Mimosa OS

User Guide

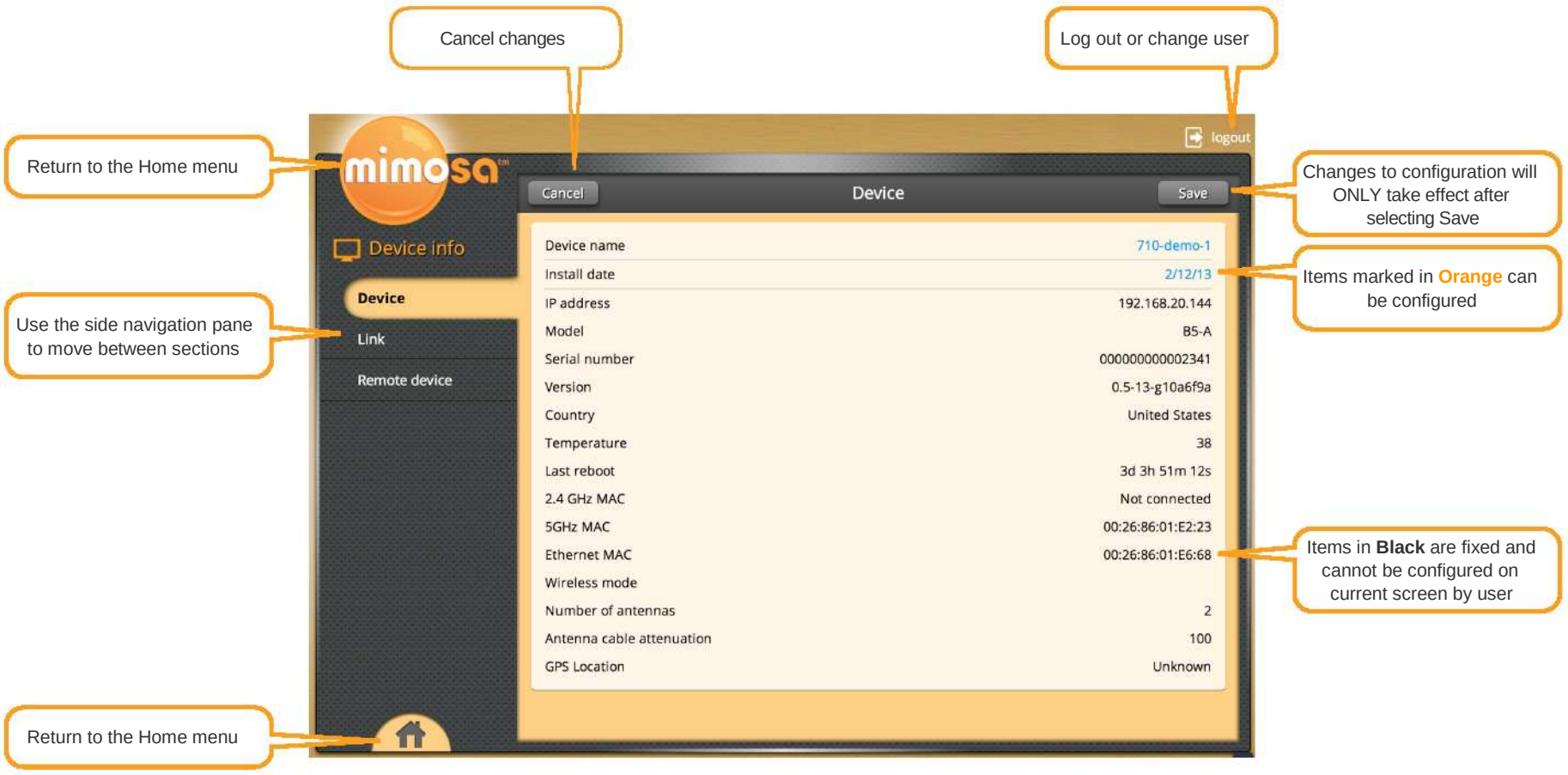
Mimosa OS

Welcome to the User Guide for the Mimosa OS and User Interface.

This User Guide is intended to help set up B5-160 as well as illustrate the benefits and details of the numerous tools available within the interface.

Click the sections in this menu to navigate within the document.

User Interface Overview



Accessing the Interface

Accessing the interface requires that the device is connected to a power source. The device has three separate modes of access to ensure easy set-up and management. The device can be accessed without connection to the LAN (via 2.4 GHz mobile device connection), through the local LAN (if the device is connected to the LAN) or from outside of the LAN via a public IP address.

Access Method	Connecting to GUI
Via 2.4 GHz Wireless Connection	On any device with an 802.11 2.4GHz connection, go to the wireless network listing and connect to the "mimosanetworks" wireless network (SSID). Once connected, type 192.168.1.1 (OR URL TBD LATER) into your mobile device browser.
Via Ethernet interface or in-band over the Wireless link	By default, the device IP address is 192.168.1.20 and can be accessed via the Ethernet port using this IP address in any standard Web browser. To access the device via a locally connected computer initially (on the same LAN or directly to the Ethernet port), the computer's IP address must be on the same subnet as the above address. Once you have modified the IP address (static or DHCP) of the Device for remote management purposes (in-band over wireless or over the Ethernet interface), the new specified IP address must be used to access the device. This is important to do in order to avoid IP address conflicts with other devices on the network. Current IP addresses of different Mimosa devices on the network can be identified using the Mimosa Device Discovery tool.

Logging In

After connecting via one of the above methods, the device will prompt you to log-in with a username and password.

The default factory configured user accounts are:

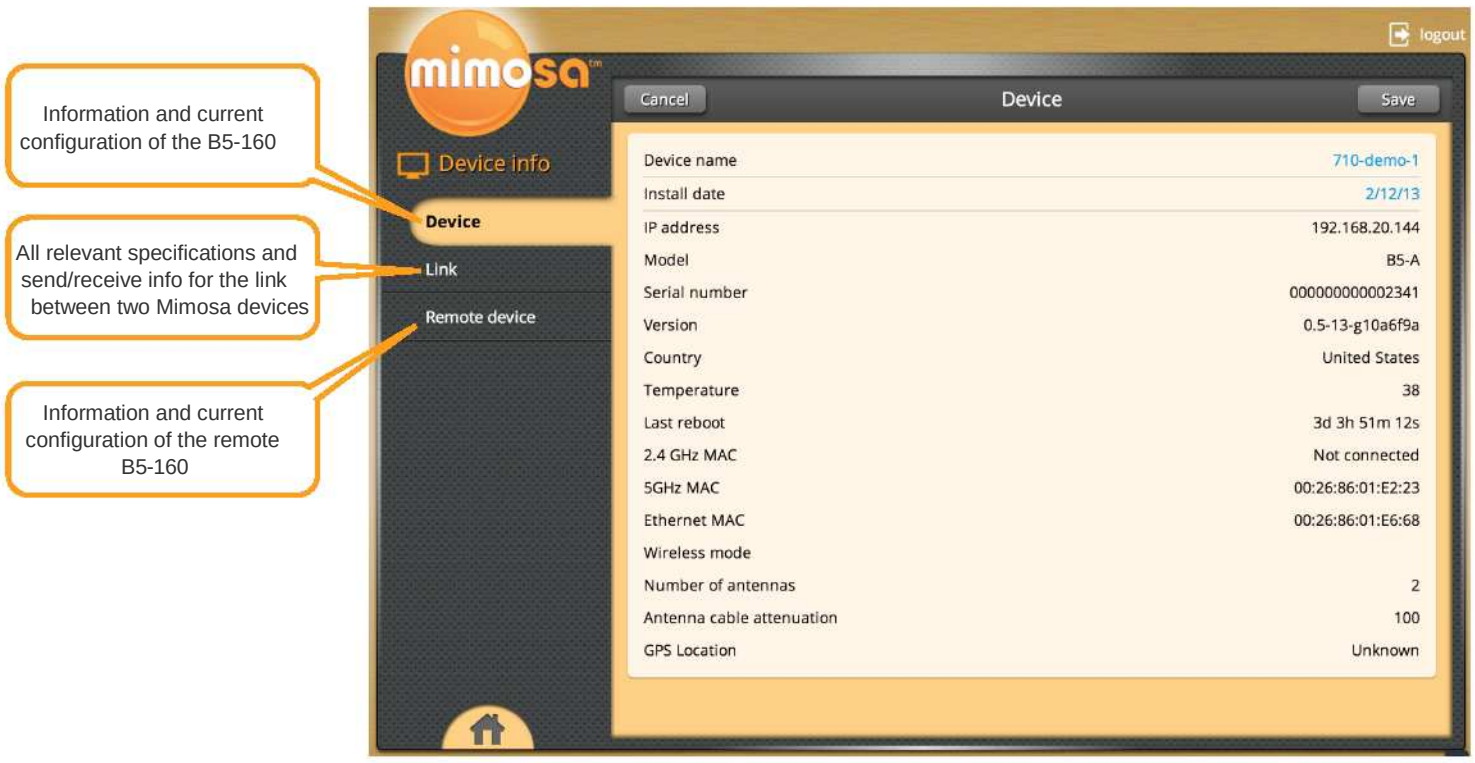
Username	Password	Access Rights
Configure	**Mimosa**	All modifiable elements can be configured by user
Monitor	**Mimosa**	User cannot configure device

The Dashboard

After logging into the interface, if B5-160 is connected to another Mimosa B5-160 the home page will show a dashboard that reflects the current performance of the device and link information. You are now ready to explore the sections within the interface to setup, manage, and monitor your B5-160.

Device Info

The **Device Info** tab contains status and current configuration summary about your device, remote devices, and the wireless link.



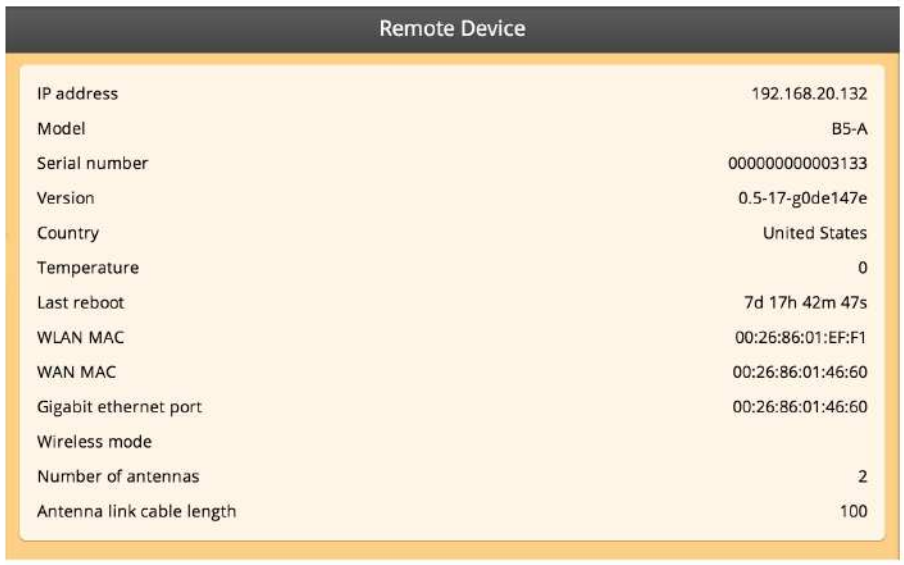
Device

Device Name	Use this to differentiate between devices.
Install Date	Use this to track the install dates of devices.
IP Address	IP address of the device.
Model	Mimosa device model name (e.g. B5, A5, etc.).
Serial Number	Mimosa device serial number.
Firmware	Firmware version.
Country	Location of device.
Temperature	Temperature of device in degrees Celsius.
Last Reboot	Time since last reboot.
2.4 GHz MAC	MAC address for 2.4 GHz interface.
5 GHz MAC	MAC address for 5 GHz interface.
Ethernet MAC	MAC address for Ethernet interface.
Wireless Mode	Current role of the device as AP (Access Point) or Station. If the device is in AP mode, it will act as the Access Point for the network. The Stations linked to the AP will act as children to the configuration setting of the parent AP.
Number of antennas	Number of antennas in the device
Antenna cable attenuation	Length of cable attached to the device
GPS Location	GPS coordinates of device location.

Link

Link Name	Use this to differentiate between devices.
Max Capacity	Maximum connection rate (Mbps).
Distance	The distance between the two link endpoints.
Frequency	Frequency and (Channel) or auto (if auto channel mode is enabled).
Bandwidth	Width of channel (MHz).
Packets Received	Number of packets received.
Packets Sent	Number of packets sent.
Bytes Received	Number of bytes received.
Bytes Sent	Number of bytes sent.

Remote Device



IP Address	IP address of the remote end Mimosa remote device.
Model	Mimosa remote device model name (e.g. B5, A5, etc.).
Serial Number	Mimosa remote device serial number.
Version	Firmware version.
Country	Location of device.
Temperature	Temperature of device in degrees Celsius.
Last Reboot	Time since last reboot.
WLAN MAC	MAC address for WLAN interface.
WAN MAC	MAC address for WAN interface.
Gigabit Ethernet Port MAC	MAC address for Gigabit Ethernet Port interface.
Wireless Mode	Current role of the Mimosa remote device as AP or Station.
Number of Antennas	Number of antennas on the device
Antenna link cable length	Length of cable linked to the antenna

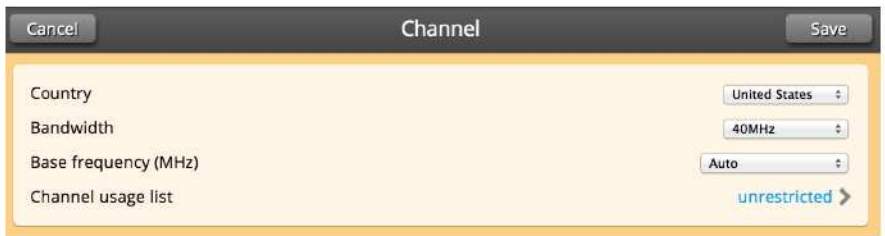
Wireless

The **Wireless** tab contains all necessary components for configuring the wireless link.

Link

Link Name (SSID)	Change/Set the name of the wireless network.
Device Mode	Choose whether the device will act as an **Access Point** or a **Station**. The Access Point settings will determine the characteristics of the network while Station devices will be subject to changes made at the Access Point.
Key (ASCII Passphrase)	Change/Set the password for the wireless network.
Hide SSID (disable broadcast)	Turn **On** to disable the broadcast of the wireless network SSID beacon (the network will not be discoverable).
Restrict to MAC	Allow or deny specific devices based on MAC address with the following **Filtering Type** options:  **None** - do not filter **Authorize if not denied** - allow any connection if not denied **Deny if not authorized** - block unless authorized To add a device to either list, simply click "Add" and then insert MAC address of device.

Channel



Country	Select the country in which the device will be operating.
Bandwidth	Select the size of the channels that will be used in the link. Mimosa products allow for selection up to 80 MHz for channel width.
Base Frequency (MHz)	Either choose a channel on which to operate the link or choose **Auto**. If **Auto** is chosen, the device will automatically choose the channel with the least interference.
Channel Usage List	Turn **Channel Usage List On** to limit the channels available for use during channel **Auto** selection mode. You will be prompted to choose preferred channels (selection list will be based on current **Bandwidth** selection and available 20/40/80 MHz base frequencies). Once enabled, the field will read **specified**. If **Of**, all channels will be considered usable and the **Channel Usage List** item will read **unrestricted**.

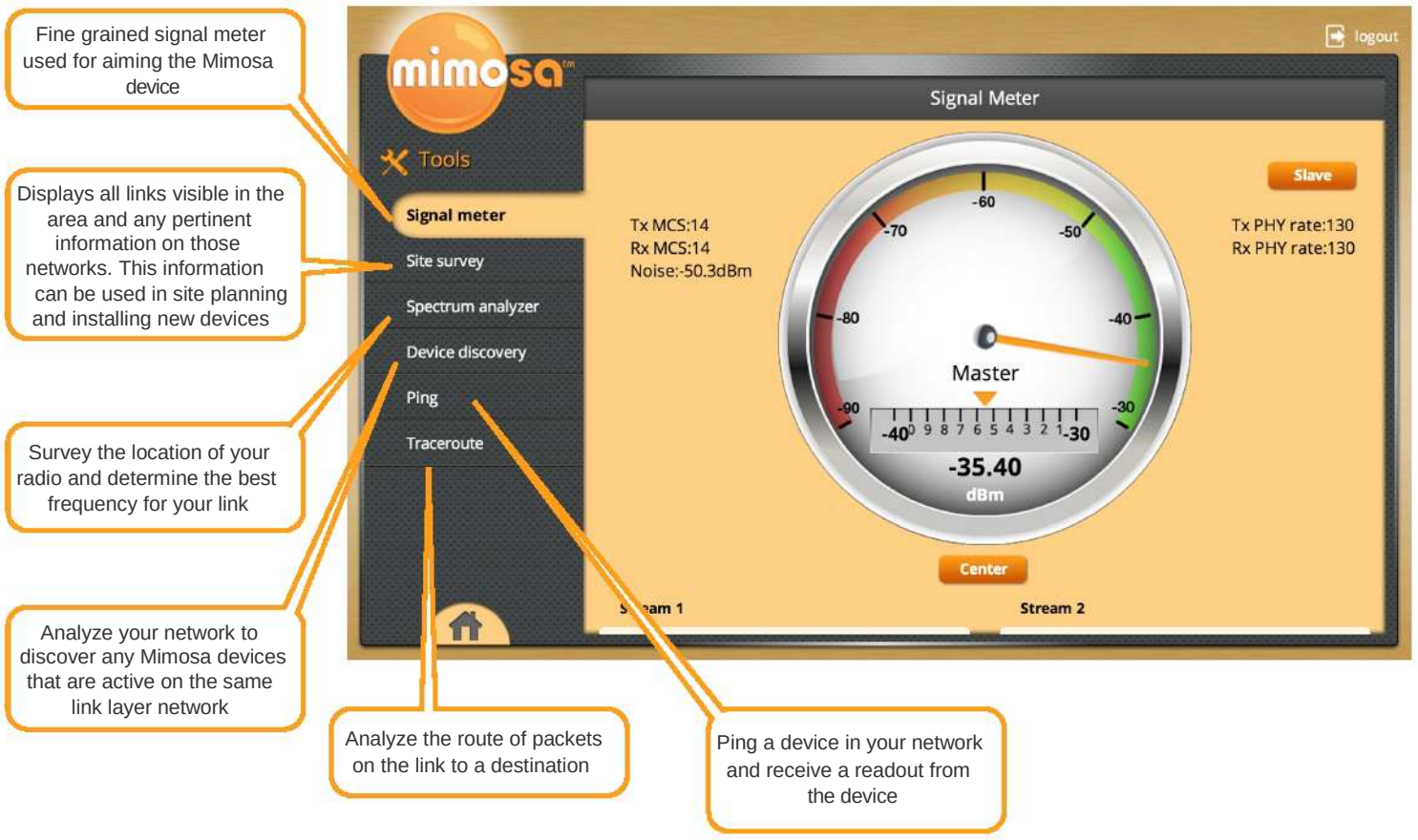
WARNING: It is important to select the right country so that your device follows the regulations and laws of that country.

Power

Power	The maximum allowed power rate is determined by a combination of country and chosen frequency. If a power level is not chosen, the B5-160 will default to the highest power level allowed in the chosen country/frequency combination.
Max Coding Rate	Sets the maximum coding rate available for use by the link. Selecting **Auto** will allow the link to use the highest coding rate available.
Auto Distance	Enables automatic measurement of the link distance , allowing corresponding link parameters to be optimized.
RTS/CTS	Allows communication with legacy devices that may require RTS/CTS. Should only be used if legacy devices are present.
Aggregation Enable	Enables 802.11 aggregation features for performance enhancement.
Beacon Interval	Adjusts the frequency of broadcast beacons.
DTIM Period	Delivery traffic information map period.
Short GI	Determine the length of the guard interval between transmissions. A "Short GI" is 400 ns, while a long GI will be 800 ns.

Tools

The **Tools** tab has everything you need to measure signal levels for antenna aiming, spectrum analysis optimize, and link diagnosis.



Signal Meter

The Signal Meter provides a real time signal level in dBm for an established link. It provides fine adjustment information to optimize the aiming of the link to achieve the highest signal level possible. The AP device and Station device must be first configured with the same link info (SSID and security key).

Current **Tx MCS (Modulation and Coding Scheme)** and **Rx MCS** rate (if associated) corresponding **Tx PHY (Physical Layer Interface) rate** and **Rx PHY rate** are shown.

The **Center** button locks the fine tuning scale in place, providing more detailed granularity with the orange arrow showing the fine grain level to assist in orienting and aiming the link.

Scrolling to the lower portion of the page, individual stream **EVM** (Error Vector Magnitude) and **RSSI** (Received Signal Strength Indication) levels are displayed. Current selected bandwidth, frequency and distance values are displayed at the bottom of the page.

Site Survey

SSID	SSID name of devices detected in the scan survey.
Signal Strength	Signal strength of the specific SSID link in dBm.
Noise	Amount of noise detected in the frequency/channel.
Frequency	Current frequency utilized by a detected device.

The **Refresh** button in the upper right corner will update this information to an up to the second view.

The **Download** button in the upper right corner will extract this information into a CSV formatted file.

Spectrum Analyzer

The spectrum analyzer displays observed interference levels created by other wireless devices, and is displayed by Frequency/ Channel.

Unlike many wireless spectrum analyzers, the Mimosa device continually captures interfering signal levels across the spectrum without impacting ongoing link traffic.

The analyzer displays detected interference, and allows you to select a channels or multiple channels (based on the current selected bandwidth, and allowed channels in the country selected) that you want selected to be included in the **Channel Usage List**.

The Y-axis of the graph indicates the level of power of each signal. The lower the signal, the less noise it is creating in the immediate area, and the less likely it will be to affect the performance of the radio.

The X-axis of the spectrum analyzer graph displays the frequency/channel of the observed radio interference.

The colored bands represent relative impact to link performance, red indicating highly impacting interference, yellow indicating likely impact, and green representing negligible impact.

The graph updates automatically in real time to help you understand radio signal levels in your location.

The **Settings** button in the upper right hand corner allows you to change the way you view the graph.

Bandwidth	Change the width of the channels that will be used on the link.
Channel Usage List	Turn **On** to restrict the device to only use a specified list of desired operation channels. Once enabled, use the checkboxes on the analyzer page to include desired channels eligible for use in auto-switching and when DFS/ Radar switching is required (depends on channel selected and country regulations). You can also click the **Edit List** button and go to a new page to select channels.
Analyzer Signal Decay	Use this drop-down to determine how quickly an observed signal will fade from the spectrum analyzer graph to determine persistence of interfering signals/

WARNING: The spectrum analyzer **Channel Usage List** is the same usage list as in the **Channel** section under **Wireless**. Changing the allowed channels in the **Spectrum Analyzer** will also change allowed channels in the **Wireless** tab.

Device Discovery

The **Device Discovery** displays the **Name**, **Product**, **Mode** and **SSID** of any devices on the network that are active in the area.

The **Refresh** button in the upper right corner will update this information to the most current view.

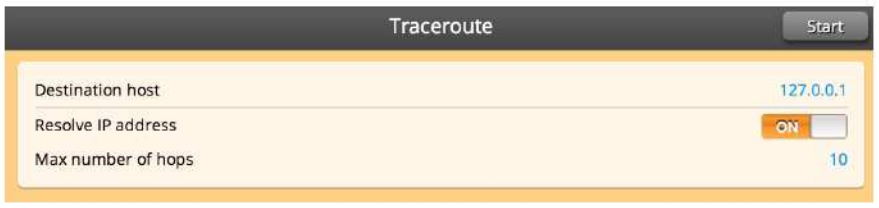
The **Download** button in the upper right corner will extract this information into a Device Discovery CSV file.

Ping

Destination IP	IP address of the device to ping.
Packet Count	Number of packets to transmit.
Packet Size	Size of each packet transmit.

After configuring the ping values, press the **Start** button at the top to execute. Clicking the **Stop** button at any point will end the ping.

Traceroute



The **Traceroute** function assumes that the current device you are logged into is one end of the route.

Destination host	IP address of end Traceroute device
Resolve IP address	Determines if the report will contain device names or only IP addresses. Turning this function **Of** will lead to slightly faster results.
Max number of hops	Set the maximum number of device hops that a packet will encounter before ending the traceroute.

Once a traceroute is configured, select the **Start** button at the top to execute. If at any point during the traceroute you wish to stop, click the **Stop** button at the top right.

Administration

The **Administration** tab is used to configure device networking, remote access and other IP services, device diagnostics, and device reboot and resetting.

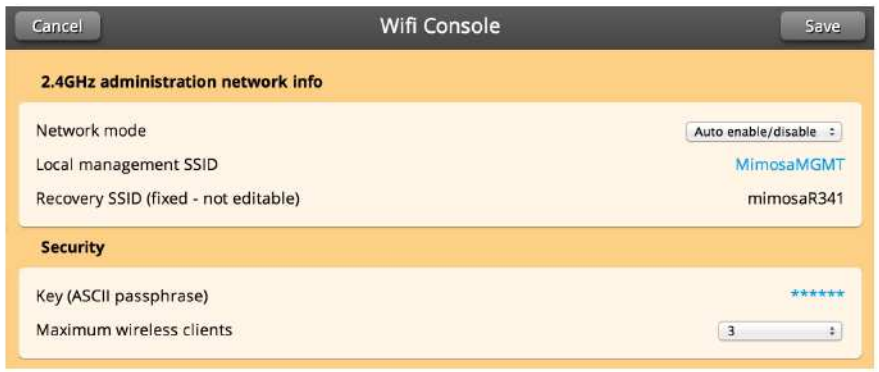
Password

To change either password, the current password will be required.

Services

Manage via ethernet/ wireless inks (in band)	Enables the device to be accessed from connections in addition to the 2.4 GHz connection. If manage via ethernet is turned **Of** you will be unable to manage the device via Ethernet (LAN or WAN side).
Device Discovery	Determines whether the device will be discoverable on the network by other Mimosa or LLDP devices.
Management VLAN (ID)	Turning **On** and setting the VLAN ID identifies which VLAN will be used to remotely manage the device.
Web Server Port	Indicate which TCP port will be used for the web server.
Secure Web Server (HTTPS)	Indicate which TCP port will be used for the secure web server.
Dynamic DNS	The device provides Dynamic DNS software which interoperates with several diferent DDNS services. To use Dynamic DNS, you must already subscribe to a DDNS provider (refer to the drop-down in the interface for a list of compatible providers). Required parameters for activation include the **Host Name** of the DDNS service, and your **Username** and **Password.**
Session Timeout	Number of minutes of inactivity that will be allowed on the interface before automatic log-out.

WiFi Console



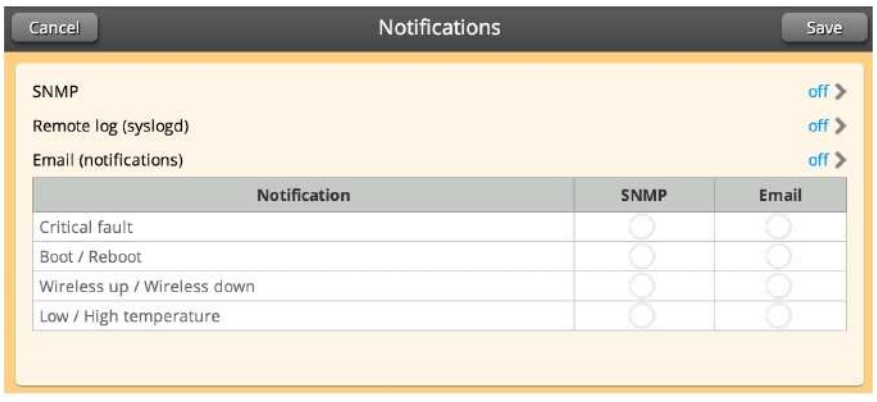
WARNING: If you turn of the 2.4 GHz management, you must have an in-band method of accessing your device. If you have turned of your 2.4 GHz management and are now unable to access your device, you may always access your device via your **Recovery SSID**.

To do this, unplug the device's ethernet cable connection. Then, unplug the PoE (Power over Ethernet) and plug the PoE back in to cycle power. The recovery SSID will now be broadcast and must be accessed within 2 minutes, after which the 2.4 GHz management will be disabled again.

Once you are connected to the 2.4 GHz management system, type **http://recovery.mimosa.com** into your browser to reach the interface. After you have managed the device through the Recovery mode, reconnect the device's ethernet cable.

Network Mode	Enable or Disable the 2.4 GHz management network. You can also set the mode to auto enable/disable. This mode turns the 2.4 GHz management system on for a limited time (2 minutes) when the device is being booted and then turns of.
Local Management SSID	The SSID name for the 2.4 GHz local management interface.
Recovery SSID	This SSID is fixed as a fallback recovery of the device management system.
Key (ASCII passphrase)	Enter a passphrase to generate a WPA2-PSK key for securing the 2.4GHz 802.11 management interface
Maximum wireless clients	Assign the maximum number of wireless clients that can access the 2.4GHz 802.11 management interface (simultaneously associated).

Notifications



SNMP	Enables SNMP notifications (traps) to a remote server. Required/optional parameters include **SNMP community string**, **Contact**, **Location** and **Trap Server**.
Remote Log (syslogd)	Enables configuration of syslogd remote logging for the device. Required parameters include **Remote log IP address** and **Remote log port**.
Email notifications	Enables SMTP mail server based email notifications for desired device events. An external SMTP mail service is required for this function to operate.

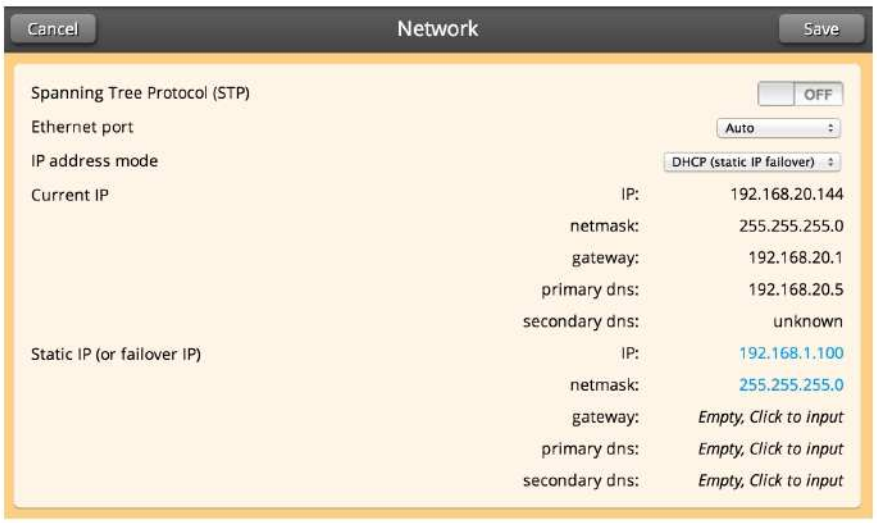
The notification section also contains a chart that determines which notification types will be turned on or off, and to which notification system they will be sent. Update these notifications by clicking the circles in the grid to check on or off.

Notification	Description
Critical Fault	Notification created if the device is forced to reboot or if GPS signal is lost.
Boot/Reboot	Notification created if system boots or reboots.
Wireless Up/ Wireless Down	Notification created if device connects to (**Wireless Up**) or disconnects from (**Wireless Down**) another device.
Low/High Temperature	Notification created if device temperature drops below -40C or rises above +60C.

Time and Location

GPS	Enables the integrated GPS (if provided) to allow the device to update location details automatically. This setting only impacts automatic location population for Longitude/Latitude, it does not impact any synchronized transmission features for collocating Mimosa devices which utilize GPS based timing.
Time Zone	Manually update the time zone of the device.
Source	Indicates where the location information is being derived from.
Latitude	Manually update the latitude of the device.
Longitude	Manually update the longitude of the device.
Mode	Determines the method the device uses for . Change Mode to **Of**, **GPS** (get time from GPS), **GPS Fallback** (get time from NTP server. If NTP does not have time, fallback to GPS) or **GPS override**.
NTP Server	Identify the NTP server for the device.

Network



Spanning Tree Protocol (STP)	Enables IEEE 802.1D Spanning Tree Protocol on the device for identifying shortest network path and eliminating network loops (in redundantly designed networks). Activating STP enables the device to communicate with other STP devices on the network by sending and receiving Bridge Data Protocol Unit (BDPU) packets.
Ethernet Port	Specify the type of Ethernet port to which the device is connected (**10BASE-T**, **100BASE-T**, **1000BASE-T**), or use **Auto** automatically detect the Ethernet link mode.
IP address mode	If **Static** is chosen, the device will always use the IP address that you have assigned. If **DHCP (Static IP failover)** is chosen, the DHCP address assigned by your DHCP server will be used. In case of loss of communication with the DHCP server, the static IP (or failover IP) that you manually assigned will be used.
Current IP	Displays IP information in use currently (depending on **IP address mode** and status of the DHCP server).
Static IP (or failover IP)	Use this section to assign a failover or static IP information. The IP settings must be consistent with the address space of the device's intended network segment.

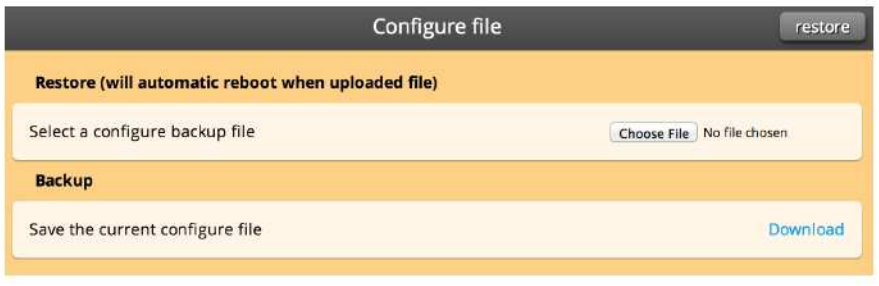
Update and Reset

To update the firmware, go to the Mimosa website and download the latest interface firmware file. Then choose that file to upload under **Choose File**. Then click **Update** in the upper right hand corner.

To reset to factory configuration or to reboot your device, simply click the **Reset now**.

To reboot the device, simply click **Reboot now**.

Configure File



To restore a previous configuration, click Choose File in the restore section and select a previously saved file. Then, click Restore in the upper right corner to restore a previous configuration.

To save a configuration for later restoration, click **Download**. This will download the current configuration into a file.

Diagnostics

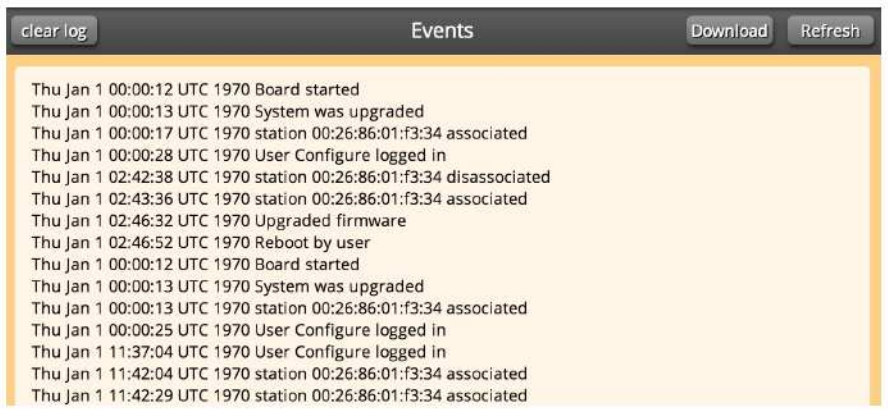
The diagnostics section of the interface contains all continuously updated status and monitoring information regarding your device. All diagnostic files can be downloaded to your computer using the upper right hand **Download** button.

Watchdog

Watchdog Ping can be turned **On** or **Off**. If **Watchdog IP Ping** is turned to **On** and it perceives failure in the network, your device will reboot.

Ping IP address	Input IP address to ping.
Interval (second)	Specify how often **Watchdog** should ping the IP address.
Delay after startup (second)	Specify the length of time prior to the first ping.
Failure count triggering reboot	Specify how many failed pings are required to trigger a reboot.

Events



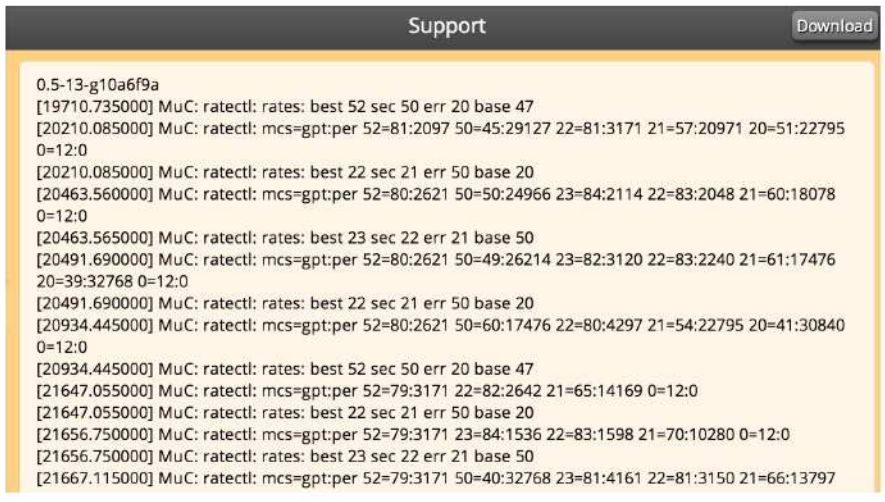
This is a log of all significant events that occur, not just the events that are set to **On** notification. This log will be saved regardless of reboots.

Syslog

This section contains a list of all status, minor and significant events experienced by the device. This information is cleared with each device reboot.

Support

This information can be downloaded and sent to Mimosa for support.



About Mimosa Networks

Mimosa Networks, Inc. Corporate Headquarters

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Campbell CA 95008

Support Information

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E-mail: support@mimosa.co

Phone: +1 (408) 628-1277 in the United States or Canada

Resources

Website: http://www.mimosa.co

FCC/IC

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-- Reorient or relocate the receiving antenna.

-- Increase the separation between the equipment and receiver.

-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-- Consult the dealer or an experienced radio/TV technician for help.

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by Purple Communications, Inc, may void the user's authority to operate the equipment.

English

This devices complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

1.This device may not cause harmful interference;

2.This device must accept any interference received, including interference that may cause undesired operation of the device.

French

Cet appareil est conforme à Industrie Canada une licence standard RSS exonérés (s). Son fonctionnement est soumis aux deux conditions suivantes:

1. Cet appareil ne doit pas provoquer d'interférences
2. Cet appareil doit accepter toute interférence reçue, y compris les interférences pouvant provoquer un fonctionnement indésirable de l'appareil.

RF EXPOSURE

The radiated output power of this device is below the FCC radio frequency exposure limits. Nevertheless, the device should be used in such a manner that the potential for human contact during the normal operation is minimized. In order to avoid the possibility of exceeding the FCC radio frequency exposure limit, human proximity to the antenna should be more than 1m.

La puissance de sortie rayonnée de cet appareil est inférieure aux limites d'exposition de radio de fréquence FCC. Néanmoins, le dispositif doit être utilisé de telle manière que le potentiel pour le contact humain pendant l'utilisation normale soit minimisé. Afin d'éviter la possibilité de dépasser la limite d'exposition de fréquence radio de la FCC, la proximité humaine à l'antenne devrait être plus que 1m.