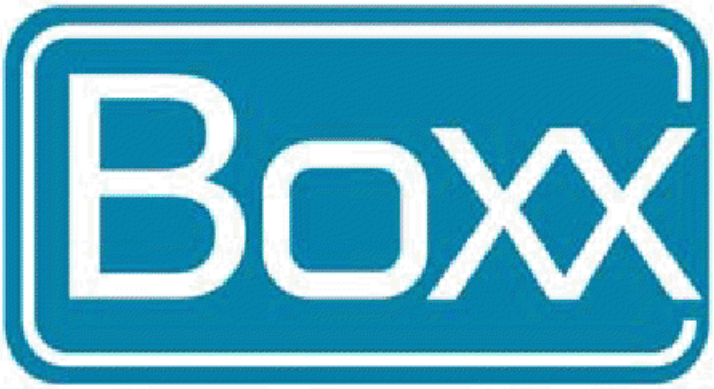


Zenith User Manual

v1.2

April 2013

A new concept in wireless video

Zenith is a digital wireless video system that works with SDI video formats up to 3G 1080 60p.

The Zenith uses a H.264 encoder and decoder system which is transported over 802.11n and similar propriety protocols at 900MHz 2/3/5/24GHz.

It's radically different than traditional COFDM systems and a basic IT background and knowledge of IP Ethernet networking is needed to configure the system.

One main advantage of Zenith is that it can transport the video over standard network protocols. It will take time to get used to, so reasonable training and testing time is needed. Once done, an almost limitless coverage area can be achieved by using relatively inexpensive 802.11n hardware. One big advantage of Zenith is that you can configure inexpensive repeater stations to bounce signals around corners that would be cost prohibitive in traditional microwave systems.

Zenith is made up for 4 main parts.

- **Encoder - encodes the video and packetizes it into IP.**
- **Encoder radio sends the IP packet over the air**
- **AP radio receives the IP packet over the air and connects to the decoder**
- **Decoder - converts the IP information back to video and audio.**

Each of the above devices in the network can be viewed, controlled and configured via its IP address via a web browser so you will need a laptop to configure the system.

As standard, Zenith uses 192.168.0.XXX as its IP range but if needed this can be changed.

Basic configuration

First you will need to manually set a IP in your laptop. Google search 'how to setup a static ip address on windows 7' or 'how to setup a static ip address on a Mac' if you don't know how to do this. 192.168.0.123 is a good number to use.

Zenith uses the following user and passwords as default.
User: **ubnt.**

Password: **ubnt.**

These can be changed if needed.

Each individual hardware component we be assigned an IP address at the factor and will be displayed on the units as 192.168.0.XXX. To access each hardware device, simply type in the IP address that's written on the unit into a web browser. We recommend you set a bookmark for each IP address for easy monitoring and so that you do not to have to remember the IP address in the future.

Software that you can use:

Any web browser like Chrome or Window Explorer

http://www.ubnt.com/support/downloads/utilities

http://www.tallsoft.com/pingmonitor.htm

Transmitter LED indicators
The LEDs on the transmitter show
Power to the unit
SDI signal present
Data flow
RF Signal strength

Receiver LED indicators
The LEDs on the transmitter show
Power to the unit
SDI signal present
Data flow
LAN connections

Configuring the transmitter locally

The transmitter has 2 power switches that allow both the encoder and radio to be switch on/off individually. This is used when plugging into the RG45 on the transmitter. Turn off the device if you do not require access.

If using an external radio (for example a dish antennas) via the RJ45 on the transmitter, you must turn off the internal radio.

Encoder settings

We recommend only changing the following parameters on the encoder. All other settings will degrade performance and may also stop operation.

Stream control

Video Bitrate(Mbps) Set between 1-30
Audio Streaming - Mono, Stereo, off.
Note: Each audio stream uses 1.5M so if it's not needed best turn it off or use mono if only sending one channel.

System configuration

IP address - this is the encoders IP address
Peer IP - the decoders IP address which will be used to decoder this encoders video

Every time you change a setting you need to click 'Submit' to take effect.

To save click 'Save changes', 'Save' and 'Save' again.

AP in Receiver Radio

User: **ubnt.**

Password: **ubnt.**

Turn on Airmax if only using Ubiquiti hardware.

Figure 1

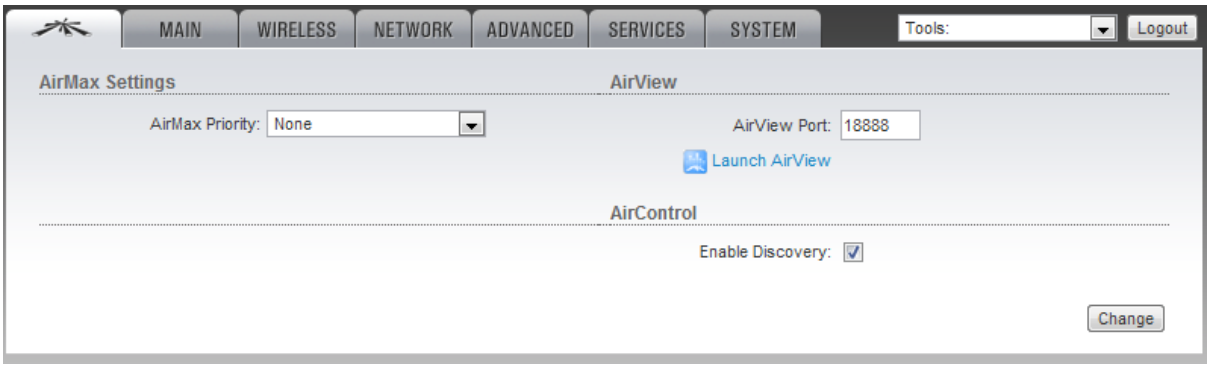
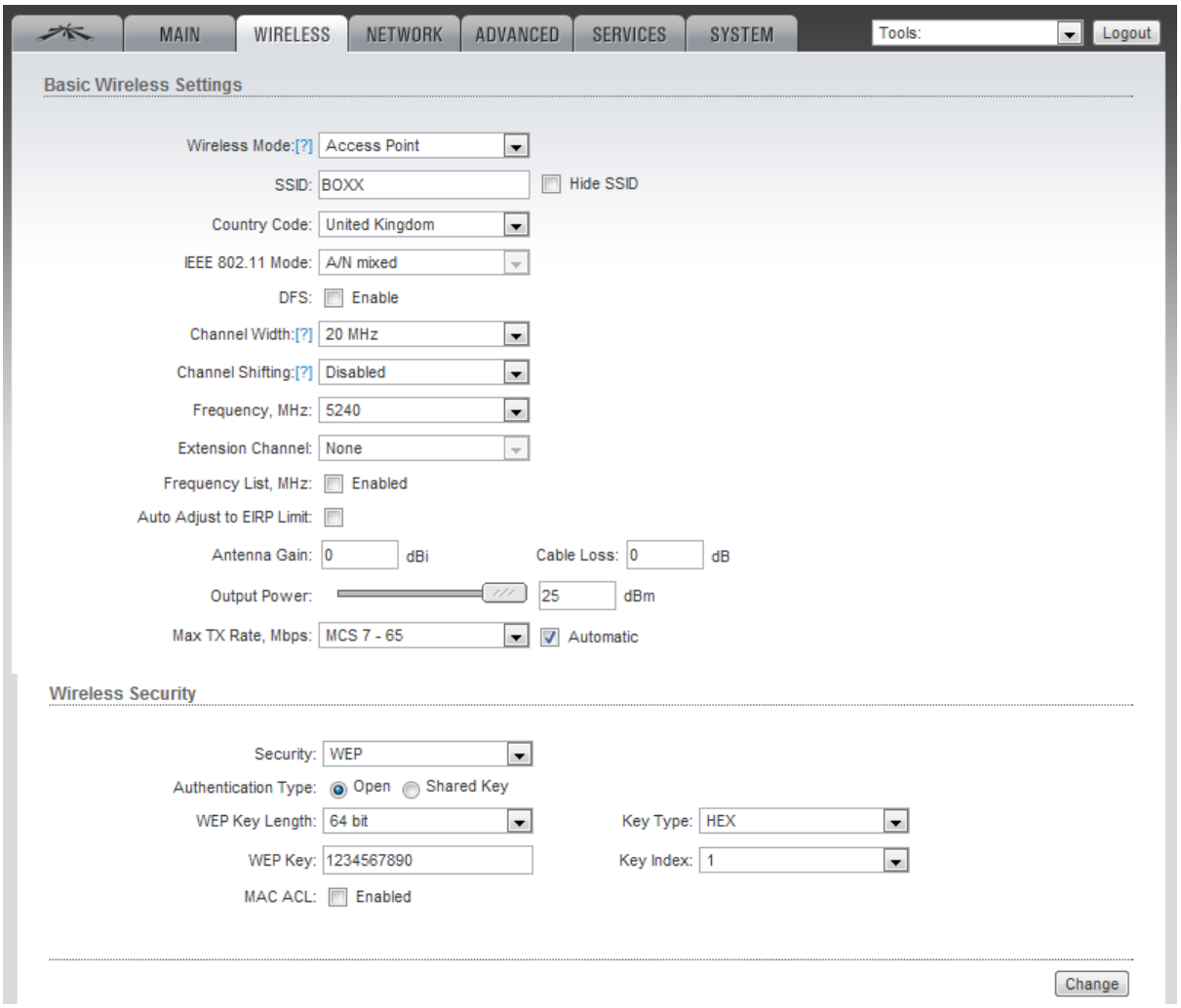


Figure 2



This radio which is set to AP 'Access point' decides the channel frequency used.
Max TX rate should be at least 100% higher that the encoders video bitrate + audio at 1.5M per channel.

Example:
Sending 4.5M video only - Set to 13.5 Auto ticked.
Sending 10M of video and 2CH audio - Set to 26M. Auto ticked.

It’s best to tick the hind SSID and don't use any security. However, for a more secure network use WEP.

You can select ‘Auto channel’ and the AP will decide the best channel.

Channel Width
For SNG 20Mhz is recommended
For higher quality pictures 40Mhz is recommended

Figure 3

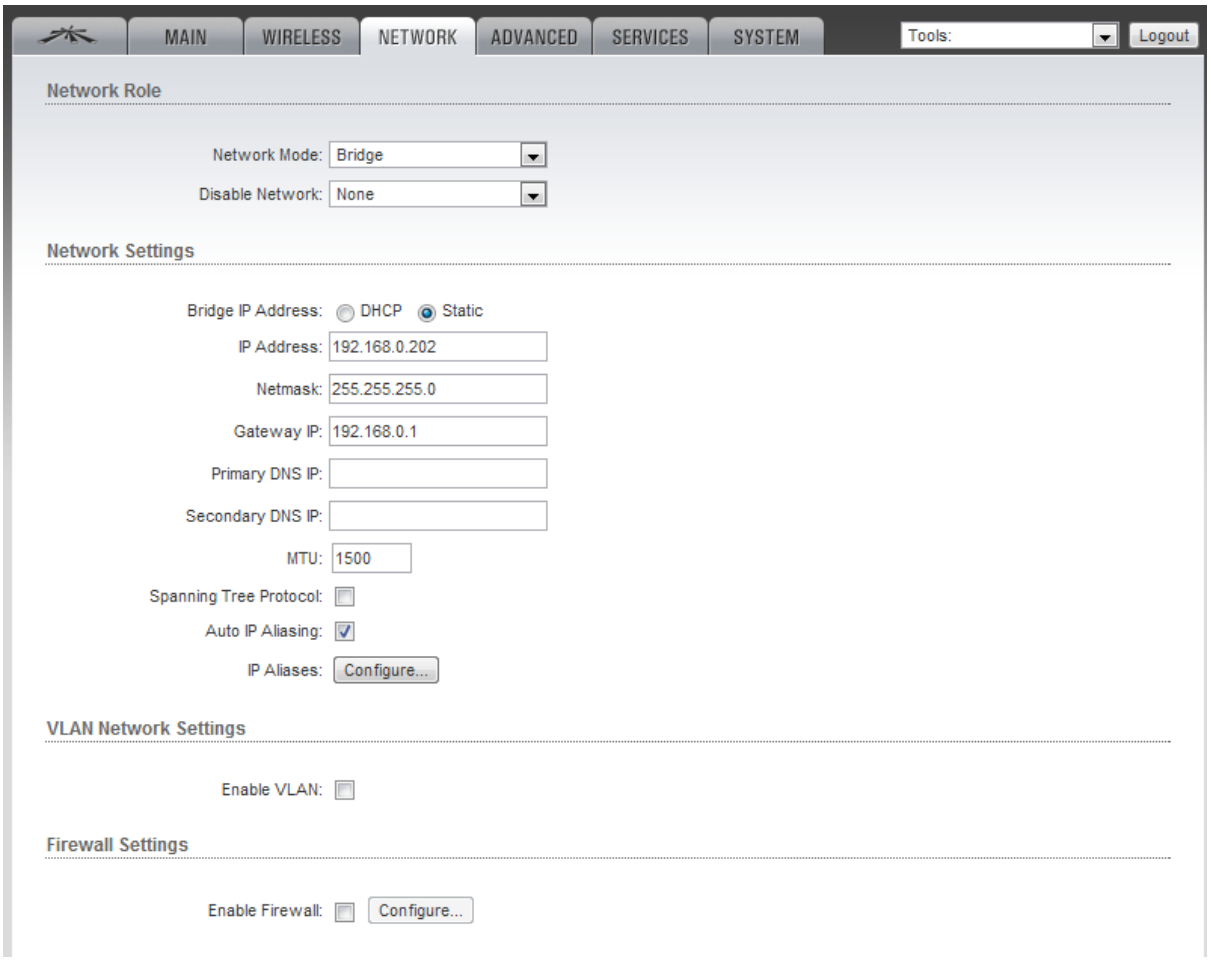
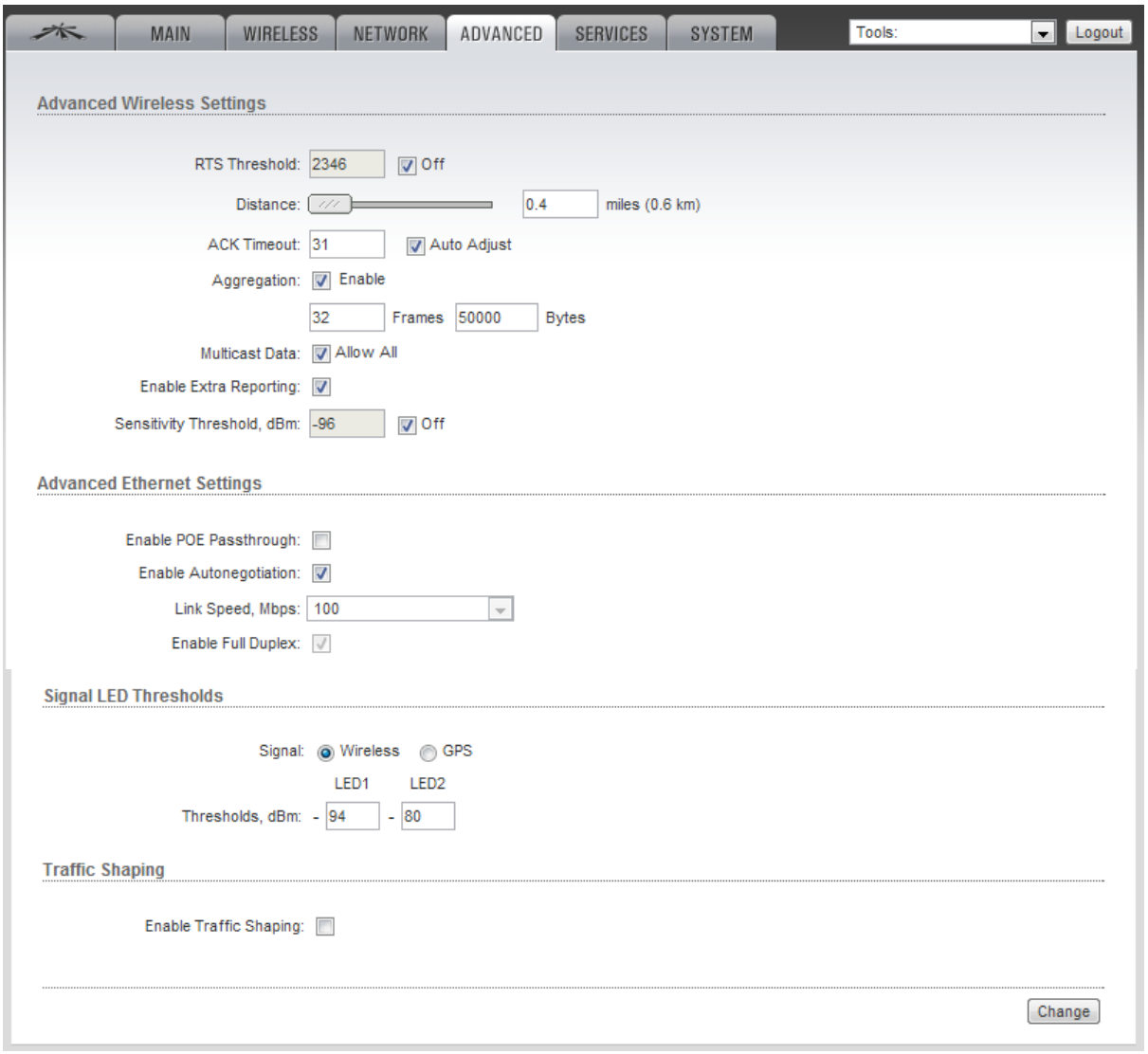

MAIN
WIRELESS
NETWORK
ADVANCED
SERVICES
SYSTEM
Tools:
Logout
Network Role
Network Mode: Bridge
Disable Network: None
Network Settings
Bridge IP Address: DHCP Static
IP Address: 192.168.0.202
Netmask: 255.255.255.0
Gateway IP: 192.168.0.1
Primary DNS IP:
Secondary DNS IP:
MTU: 1500
Spanning Tree Protocol:
Auto IP Aliasing:
IP Aliases: Configure...
VLAN Network Settings
Enable VLAN:
Firewall Settings
Enable Firewall: Configure...

Figure 4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Tools:
Logout
Advanced Wireless Settings
RTS Threshold: 2346 Off
Distance: 0.4 miles (0.6 km)
ACK Timeout: 31 Auto Adjust
Aggregation: Enable
32 Frames 50000 Bytes
Multicast Data: Allow All
Enable Extra Reporting:
Sensitivity Threshold, dBm: -96 Off
Advanced Ethernet Settings
Enable POE Passthrough:
Enable Autonegotiation:
Link Speed, Mbps: 100
Enable Full Duplex:
Signal LED Thresholds
Signal: Wireless GPS
LED1 LED2
Thresholds, dBm: - 94 - 80
Traffic Shaping
Enable Traffic Shaping:
Change

Figure 5

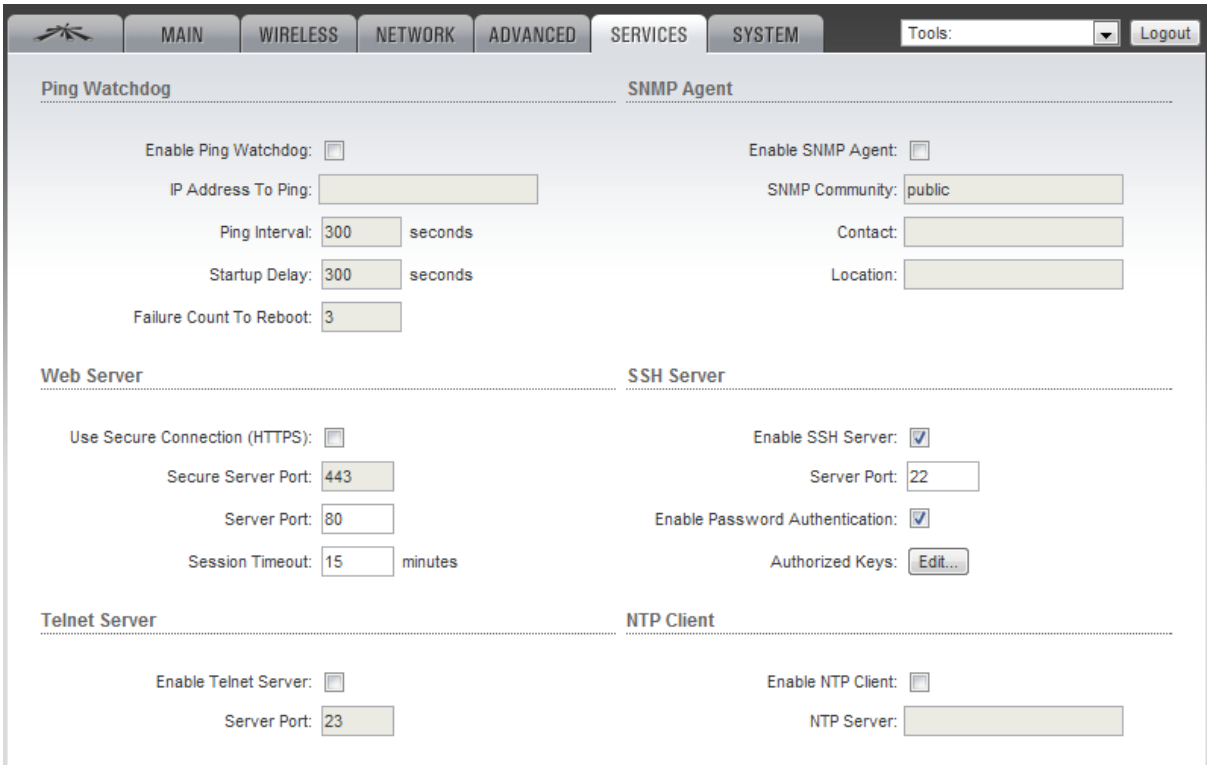
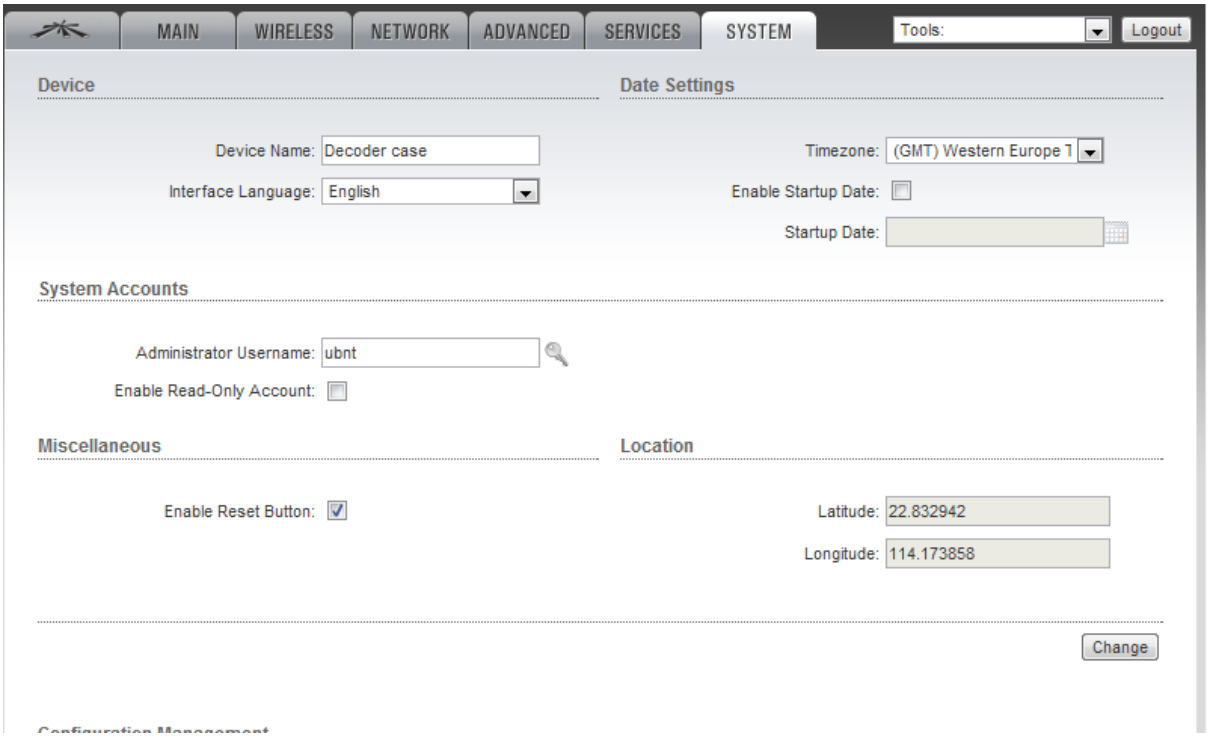


Figure 6



Transmitter Radio

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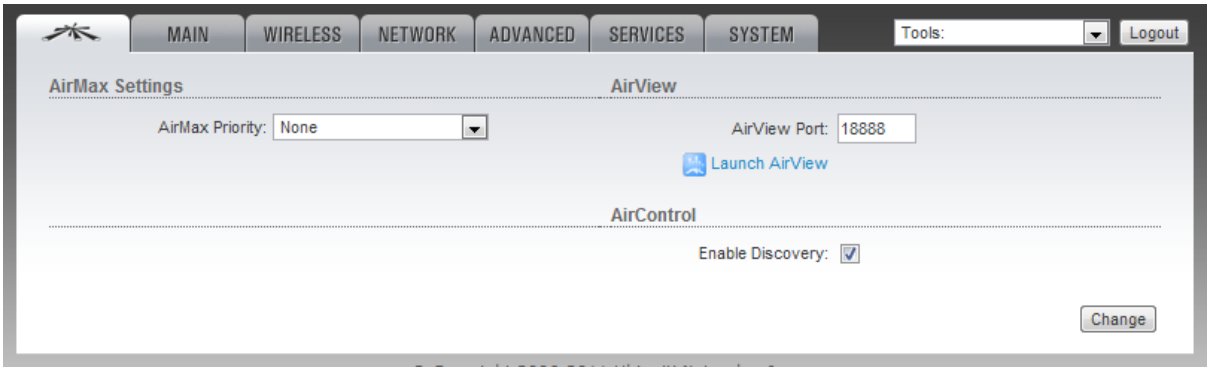
This radio, which is set to 'station', scans all channels and looks for the matching SSID from the 'Access point'

Figure 7



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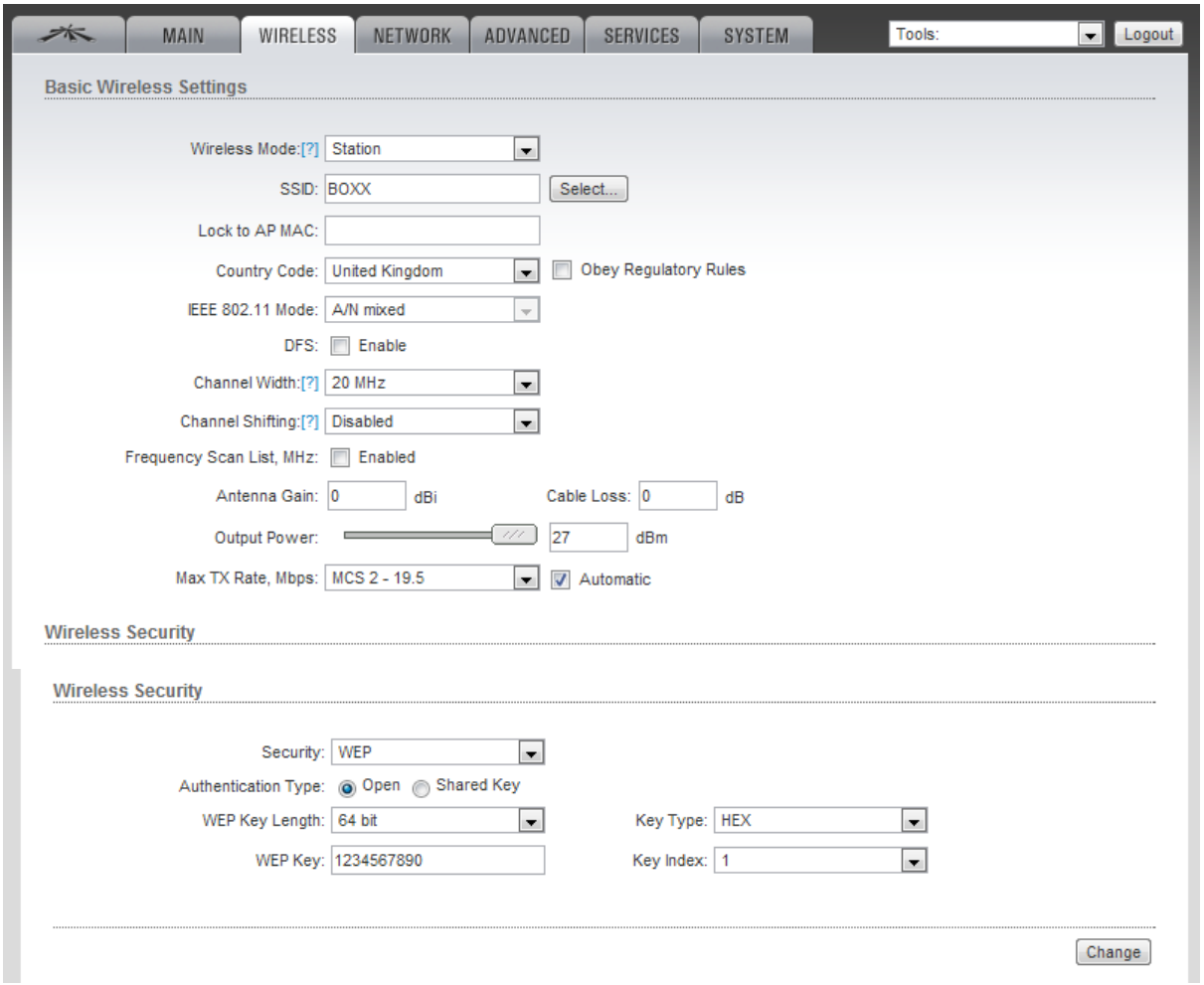
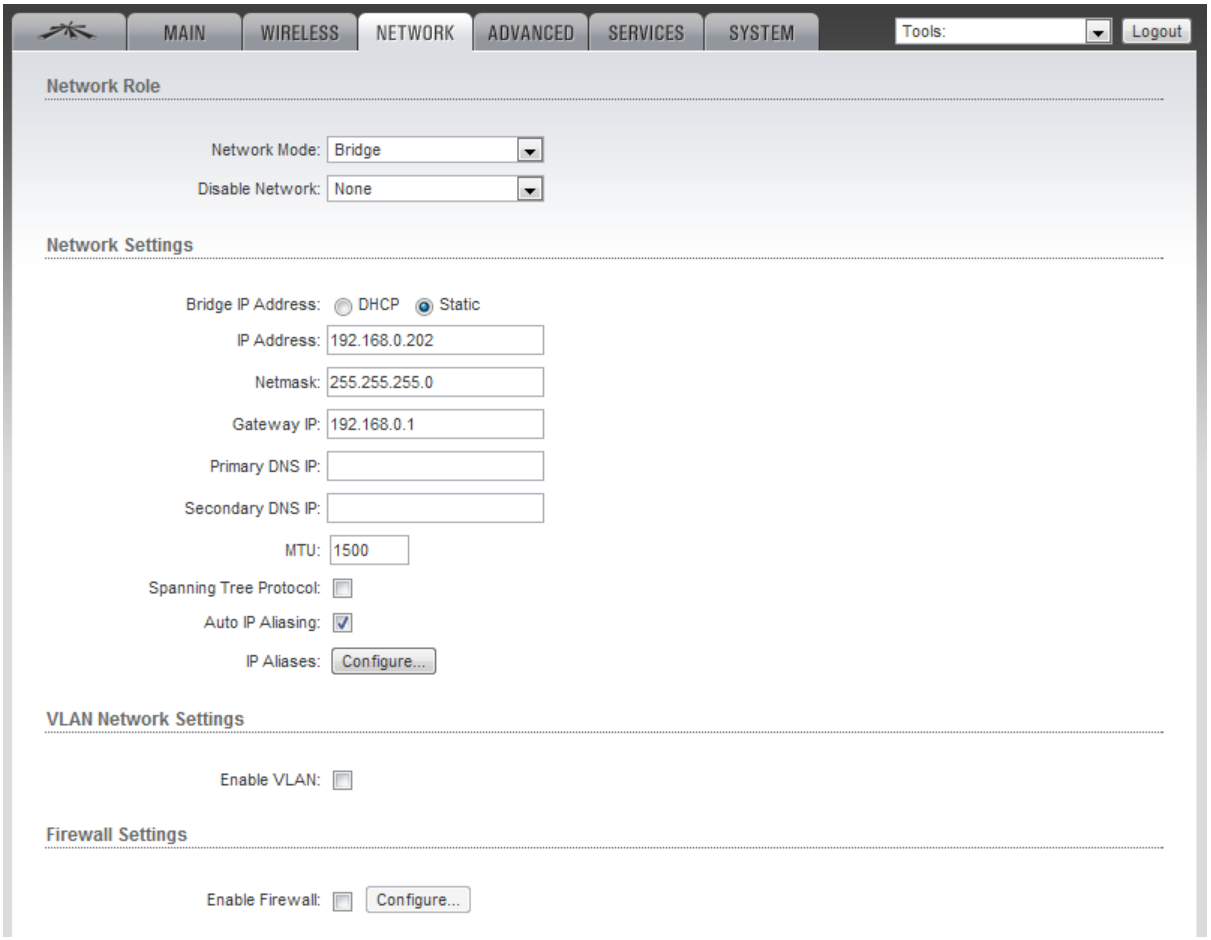


Set maximum data rate to the same as you have the AP set to and tick ‘Auto’.
Set channel width to ‘20/40 auto’.

Figure 9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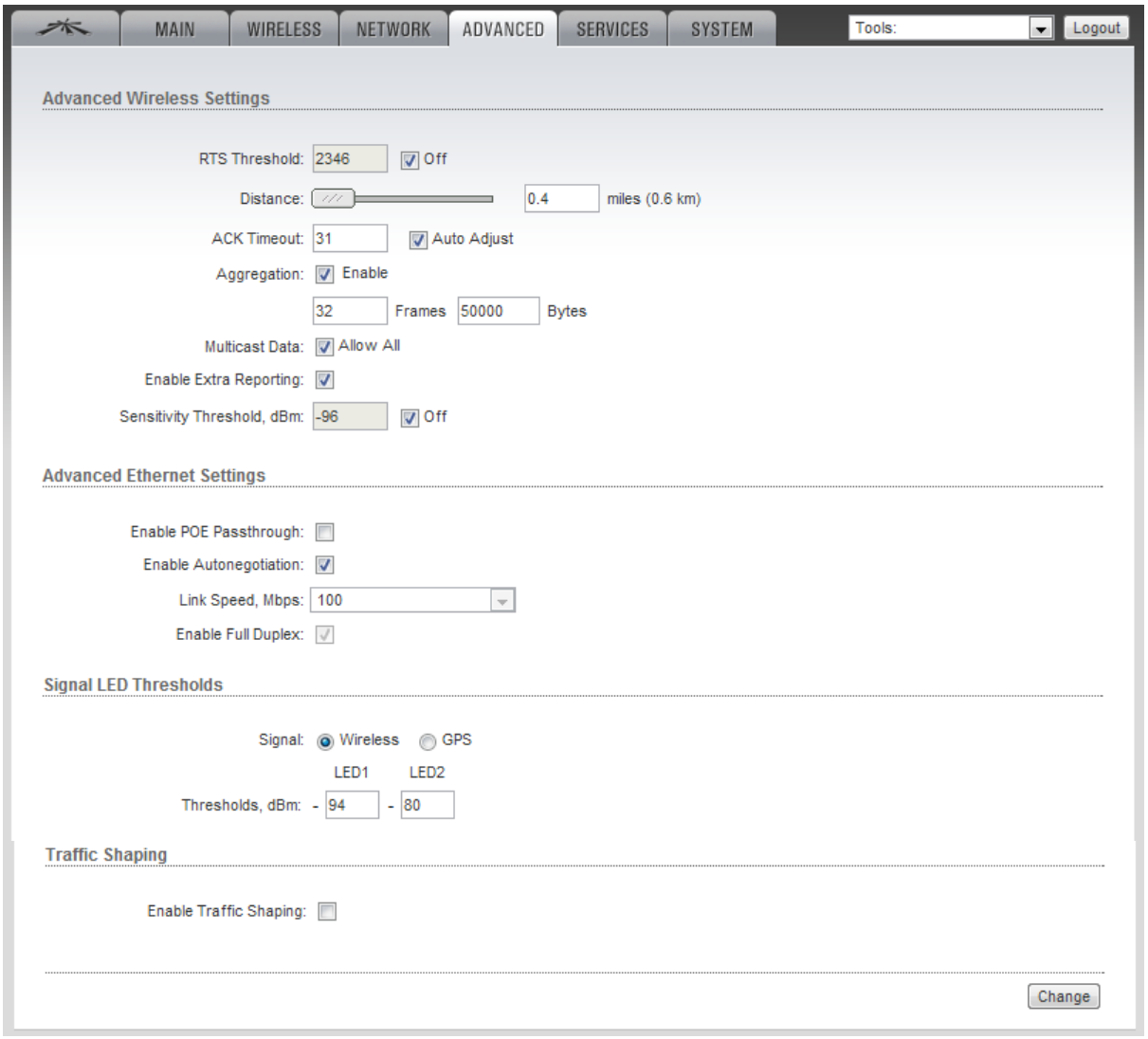
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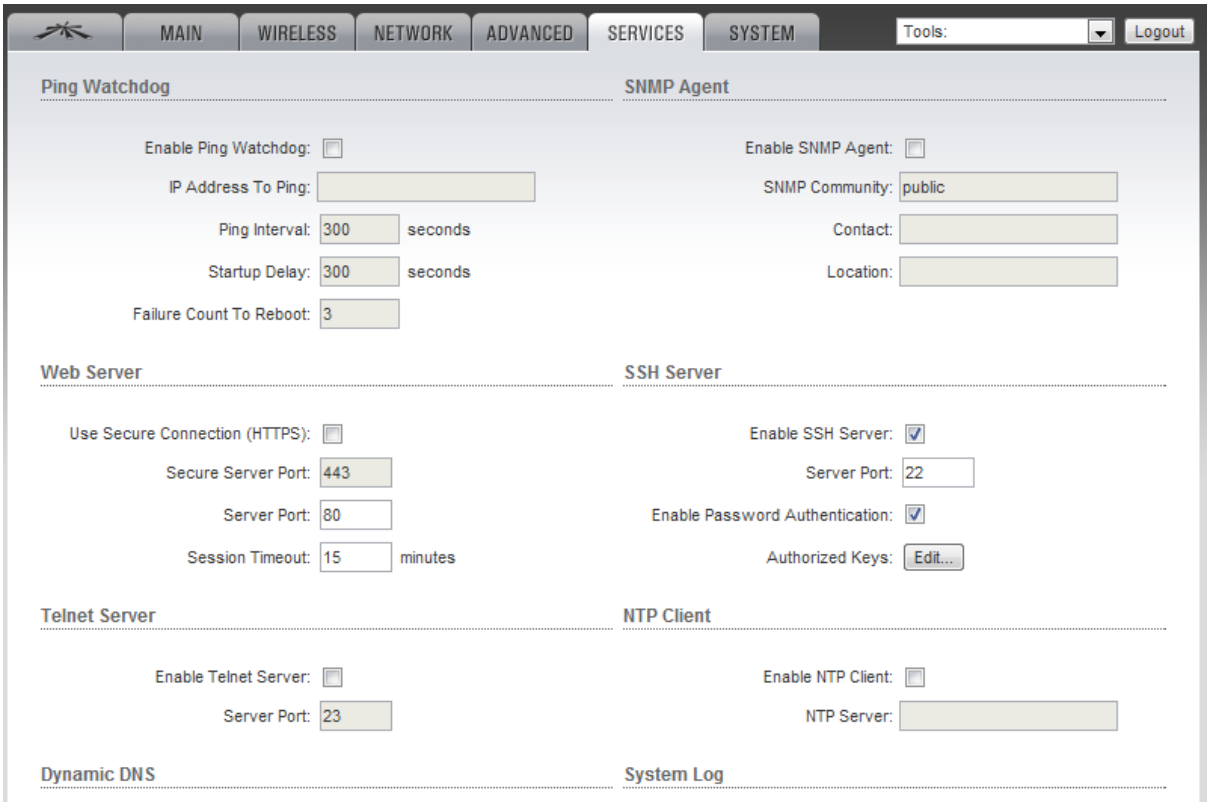
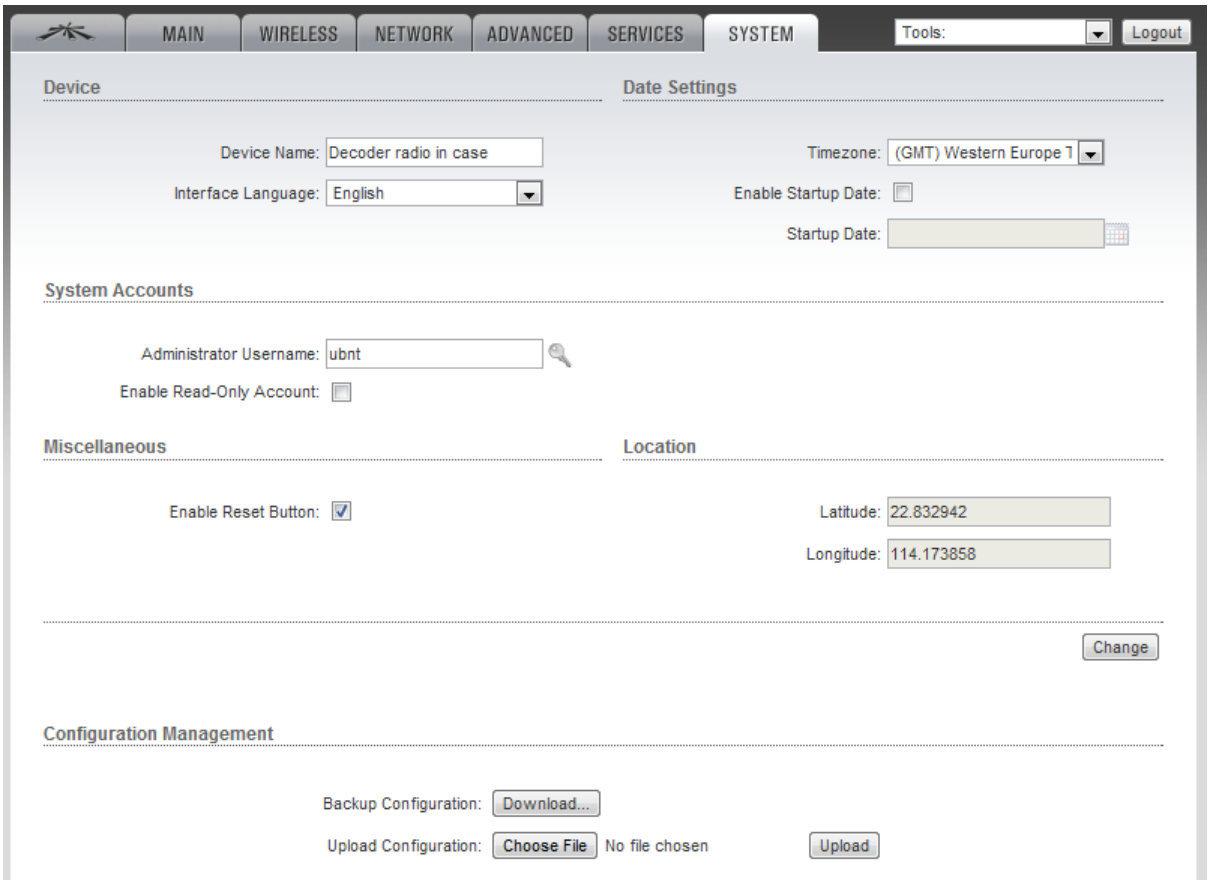


Figure 12



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