etc/sudoers”

TABLE (F)

Adding file and line of command to make APRS identification work....

These need to be added in “/home/irlp/scripts” (NOTE: Install aprsdave file in this folder!)

TABLE (G)

Adding file and line of command to make APRS automatically start up....

These need to be added in “/home/irlp/custom/rc.irlp”

TABLE (H)

Verify all file settings of these four files for **“Group, Owner, Permissions & Octal settings”**

TABLE (I)

```
# This file is the IRLP ENVIRONMENT file. It is designed to set a list of global variables
# which are used by the software. Be careful when editing this file as a small
# error can make you node totally unusable.

# Place the callsign of your node below. USE ONLY LOWERCASE LETTERS
export CALLSIGN=

# Put the IRLP station ID of your node below. NOTE you must enter the correct stationid
# which is assigned to you. Any other value will cause your node not to operate properly.
# USE ONLY LOWERCASE LETTERS
export STATIONID=stn

# Put your desired CODEC here.
#UNCOMP = high speed broadband access, HALF DUPLEX
#ADPCM = broadband access, HALF DUPLEX
#GSM = dialup modem, HALF DUPLEX
#UNCOMP_FD = broadband, FULL DUPLEX
#ADPCM_FD = broadband, FULL DUPLEX
#GSM_FD = dialup modem, FULL DUPLEX

# DO NOT setup your codec for full duplex unless you are sure your
# node radio equipment is capable.

export DEFAULTCODEC=UNCOMP

# This is the ID feature. It will send out a morse or a voice ID at
# the specified interval. This is NOT enabled by default, and must
# be enabled by the user after the install. To activate the ID system,
# uncomment the lines below and adjust the values to suit your node.

# ***** IMPORTANT *****
# The ID script prefers to use AUX1 as an alternative PTT. In order for the
# script to use AUX1, you must bridge AUX1 and PTT together in your cables.
# This is easily done by providing a solder bridge between between
# pins 2 and 3 on the DB-9 connector.
# When used with PTT, it may cause the transmitter unkey in the middle of
# playing other wave files, like connection IDs, other scripts, etc.

# ID_PTT selects whether the PTT or AUX1 is used as a keying pin.
```

Line: 1/181 Column: 1 Character: 35 (0x23)

TABLE (B)

```
/home/irlp/custom/custom_decode - [redacted]
# /bin/bash

# This is the custom decode file. Make sure all valid codes exit with "exit 1".
# To enable the codes below, the "#" must be removed from the start.
# This would allow the node to be disabled with the code 12001
# This would allow the node to be enabled with the code 12002

if [ "$1" = [redacted] ]; then "$SCRIPT"/disable ; exit 1 ; fi
if [ "$1" = [redacted] ]; then "$SCRIPT"/enable ; exit 1 ; fi
if [ "$1" = [redacted] ]; then "$CUSTOM"/irlpvaux 1 ; exit 1 ; fi
if [ "$1" = [redacted] ]; then "$CUSTOM"/irlpvaux 2 ; exit 1 ; fi
if [ "$1" = [redacted] ]; then "$CUSTOM"/irlpvaux 3 ; exit 1 ; fi
if [ "$1" = [redacted] ]; then "$CUSTOM"/irlpvaux 4 ; exit 1 ; fi
if [ "$1" = [redacted] ]; then "$CUSTOM"/irlpvaux 10 ; exit 1 ; fi
if [ "$1" = [redacted] ]; then "$CUSTOM"/irlpvaux 11 ; exit 1 ; fi
if [ "$1" = [redacted] ]; then "$CUSTOM"/irlpvaux 12 ; exit 1 ; fi
# call node_reboot script
if [ "$1" = [redacted] ]; then
    $CUSTOM/reboot_node & >&/dev/null 2>&1
    exit 1
fi
# call shutdown node script
if [ "$1" = [redacted] ]; then
    $CUSTOM/shutdown_node & >&/dev/null 2>&1
    exit 1
fi
exit 0

Line: 1/28      Column: 1      Character: 35 (0x23)
```

TABLE (C)


```
/home/irlp/custom/reboot_node - [redacted]
#!/bin/bash
#
#   reboot_node - IRLP node rebooter v0.1
#   Robert Pectol - http://rob.pectol.com/irlp
#
#   *NOTE* Requires your /etc/sudoers file to have
#           have the following line:
#
#           repeater ALL= NOPASSWD: /sbin/shutdown
#
#####
# Play restart wav
${SCRIPT}/wavplay /custom/ WAV. FILE NAME
#
#Restart PC
# ensure script is run as repeater user
if [ ` /usr/bin/whoami ` != "repeater" ] ; then
    echo "Must be run as user, 'repeater.'"
    exit 1
fi
# ensure the environment file has been sourced
if [ "$RUN_ENV" != "TRUE" ] ; then
    . /home/irlp/custom/environm
fi
# first disconnect if connected to anything
if [ -f "$LOCAL"/active ]; then
    "${SCRIPT}/end || "${SCRIPT}/irlp reset &>/dev/null 2>&1
    echo "waiting for disconnect scripts to finish..."
    sleep 10
fi
echo "shutting down now..."
sudo /sbin/shutdown -r now
exit 0
```

VERIFYING LINES OF COMMAND AND
CORRECT FILE PLACEMENT

Line: 1/34 Column: 1 Character: 35 (0x23)

TABLE (D)


```
/home/irlp/custom/shutdown_node - [redacted]
# repeater ALL= NOPASSWD: /sbin/shutdown
#
#
#
# N7SWW Version to Node_Shutdown Script Ver.0.2
#
#####
# Play system_shutdown wav
$SCRIPT/wavplay /custom/ WAV. FILE NAME
#
#Restart PC
#!/bin/bash
#
# reboot_node - IRLP node rebooter v 1
# Robert Pectol - http://rob.pectol.com/irlp
#
# *NOTE* Requires your /etc/sudoers file to have
# have the following line:
#
# repeater ALL= NOPASSWD: /sbin/shutdown
#
#####
# ensure script is run as repeater user
if [ ` /usr/bin/whoami ` != "repeater" ] ; then
echo "Must be run as user, 'repeater.'"
exit 1
fi
# ensure the environment file has been sourced
if [ "$RUN_ENV" != "TRUE" ] ; then
. /home/irlp/custom/environment
fi
# first disconnect if connected to anything
if [ -f "$LOCAL"/active ]; then
"$SCRIPT"/end || "$SCRIPT"/irlp_reset &>/dev/null 2>&1
echo "waiting for disconnect scripts to finish..."
sleep 10
fi
echo "shutting down now..."
sudo /sbin/shutdown -h now
exit 0
```

VERIFYING LINES OF COMMAND AND
CORRECT FILE PLACEMENT

Line: 1/51 Column: 1 Character: 35 (0x23)

TABLE (E)

```
# sudoers file.
#
# This file MUST be edited with the 'visudo' command as root.
#
# See the sudoers man page for the details on how to write a sudoers file.
#
# Host alias specification
#
# User alias specification
#
# Cmnd alias specification
#
# Defaults specification
#
# User privilege specification
root    ALL=(ALL) ALL

# Uncomment to allow people in group wheel to run all commands
# %wheel    ALL=(ALL)    ALL

# Same thing without a password
# %wheel    ALL=(ALL)    NOPASSWD: ALL

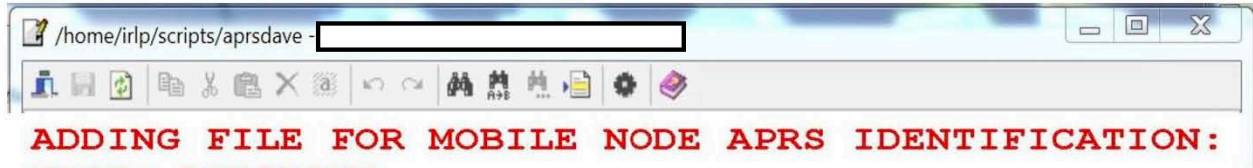
# Samples
# %users    ALL=/sbin/mount /cdrom,/sbin/umount /cdrom
# %users    localhost=/sbin/shutdown -h now

# user repeater's incoming audio-data detection via iptables
repeater ALL= NOPASSWD: /sbin/iptables
repeater ALL= NOPASSWD: /sbin/shutdown
```

VERIFY THAT THESE LINES OF COMMAND
ARE IN FILE

Mark different files in local and remote directory

TABLE (F)



**ADDING FILE FOR MOBILE NODE APRS IDENTIFICATION:
FILE= APRSDAVE
INSTALL IN /home/irlp/scripts**

***NOTE: APRS PASSWORD IS [REDACTED]*
ADD FILE "BC" INSTALL IN /usr/bin (changes meters to feet)
MAKE SURE FILE "NC" IS DOWNLOADED IN SAME
LOCATION**

```
count=$(( $count + 1 ))

#Read GPS data from serial port and throw away lines that don't begin with GPGGA
GPGGAstring=`head -n26 /dev/ttyS0 | grep GPGGA`

# Pick out individual numbers for Time, Lat, Long, Satellites, and Altitude
GPSTimeStamp=`echo $GPGGAstring | cut -d"," -f2`
Latitude=`echo $GPGGAstring | cut -d"," -f3`
Longitude=`echo $GPGGAstring | cut -d"," -f5`
NumberOfSatellites=`echo $GPGGAstring | cut -d"," -f8`
Altitude=`echo $GPGGAstring | cut -d"," -f10`

# Trim Lat and Long to a charactor size that is compatible with APRS servers
Latitude=$(expr substr "$Latitude" 1 7)
Longitude=$(expr substr "$Longitude" 1 8)

# Add the North and West to the end of the numbers
Latitude=`echo $Latitude"N`
Longitude=`echo $Longitude"W`

# Print data to screen
echo "Count = " $count
date
echo "GPS time = " $GPSTimeStamp
echo "Latitude = " $Latitude
echo "Longitude = " $Longitude
echo "Altitude = " $Altitude
echo "Satellites = " $NumberOfSatellites
echo " "$GPGGAstring

conversion=3.28
feet=$(echo $Altitude*$conversion | bc)
decpos=`expr index "$feet" .`
let "wholesize = $decpos - 1"
feet=$(expr substr "$feet" 1 $wholesize)
echo "feet = " $feet

# comment out the word done below to allow the script to report
# to the APRS servers

# done
if [ $count -gt 27 ] ; then

##### APRS internet reporting script #####

count=0
```

**VERIFY THIS IS
COMMENTED IN FILE**

```

echo
echo "REPORT POSITION TO APRS SERVERS ON THE INTERNET!"
echo

OBJ_NAME="IRLP-[REDACTED]" # MUST be 9 character long including spaces
SYMBOL="k"
NODE_STATUS_CHAR="/" # / = primary symbol table \ = alternate symbol table
#COMMENT="Satellites in view = $NumberOfSatellites ; Altitude = $Altitude Meters
" # characters 46-50
COMMENT="Satellites in view = $NumberOfSatellites ; Altitude = $feet Feet or $Altitude
Meters " # characters 46-50
LAT=$Latitude
LONG=$Longitude
APRS_CALL=[REDACTED]
APRS_PASS=[REDACTED]
TIMESTAMP=`date -u +%d%H%M`z # Format = DDHMMz
OBJECT=";${OBJ_NAME}*${TIMESTAMP}${LAT}${NODE_STATUS_CHAR}${LONG}${SYMBOL}${COMMENT}"
BTEXT="$APRS_CALL>APVR30:${OBJECT}"
LOGIN="User $APRS_CALL pass $APRS_PASS vers IRLP-interface 1"
NC=/usr/bin/nc
echo -e "${LOGIN}\n${BTEXT}" | $NC -w 10 rotate.aprs2.net 14580

fi

done

```

VERIFY THESE SETTINGS

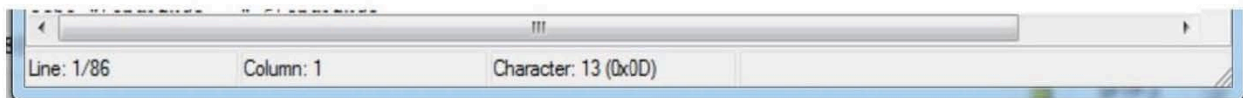
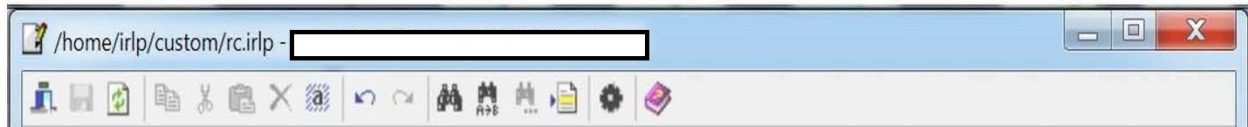


TABLE (G)



**ADD LINE OF COMMAND TO MAKE APRS START UP:
INSTALL IN /home/irlp/custom/rc.irlp**

```
$BIN/aux1off
$BIN/aux2off
$BIN/aux3off

# This makes sure that the audio and parport lockfiles exist and are
# owned and writable by user repeater.

touch /tmp/irlp-lockfile-audio
touch /tmp/irlp-lockfile-parport0
chown repeater.repeater /tmp/irlp-lockfile*
chmod 664 /tmp/irlp-lockfile*

# This removes the /tmp/irlp_forcekey lockfile
rm -f /tmp/irlp_forcekey

echo -n "Starting IRLP services : "

# SETS THE AUDIO LEVELS TO DEFAULT #
echo -n "irlp-sound... "
  $MIXER_LOAD >&/dev/null 2>&1
echo "[ DONE ]"

# STARTS THE LISTENER FOR THE IRLP COMMS AND FILE UPDATER #
echo -n "                irlpd... "
  killall -9 mynetd >&/dev/null 2>&1
  sleep 2
  /bin/su - -c "$BIN/mynetd 15425 $BIN/irlpd" repeater >&/dev/null 2>&1
echo "[ DONE ]"

# STARTS THE IRLP DTMF DECODER #
echo -n "                dtmf... "
  killall -9 dtmf >&/dev/null 2>&1
  sleep 1
  /bin/su - -c "$BIN/dtmf" repeater >&/dev/null 2>&1 &
echo "[ DONE ]"

echo -n "Updating StationID to IP address table... "
  /bin/su - -c "$SCRIPT/update hosts" repeater >&/dev/null 2>&1 &
echo "[ DONE ]"

echo -n "Updating my IP address on the server... "
  /bin/su - -c "$SCRIPT/ipupdate" repeater >&/dev/null 2>&1 &
echo "[ DONE ]"

echo -n "Updating IRLP filesystem... "
  /bin/su - -c "$SCRIPT/update files" repeater >&/dev/null 2>&1 &
echo "[ DONE ]"

if [ "$USE_INTERVAL_ID" = "YES" ] ; then
  echo -n "Starting the Interval ID script... "
    killall interval_id >/dev/null 2>&1
    sleep 3
    /bin/su - -c "$SCRIPT/interval_id" repeater >&/dev/null 2>&1 &
  echo "[ DONE ]"
fi

echo -n "Enabling IRLP node... "
```

```
/bin/su - -c "$SCRIPT/enable" repeater >&/dev/null 2>&1  
echo "[ DONE ]"  
  
echo -n "Enabling cwtimer... "  
  /bin/su - -c "$CUSTOM/cwtimer_mon" repeater >&/dev/null 2>&1  
  
sleep 3  
/home/irlp/scripts/aprsdave >/dev/null 2>&1 &
```



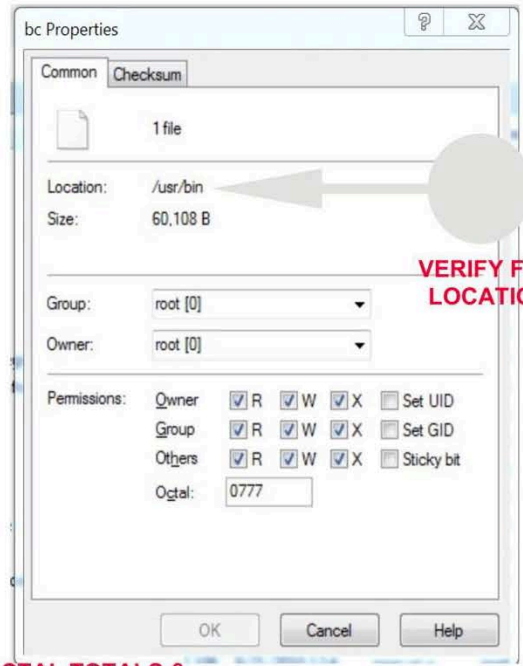
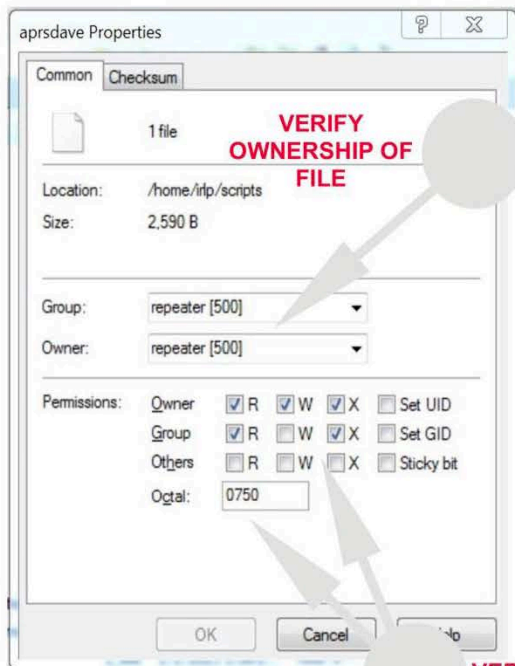
VERIFY THIS COMMAND IS IN FILE

Line: 1/125

Column: 1

Character: 35 (0x23)

TABLE (H)



VERIFY OCTAL TOTALS & PERMISSIONS

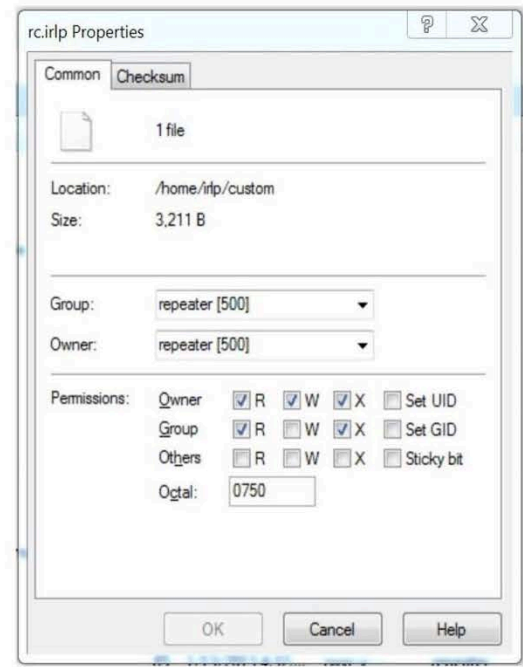
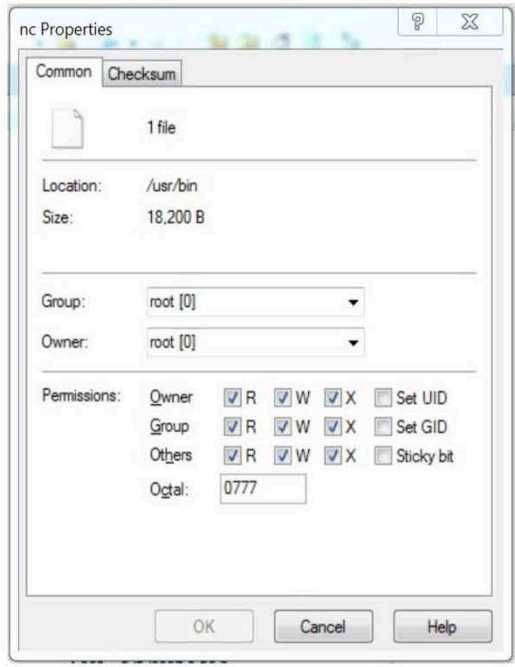
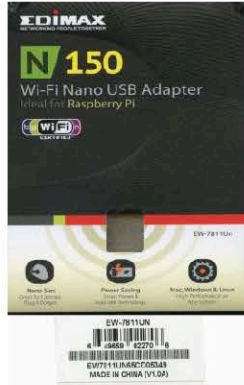


TABLE (I)

MODIFICATIONS TO DEBIAN 8 INSTALL TO GET NODE TO WORK ON WIFI

NOTE:

Installation was performed using an EDIMAX N 150 (EW-7811Un)



STEP 1

Refer to TABLE (A)

Open up `/etc/apt/sources.list`, and you should see lines like the following: (URLs will likely vary)

`deb http://http.us.debian.org/debian stable main contrib`

Simply add **non-free** to the respective URLs you wish to use, i.e.:

`deb http://http.us.debian.org/debian stable main contrib non-free`

Running `apt-get update` will update your local repo with the package listing.

My `/etc/apt/sources.list` after edit all I added was **non-free** to every URL in this file.

```
#
```

```
# deb cdrom:[Debian GNU/Linux 8.6.0 _Jessie_ - Official i386 NETINST Binary-1 20160917-13:01]/  
jessie main
```

```
#deb cdrom:[Debian GNU/Linux 8.6.0 _Jessie_ - Official i386 NETINST Binary-1 20160917-13:01]/  
jessie main
```

NOTE:

non-free is indicated in red (below) at the end of original script.

```
deb http://ftp.us.debian.org/debian/ jessie main non-free
```

```
deb-src http://ftp.us.debian.org/debian/ jessie main non-free
```

```
deb http://security.debian.org/ jessie/updates main non-free
```

```
deb-src http://security.debian.org/ jessie/updates main non-free
```

```
# jessie-updates, previously known as 'volatile'
```

```
deb http://ftp.us.debian.org/debian/ jessie-updates main non-free
```

```
deb-src http://ftp.us.debian.org/debian/ jessie-updates main non-free
```


Step 2

Type in the following to get the necessary files for the edimax.

```
apt-get update && apt-get install firmware-realtek
```

When download is complete shutdown or reboot node to activate new files.....*edimax should spring to life, showing a "blue" light on unit.*

Step 3

Refer to TABLE (B)

/etc/network/interfaces ADD the following lines of script to the file.

```
source /etc/network/interfaces.d/*
```

```
# The loopback network interface
```

```
auto wlan0
```

```
iface wlan0 inet dhcp
```

```
    wpa-ssid [REDACTED]
```

```
    wpa-psk [REDACTED]
```

```
    RATE=54Mb/s (NOTE: LEAVE THIS LINE OF OUT OF FILE)
```

Step 4

Refer to TABLE (C)

/etc/wpa.conf ADD the following lines of script to the file NOTE: You might have to create the file depending on your configuration.

```
network={
```

```
ssid=[REDACTED]
```

```
proto=RSN
```

```
key_mgmt=WPA-PSK
```

```
pairwise=CCMP TKIP
```

```
group=CCMP TKIP
```

```
psk=[REDACTED]
```

```
}
```

Information to perform the installation was obtained from the following sources:

URL

<http://unix.stackexchange.com/questions/271129/edimax-ew-7811un-debian>

According to the [Debian wiki page for the rtl819x set of drivers](#), this is supported by the rtl8192cu module.

You probably already have this module installed (it's installed by default in the Debian kernel), but it requires **non-free** firmware to operate. You can install the required non-free firmware by installing the firmware-realtek package.

You'll need to have non-free sources enabled first if you don't have them enabled already; instructions to do that are [on Server Fault](#). After doing that, you can use apt-get as root to install the package: `apt-get update && apt-get install firmware-realtek`

After doing this you may need to disable and re enable your wireless device for the driver to go through the initialisation procedure again and find the non-free firmware you installed.

OTHER COMMANDS FOUND TO CONFIGURE NODE FOR WIFI

`sudo iwlist wlan0 scan`Scans to see what is out there

`sudo iwconfig wlan0 essid network-ssid`iwconfig utility to set the parameters for your wireless card. First, set the essid, which identifies the network access point you want:

`sudo iwconfig wlan0 freq 2.422G`sets wlan0 to freq 2.422G

`sudo iwconfig wlan0 channel 3`sets wlan0 to channel 3

Copy and paste add your ssid and password make sure you leave "" where there are they have to be in those spots.....

```
auto lo
```

```
iface lo inet loopback
```

```
# The primary network interface
```

```
auto eth0
```

```
iface eth0 inet static
```

```
    address 192.168.x.xx
```

```
    netmask 255.255.255.0
```

```
    network 192.168.1.0
```

```
    gateway 192.168.1.1
```

```
# The wireless network interface with dhcp
```

```
auto wlan0
```

```
iface wlan0 inet dhcp
```

```
    wpa-ssid xxxx
```

```
    wpa-key-mgmt WPA-PSK
```

```
    wpa-group TKIP CCMP
```

```
wpa-psk xxxxxxx

# auto lo
iface lo inet loopback
auto eth0
allow-hotplug eth0
iface eth0 inet dhcp

# Home router
# auto wlan0
# allow-hotplug wlan0
# iface wlan0 inet dhcp
# wpa-ssid "xxxx"
# wpa-psk "xxxxxx"          leave "" do not copy these

# cell phone hot spot
# auto wlan1
# allow-hotplug wlan1
# iface wlan1 inet dhcp
# wpa-ssid "xxxx"
# wpa-psk "xxxxxx"          leave "" do not copy these
# The primary network interface
# allow-hotplug eth0
# iface eth0 inet dhcp
```

```

/etc/apt/sources.list Editor - WinSCP
#
# deb cdrom:[Debian GNU/Linux 8.6.0 _Jessie_ - Official i386 NETINST Binary-1 20160917-13:01]/ jessie main
# deb cdrom:[Debian GNU/Linux 8.6.0 _Jessie_ - Official i386 NETINST Binary-1 20160917-13:01]/ jessie main
deb http://ftp.us.debian.org/debian/ jessie main non-free
deb-src http://ftp.us.debian.org/debian/ jessie main non-free
deb http://security.debian.org/ jessie/updates main non-free
deb-src http://security.debian.org/ jessie/updates main non-free
# jessie-updates, previously known as 'volatile'
deb http://ftp.us.debian.org/debian/ jessie-updates main non-free
deb-src http://ftp.us.debian.org/debian/ jessie-updates main non-free

```

ADD NON-FREE TO THE END OF EACH ONE OF THESE LINES

Line: 6/15 Column: 1 Encoding: 1252 (ANSI - La)

sources.list Properties

Common Checksum

1 file

Location: /etc/apt
Size: 652 B

Group: root [0]
Owner: root [0]

Permissions: Owner R W X Set UID
Group R W X Set GID
Others R W X Sticky bit
Octal: 0644

VERIFY OWNERSHIP OF FILE

VERIFY OCTAL TOTALS & PERMISSIONS

OK Cancel Help

TABLE (A) /ect/apt/source.list


```
# This file describes the network interfaces available on your system
# and how to activate them. For more information, see interfaces(5).

source /etc/network/interfaces.d/*
# The loopback network interface
auto wlan0
iface wlan0 inet dhcp
    wpa-ssid [redacted]
    wpa-psk [redacted]
```

ADD THESE LINES OF COMMAND TO THIS FILE
NOTE: ALL OTHER LINES IN ORIGINAL FILE WERE REMOVE WHEN THESE WERE ADDED

VERIFY OWNERSHIP OF FILE

VERIFY OCTAL TOTALS & PERMISSIONS

TABLE (B) /ect/network/interfaces