Using the Groove with your IslandTime Configuration

Boot your computer and power up the Groove and any router being used. Connect the Groove to your Computer LAN port or Router WAN port.

If you are working with a wireless device you must scan for and connect to your wireless router before you attempt to follow the instructions below.
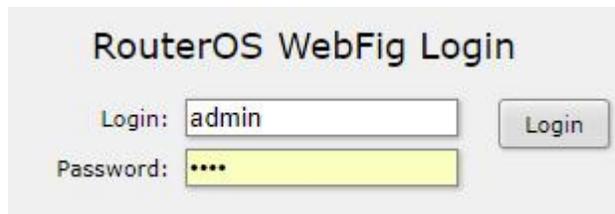
The Groove has the following settings:
IP Address = **192.168.221.20**
Login Username = **admin**
Login Password = **itcb**

1. Enter 192.168.221.20 into your Browser address bar and click enter.

2. The Groove Login page will come up. The exact appearance of your login page will vary with the browser.
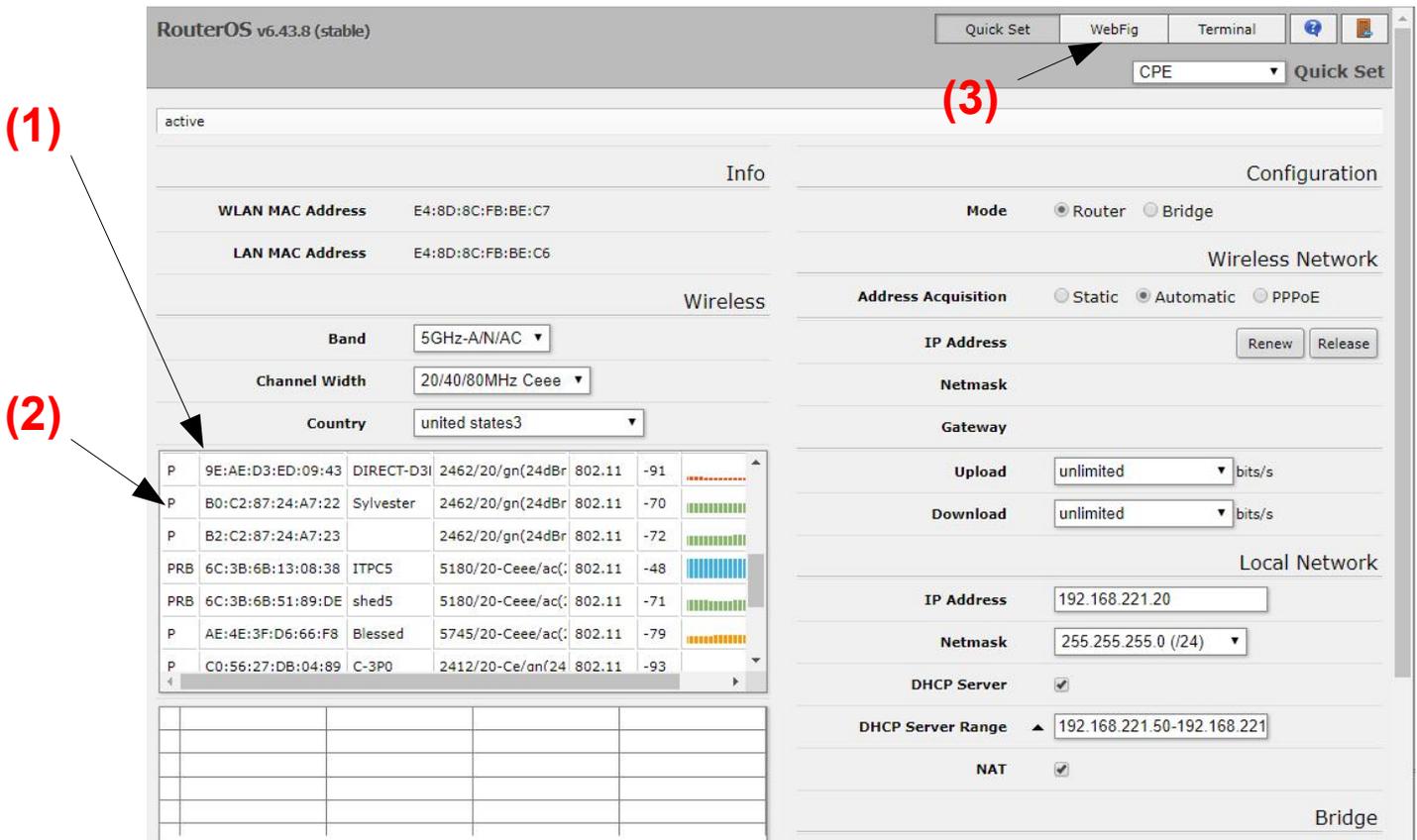
3. If this is the first time connecting to the Groove the Groove Quick Set window will come up. This window contains all the basic information required for finding and connecting to available access points. Bookmark this page so that you can use the bookmark for future logins rather than typing in the IP address every time you want to access the Groove.

4. The Login Password can be changed from the Quick Set page but it is one of the few things besides picking AP's (Access Points or Hotspots) that should be done on the Quick Set page. Once the Groove has been configured changes to the various settings on the Quick Set page can produce unwanted changes not visible on the Quick Set page.

It is best to make setting changes from within the routerOS and it is usually best to use Winbox for setting changes . In the case of the Login Name and Password you will be able to make changes by first clicking on the "Webfig" button in the upper right hand section of any page if you are using a browser.

Go to "System-Users" then click on the Name "admin". In the next window click on the "Password" button and set the password you prefer.

The **Quick Set** window is shown on the next page.

RouterOS v6.43.8 (stable)   Quick Set | WebFig | Terminal | ? | 🔶

(3) ← CPE ▼ Quick Set

active

(1) **(2)**

Info

WLAN MAC Address   E4:8D:8C:FB:BE:C7
LAN MAC Address   E4:8D:8C:FB:BE:C6

Wireless

Band   5GHz-A/N/AC ▼
Channel Width   20/40/80MHz Ceee ▼
Country   united states3 ▼

P	9E:AE:D3:ED:09:43	DIRECT-D3l	2462/20/gn(24dBr	802.11	-91	
P	B0:C2:87:24:A7:22	Sylvester	2462/20/gn(24dBr	802.11	-70	
P	B2:C2:87:24:A7:23		2462/20/gn(24dBr	802.11	-72	
PRB	6C:3B:6B:13:08:38	ITPC5	5180/20-Ceee/ac(:	802.11	-48	
PRB	6C:3B:6B:51:89:DE	shed5	5180/20-Ceee/ac(:	802.11	-71	
P	AE:4E:3F:D6:66:F8	Blessed	5745/20-Ceee/ac(:	802.11	-79	
P	C0:56:27:DB:04:89	C-3P0	2412/20-Ce/gn(24	802.11	-93	

Configuration

Mode   ● Router ○ Bridge

Wireless Network

Address Acquisition   ○ Static ● Automatic ○ PPPoE
IP Address   Renew | Release
Netmask
Gateway
Upload   unlimited ▼ bits/s
Download   unlimited ▼ bits/s

Local Network

IP Address   192.168.221.20
Netmask   255.255.255.0 (/24) ▼
DHCP Server   ☑
DHCP Server Range ▲ 192.168.221.50-192.168.221
NAT   ☑

Bridge

All access points (AP's) seen by the Groove will be displayed in the Scan window **(1)**. **The default is to show both 2.4ghz and 5ghz AP's.** New AP's are added as they are received. If your Groove is not showing any AP's check the button at the bottom, middle of the page. If it says "**Disconnect**" then click on it and it will change to "**Connect**" and AP's in the area will be displayed. **You won't see the scan window unless the Connect/Disconnect button says Connect.**

Encrypted AP's are indicated by the letter **"P"** for privacy in the first column **(2)**. Unencrypted AP's have no **"P"** in the first column. If you leave the cursor on any of the letter for a moment you should get an explanation of the meaning. Some AP's do not use Wifi encryption. Instead they use a server that redirects you to a web page where you put in a Password or agree to terms of use.

The **Network Name** is the name of the onshore AP. This Name is required for the Groove to connect. Some AP's are set to not broadcast their name. In this case you will see a blank in the Network Name column. You cannot connect to an AP that hides its name unless you know the name.

The Signal Strength is shown by colored bars. Just before the colored bars is a column with negative numbers in it. This is the signal strength in decibels (db). The closer to 0 the stronger the signal. A signal of around -50 to -65 is considered a 100% signal. A signal strength in the -80's is like a 1-2 bar signal. You may be able to connect to it depending on how much radio noise is in the area. I low noise areas you may be able to make connections in the high 80's.

The Groove has 2 parts to the User Interface, the "**Quick Set**" and the "**WebFig**" buttons are used to move between these interfaces **(3).** The **WebFig** interface is used when you need to do special control functions that are discussed later in the instructions. The brown button to the far right is the Logout button.

To make a connection to an AP click on the **Network Name** you want. The name will be put in the Network Name box. If it is a password protected AP then a Wifi Password box will be below the Network Name.

Enter the password in the box and then click **Connect**. If there was no password needed then just click **Connect**. If you have been given a password but the AP appears unencypted then you are trying to use a redirect system. In this case once you are connected you should try going to www.example.com if no web page has come up with username or password box when you first try to go to the internet.

	Address	Network Name	Channel	Proto...		Signal Strength
PRB	4C:5E:0C:68:E9:FF	shed	2412/20/gn(24dBm)	802.11	-36	
PRB	6C:3B:6B:13:08:39	ITPC2	2422/20/gn(24dBm)	802.11	-57	
P	00:11:6B:48:8E:7E	media	2447/20-eC/gn(24d	802.11	-80	
P	10:6F:3F:5E:46:B0	media	2452/20/gn(24dBm)	802.11	-39	
P	C8:60:00:65:E6:34	media	2462/20/gn(24dBm)	802.11	-71	
P	AA:4E:3F:D6:66:F8	Blessed	2462/20/gn(24dBm)	802.11	-77	

—— Signal Strength   cur: -57 dB   avg: -58 dB   max: -56 dB

-50 dB
-60 dB
-70 dB
-80 dB
-90 dB
13:07:15

Network Name   ITPC2

WiFi Password   ☐ Hide

Connect

It is important to get the password correct. They are case sensitive. An incorrect Password will cause the **Status** to switch between "**searching for network**" and "**connected to ess**" every 5-10 seconds **(1)**

A successful connection will always give you an IP Address and Gateway **(2)** Wireless Network section The presence of an IP address indicates that the Groove and AP are connected and communicating. **Without the IP address and Gateway you will not be able to go to the internet.** The IP and Gateway are assigned by the AP. If they are absent there are a number of reasons such as Received signal strength (RX) is too weak, RX is too strong, Transmit Signal Strength (TX) is too weak or strong, Too much radio noise etc. The only thing you have control of is the TX strength (see section titled "**Transmitter Power Output"** for information on modifying TX strength).

Once you are connected and ready to go to the internet you can put your desired web address in your browser and go to the web or you can leave the Quick Set window open and use another tab to go to the internet.

active

Info

WLAN MAC Address	E4:8D:8C:FE:8E:00
LAN MAC Address	E4:8D:8C:FE:8D:FF

Wireless

Status	connected to ess
AP MAC	6C:3B:6B:13:08:39
Network Name	ITPC2
Tx/Rx Signal Strength	-65/-57 dBm
Tx/Rx CCQ	24/20 %
Signal To Noise	46 dB
Wireless Protocol	802.11

(1)

Wireless Network

		Renew	Release
IP Address	192.168.229.81		
Netmask	255.255.255.0 (/24)		
Gateway	192.168.229.1		

(2)

System

Router Identity	itpc-cpe

Check For Updates   Reset Configuration

Password...

Apply Configuration

-40 dB
-52 dB
-64 dB
-76 dB
-88 dB
13:14:26   13:15:26   13:16:27   13:17:27   13:18:28

—— Rx Signal   cur: -57 dB   avg: -60 dB   max: -55 dB
—— Tx Signal   cur: -65 dB   avg: -65 dB   max: -63 dB

Disconnect

Transmitter Power Output

The output power of your Groove is controlled by the "Antenna Gain" setting in the Wireless detail window. Your Groove has been shipped with the "Antenna Gain" set to 6 db. This is a good output power for most situations but sometimes you may nee to modify the output power making it stronger or weaker.

If you are very close the the marina antenna you may have to make your output weaker to get the best data throughput. If the marina signal is in the -40's or -30's you should lower your ouput power by changing the "Antenna Gain" setting to somewhere between 12 and 20. You want to use the minimum power to keep a stable connection.

If you are trying to connect to a very weak signal (-75 to -90) you can raise you output power by setting the "Antenna Gain" to 2 or 3.

If you are trying to connect to a 5Ghz signal you will usually want to change you Antenna Gain to 3. You can tell a 5Ghz signal from a 2Ghz signal by looking at the number in the Channel Column of the scan window be for you try to connect. A 5Ghz signal will have a 4 digit number starting with 5 and a 2.4Ghz signal will have a number starting with 2.

To access the **"Antenna Gain"** setting from the **Quick Set** page click on the **"WebFig"** button in the upper right of the page.

1. In the next window click the **Wireless** button &
Select the **"Interface"** tab

2. Click the name "wlan-gateway to open the wireless details window.

(2)

3. Click the "Advanced Mode" button at the top of the wireless details window then go down the list about 20 lines and find the Antenna Gain box.

| Antenna Gain | 6 | dBi |

4. Enter the value you want and then go to the top of the window and click the "Apply" button. Wait about 10 seconds and then click OK to leave the window.

If you can sit on your boat and connect to the Marina wifi directly with your laptop or iPad then "6" is probably too much power and you will do better with the Groove if you drop the power output by changing it to "12".

When you are close to the AP antenna higher power will usually make you connection worse rather than better. If you are anchored out from an access point (¼ mile or more) then you can probably benefit by changing the antenna gain to 3.

Lock to AP

You will want to use the Lock to AP feature when there are multiple AP's with identical names. Your Groove will always try to connect to the strongest signal when the names are identical; ie. All called "Joes Marina" rather than "Joes Marina1", "Joes Marina2" ...

There are 2 types of problems caused by identical names. The first is that if you are very close to the marina antenna the signal can be so strong that it overpowers the receiver in you Groove preventing the Groove from acquiring an IP address and the second is when you want to connect to the marina 5ghz AP but the Groove always goes to the 2ghz AP because it has the stronger signal.

If the marina signal is stronger than -50 and you can't get an IP then first thing to try is lowering your output power by changing the Antenna Gain number to 17db (see instructions on the Transmit Power page). If this doesn't get you an IP or then you will have to set up your Groove to lock to the MAC address of the AP you want.

1. Go to Quick Set page and try to connect to one of the AP's you want using the wifi password used by the AP's you want to connect to. Wait for the "Status" to show "connected to ess" then click "**Disconnect**". This will make sure that the proper password and SSID are saved in the Groove.

2. Click on the "**Wireless**" button in the left hand lineup of buttons. You may need to click on the "WebFig" button in the upper right corner of the Quick Set page if there are no buttons showing along the left edge of the page.
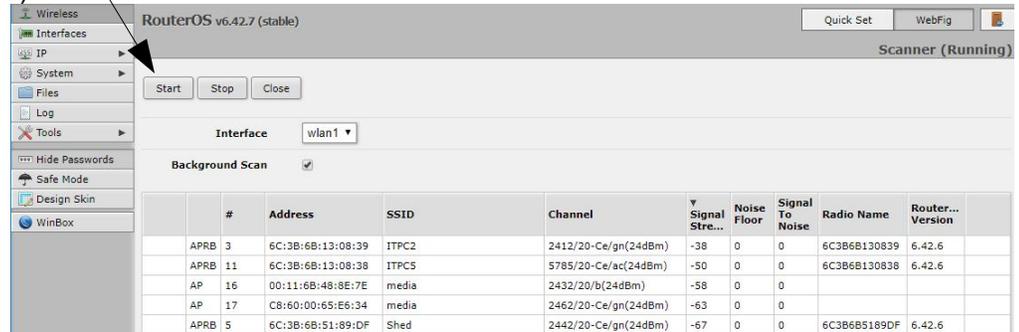
3. Select the "Wifi Interfaces" tab and then click on the "**Scanner**" button.
This will open the Scan window. Click the **Start** button to display available access points (AP's)

Clicking on a column heading will sort the AP's. Usually sorting by SSID is the most useful.

4. Click on the "**Address**" of the AP you want to connect to. This should be a weaker AP then the one the Groove has been choosing automatically. This will open the connect list details for your AP. Drag your cursor across the "Address" in the details window and copy it to your clipboard.

5. Close the details window by clicking the "**Close**" button and then in the scanner window click the "Stop" button followed by the "**Close**" button in the Scanner window.

6. You should now be back on the Wifi Interfaces tab. Click on the Connect List tab to open the window below.
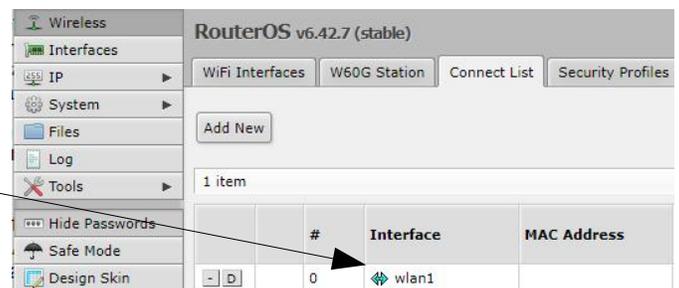
7. Under the "Interface" column click on "Wlan1" to open the Connect List details window.

8. In the details window paste the address you copied in the "MAC Address" box. Click the triangle to open the box if necessary. If there is already an address in the box delete that address before pasting your new address in.

9. After pasting in the address make sure the address is left justified and then click the "Apply" button to save the address and "**OK**" to return to the Connect List tab.
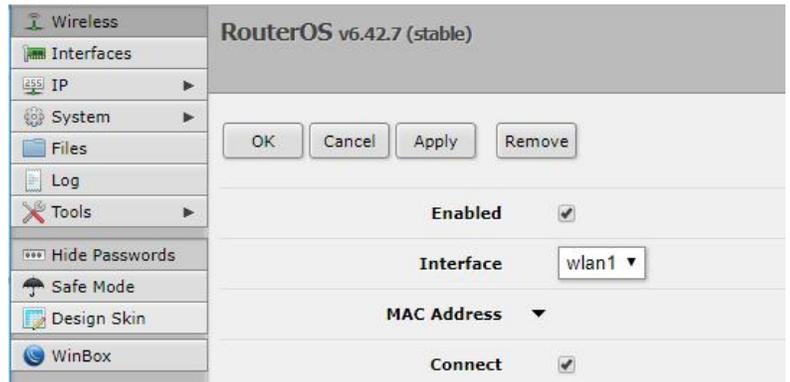
10. Click on the "Wireless Interface" tab.

10. Click on the "*E*" button to enable the Wireless. The Groove will check the "Connect List" and connect to the first available device it finds with the correct MAC address.

You can return to the Quick Set page to check on the status of the connection.

If you have not gotten an IP address after 10-15 seconds then you should click the "Disconnect" button and pick another one of the AP's with the same name and put its MAC address in the connect list then click the "*E*" button on the "Wifi Interfaces" tab.

Changing the scan window from showing both 2.4 & 5ghz signals to only showing 1 frequency band.

Your is set to scan both frequency bands. You cannot change the a single band from the Quick Set page. The scanning is controlled by the custom list found in Wireless->Channels. The screenshots in this section are from Winbox. Follow the instructions below to change to a single band.

1. Go to Wireless-Wifi Interfaces and double click on the Name "wlan1" then click on the "Wireless" tab. The window at the right will appear. There are more settings under this tab but the are not needed to change to a single frequency band. Click on the Advanced Mode button to see all settings
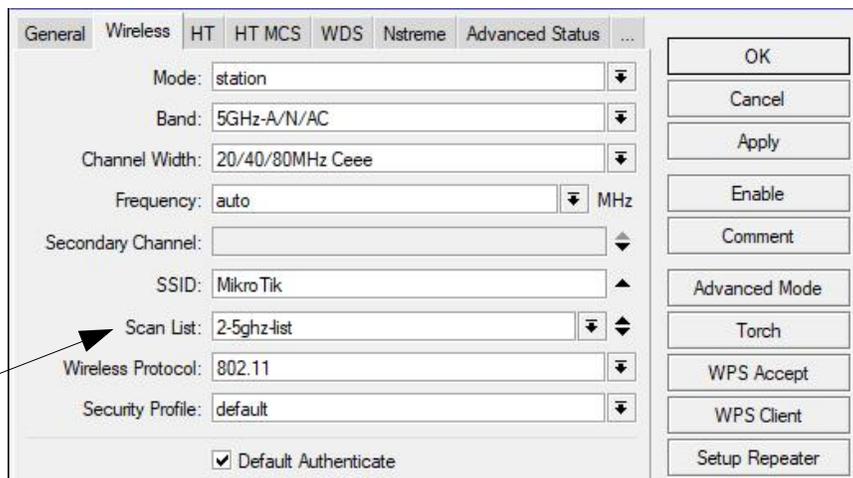
2. Change to 5ghz only go to Scan List and choose "default" at the bottom of the drop down list. Click apply then go to System->Reboot and reboot. When the Groove comes back up the Quick Set scan list will be showing only 5ghz channels.

3. To change to 2.4ghz only set the Scan List to Default, the Channel Width to "20/40Mhz Ce" and the Band to "2.4Ghz-B/G/N"

4. Reboot the Groove. You may be able to avoid a reboot by exiting the Quick Set page and then going back to it.

5. To change back to scanning both bands you need to change the Scan List back to "2-5ghz-list" and click "Apply"

How to Connect to an AP using WEP Encryption

1. On the Quick Set page the Groove should be scanning for AP's. If it isn't then click the "Disconnect" button below signal strength graph.

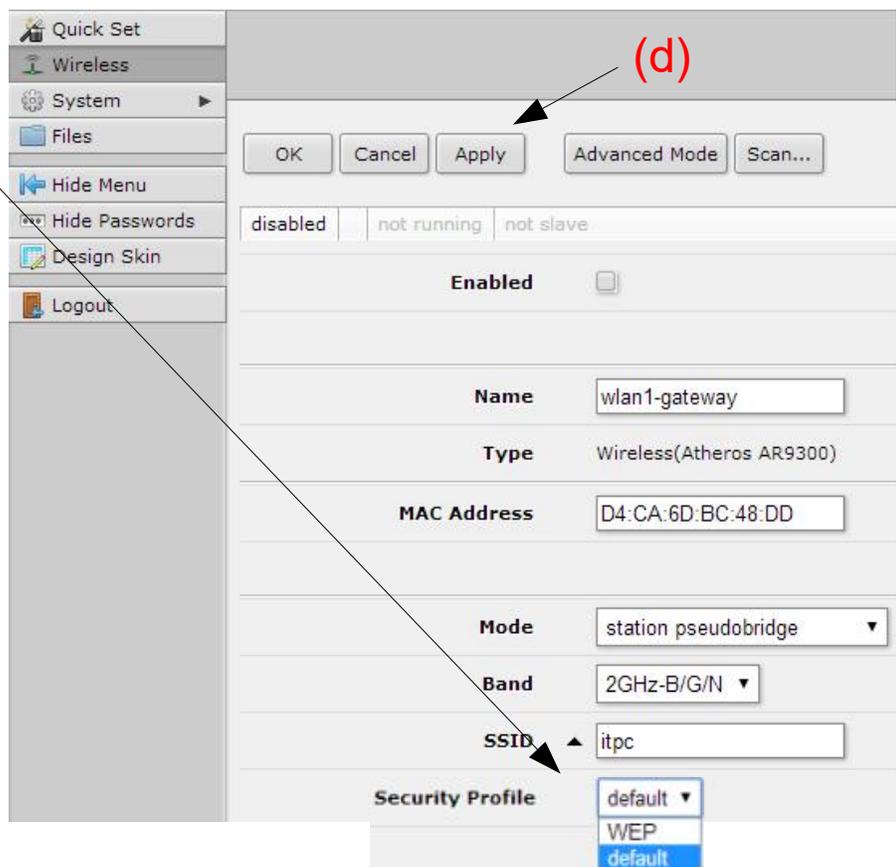2. Click the WebFig button on the Quick Set page and then the "Wireless" button.

   a. Click on "wlan1-gateway" to open up the wireless details.
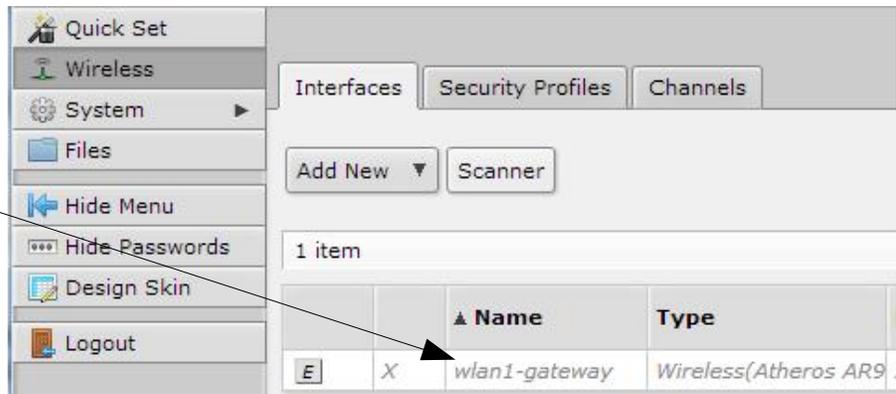
   b. Go down the list to the "Security Profile" drop down box and click on default" to open the drop down menu.
   c. Choose WEP from the menu.

   d. Save your changes by clicking on "Apply" then "OK" at the top of the window.

Note: When you are done using the AP With WEP encryption you can return to entering WPA/WPA2 encryption on the Quick Set window by changing the "Security Profile" setting back to "default" and saving your changes by clicking "Apply" and "OK" at the top of the window.

WEP encryption comes in 2 different types (Hex or ASCII) and 2 different encryption lengths (40/64 bit or 104/128 bit).

You can tell which type you have by counting the characters in the password. The table to the right shows the 4 possible varieties. 40/64 bit HEX is the most common.

5 characters = 40/64 bit ASCII
10 characters = 40/64 bit HEX
13 characters = 104 bit/128 bit ASCII
26 characters = 104 bit/128 bit HEX

If you run into an AP using ASCII you will first have to convert from ASCII to HEX characters. The simplest way is to use an ASCII to HEX Converter. http://www.einhorn-net.de/jstools/wepkey.html

3. Input your WEP key into your router.

   a. In the Wireless Dialog window choose the Security Profiles tab and click on "WEP" To open the WEP security dialog.

   b. Check that the "Mode" says "static keys required". If it doesn't then change it to "static keys required".

   c. Select the correct bit length for your password (40 or 104 bit) and the enter password in both Key 0 and Key 1.

   d. Save your new passwords by clicking "Apply" then "OK" at the top of the window.
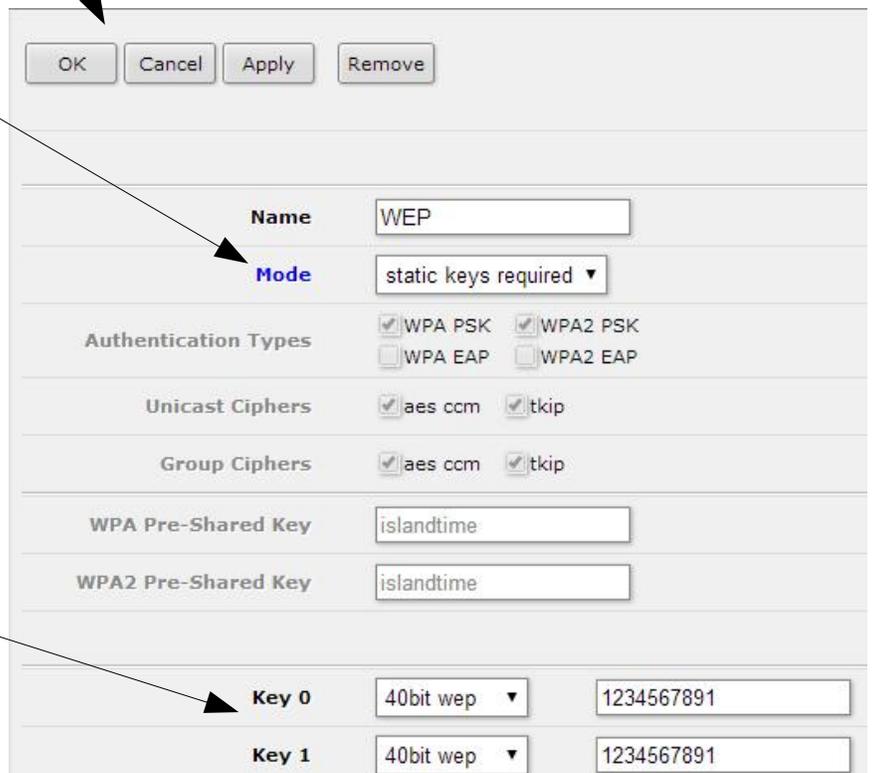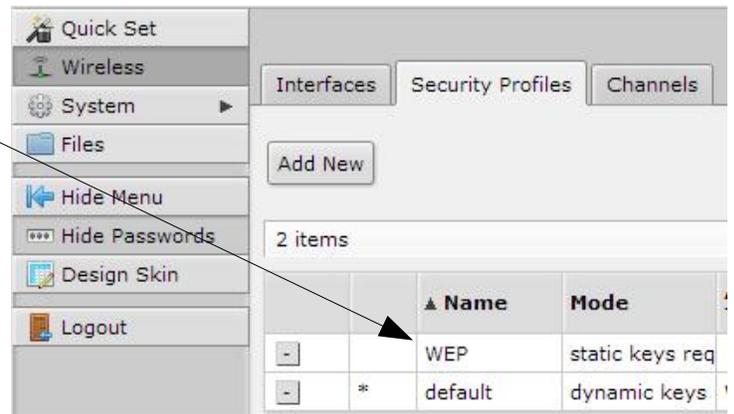
4. You should now be back on the main Wireless window and you are ready to scan for your WEP AP and connect to it.

   a. Choose the "Interfaces" tab then click on "Scanner". This will open a scan window.

   b. Click the "Start" button to start a scan then click on the AP you want. This will bring up a window with a "Connect" button.

   c. Click the "Connect" button and you will be back on the main Wireless page. Your Groove should be connecting to the AP with WEP.

You can go to the Quick Set page to see the status of your connection. When you are done with the AP using WEP you can disconnect from it using the "Disconnect" button on the Quick Set page.

Before you try to use the Scan window on the Quick Set page to make a connection repeat step 2 above and change the Security Profile from "WEP" to "default" and click "Apply".