Point-to-Point and Point-to-MultiPoint bridge links with EnGenius 5GHz outdoor units

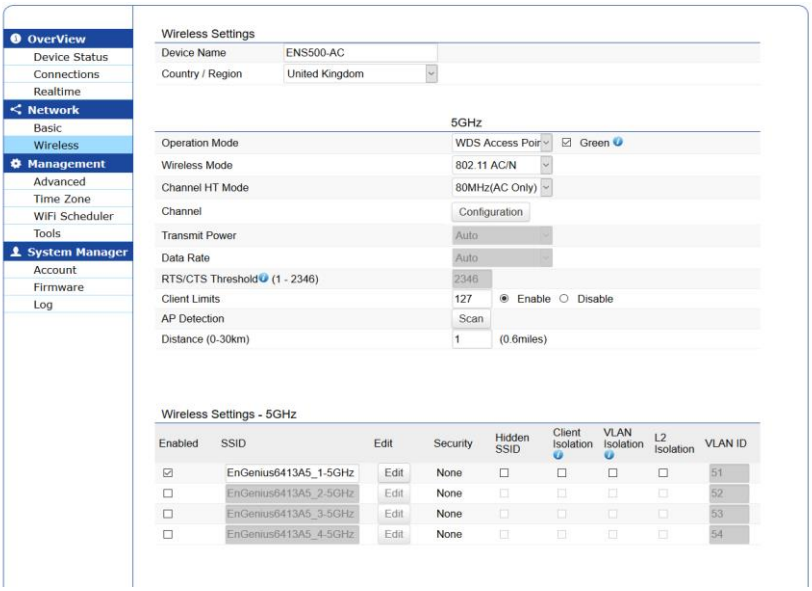
A quick setup guide for outdoor bridge links using 5GHz EnGenius units. There are several different 'modes' that can be used in the setup for EnGenius products to facilitate outdoor network links but this document covers a simple setup which gives fast and reliable connectivity.

So basic setup is you have a 'master' unit and then one or more 'slave' units. Think of it like the spokes on a wheel, the master is at the hub of the wheel and each spoke is a link to a slave device. The example screen shots are for the ENS500-AC device but the underlying methodology is applicable for all the EnGenius bridge products.

What we're going to do is setup a 'master' in 'WDS AP' mode and each 'slave' in 'WDS Station' mode. We're using WDS modes because that gives us transparent data links so things like VLAN and DHCP requests work correctly. I'm going to assume that you've already gone through the basics of giving each bridge unit a static IP address suitable for the final network.

Basic config for the 'master'

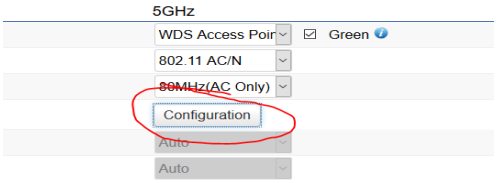
Starting with the 'master' then log into the web interface for the device to be configured as the master and goto Network/Wireless...



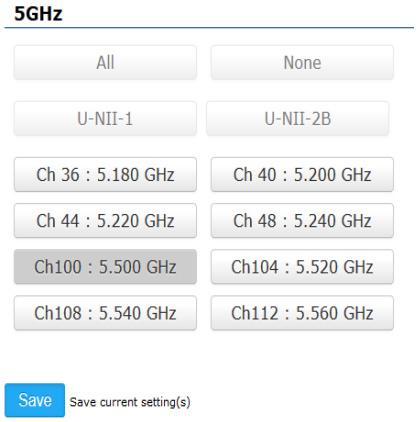
So things you need to set for the 'master'...

- ✓ Country (United Kingdom),
- ✓ Operation Mode (WDS Access Point),
- ✓ Wireless Mode (AC/N in this instance),
- ✓ HT Mode (80MHz for 11ac, you might only be able to choose 40MHz if the bridge devices you are using don't support 11ac)

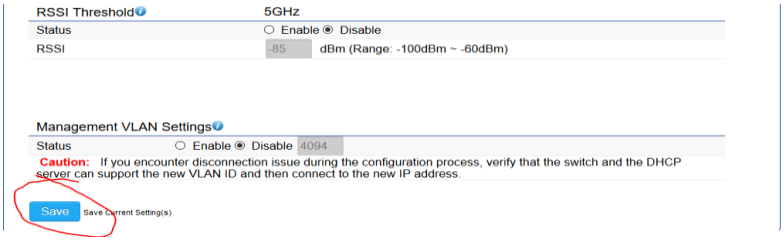
The click on Channel/Configuration to choose a suitable WiFi channel...



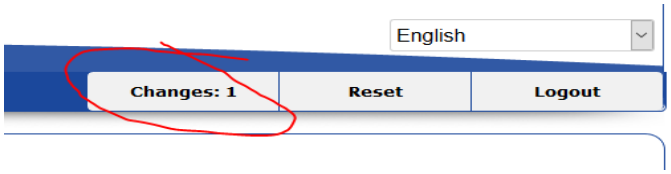
The actual choice of channels offered will depend if this is 11ac (80MHz wide channels) or 11n (40MHz wide channels). Pick a suitable channel. Note for legal outdoor use in the UK/EU then you can only use channels 100 upwards. In this example I simply choose channel 100. 'Save' after choosing the channel.



Then 'Save' on the bottom of the Wireless Settings screen...



Then scroll to the top of the Settings screen and click on the 'Changes' button, what this does is apply your changes...



Then wait for it to set the config and reboot.

That's all you have to do on the 'master' to get you initially going.

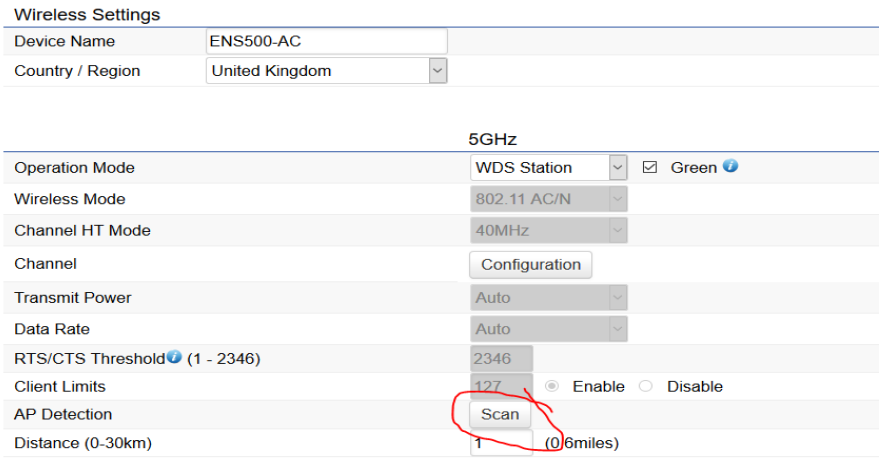
Basic 'slave' setup

So now the 'slave' units. You might have multple slave units but the setup is pretty much the same for one, two, or even ten! Log into the web interface for the device to be configured as the slave and goto Network/Wireless...

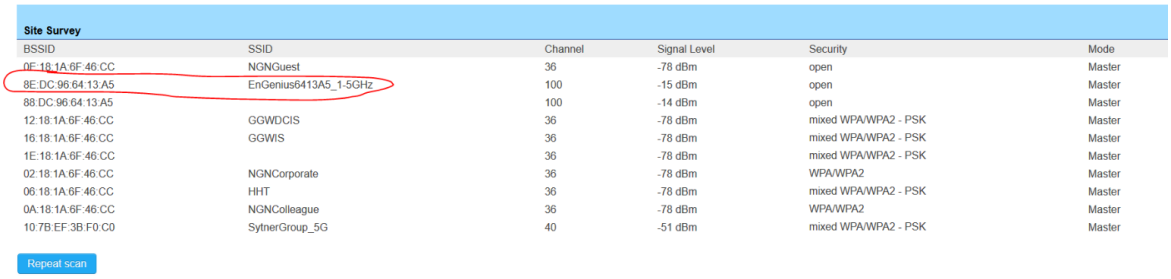
So things you need to set for the 'slave'...

- ✓ Country (United Kingdom),
- ✓ Operation Mode (WDS Station),

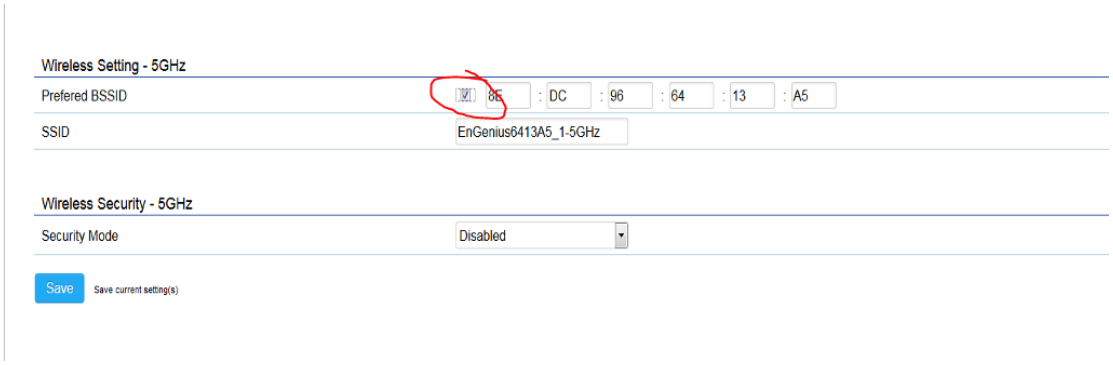
Everything else is greyed out because it's set by the master.



The only other setting to do is to Scan the WiFi for the master to connect to. So set the mode etc... and then click on Scan. **

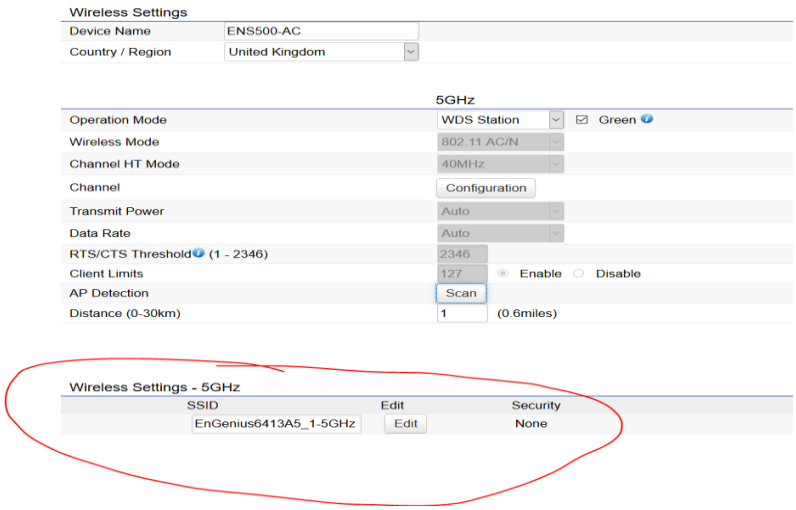


Wait whilst it builds up the list for access points (masters) it can see. Then double click on the line for the master (EnGenius WDS AP) you want to connect to.



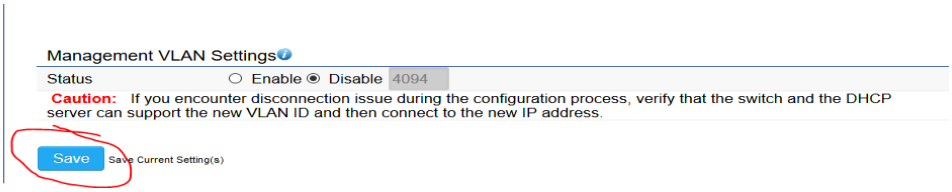
It should then show a screen with the BSSID for the master. You also have the option to tick and lock the slave to this particular master (WDS AP) – this is worth doing! Click on Save.

It should then show the SSID in the 'Wireless Settings - 5GHz' on the bottom of the page

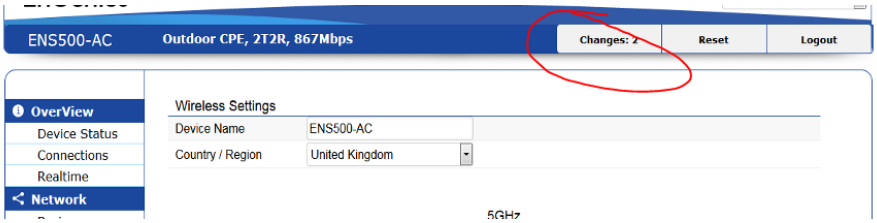


**Alternatively, if you do not want to carry out a site survey by clicking the `AP Detection Scan' button, it is possible for you to type the name of the `SSID' of the master directly into the SSID field under the `Wireless Setting – 5Ghz' section. Just remember to click `Edit' if you need to set any security.

Then go to the bottom of the screen and click on 'Save'



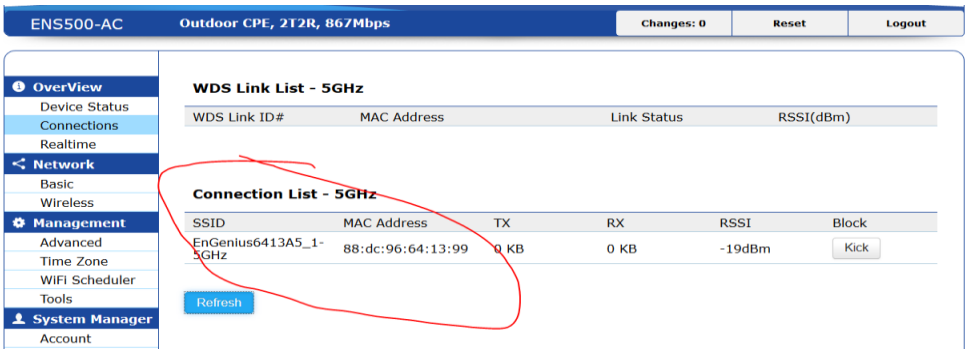
and to the top of the page to apply the 'Changes'.



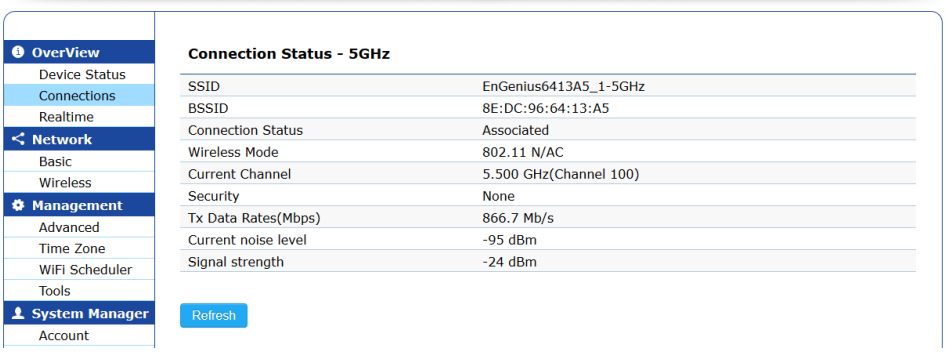
Now wait for the unit to reboot.

Is the link up?

To check it's up then look at 'Connections' on the master unit and you should see slave devices listed



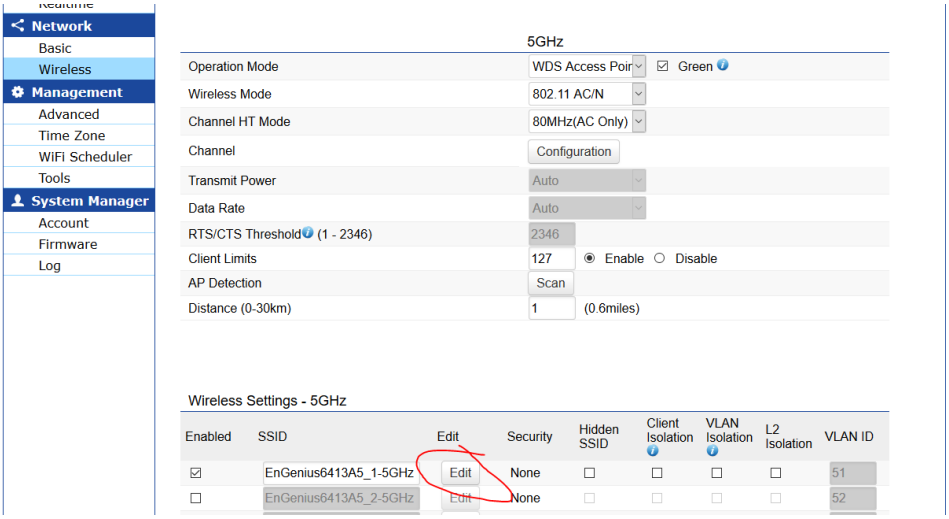
and when you look at 'Connections' on the slave units they should show they're associated with the master.



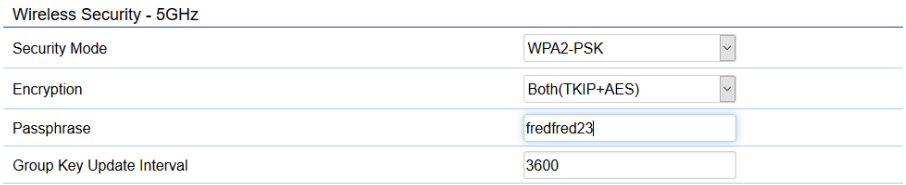
Adding Security to the link

Up to now this is an open WiFi link. The slave (WDS Station) is locked to the master (WDS AP) but there is no security on the WiFi connection. So you might want to add some WiFi security.

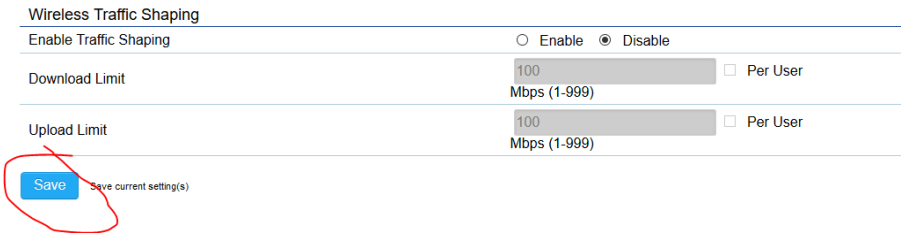
On the master goto the Network/Wireless page and click on Edit for the WiFi link....



The select the WiFi security and enter a suitable passphrase e.g.

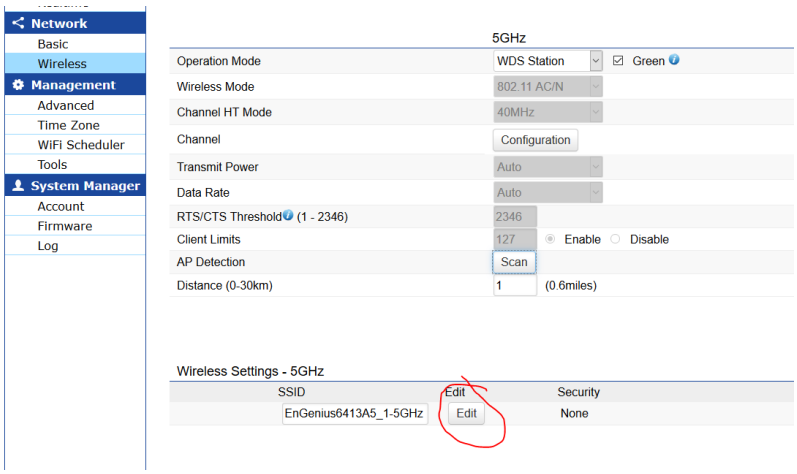


then 'Save' on the security page.



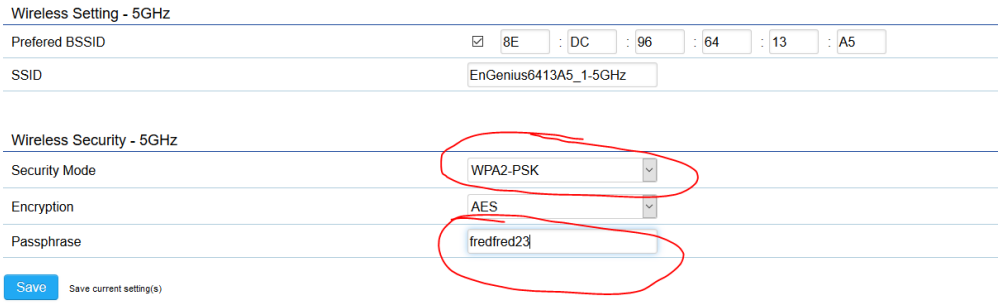
then 'Save' on the Settings page. Then click on 'Changes' on the top of the page to apply the settings. Remember, until you've set security on the slave units then this will break the bridge links!

Now goto Network/Wireless page on the 'slave' (WDS Station) unit...



Click on Edit for the AP link.

Select the required security and enter the passphrase (the same that you set on the WDS AP):



Then Save. Then Save on the settings page and then apply the Changes at the top of the page.

Now you will have to wait for the Station (slave) to reboot and then reconnect to the AP (master).

Job done.