RX Capacity Displays the potential RX throughput, how much the airFiber X radio can receive, after accounting for the modulation and error rates.

TX Power (EIRP) Displays the current average transmit output power (in dBm) of the airFiber X radio.

> 📓 Note: If "(Limited)" is displayed, the transmit output power has been limited to a value less than the selected value, to comply with regulatory region requirements. For a list of maximum output power values by country and region, refer to **"Frequency Ranges and Power Levels per Country/Region" on page 63**.

Conducted TX Power Displays the conducted transmit power out of the radio before any antenna gain.

Net Gain Displays the airFiber X radio's net antenna gain, which is the antenna gain minus cable loss. Antenna gain (the gain of the antenna being used) and cable loss (the loss in the cable from the radio to the antenna) are set using the *Antenna Gain* and *Cable Loss* fields on the *Wireless* tab.

Remote TX Power (EIRP) Displays the current average transmit output power (in dBm) of the remote airFiber X radio.

Distance Displays the distance between the airFiber X radios.

GPS Signal Quality Displays Global Positioning System (GPS) signal quality as a percentage value on a scale of 0-100%.

Latitude/Longitude Based on GPS tracking, reports the device's current latitude and longitude. Clicking the link opens the reported latitude and longitude in a browser using Google Maps™ (**http://maps.google.com**).

Altitude Based on GPS tracking, reports the device's current altitude relative to sea level.

Synchronization airFiber uses GPS to synchronize the timing of its transmissions. By default, this option is disabled.

Ethernet

MGMT MAC Displays the MAC address of the *Management* port.

MGMT Displays the speed and duplex of the *Management* port.

DATA Displays the speed and duplex of the *Data* port.

DATA Cable Length Displays the Ethernet cable length from radio to remote port. This is displayed only for cables longer than 20 m.

DATA Pair 0 (Pins 1,2) If the cable is functioning properly, displays the SNR of the twisted pair; if the cable has a fault, displays the fault ("open" or "short") and the distance at which the fault has occurred. If the remote port is administratively shut down, this field displays "normal".

DATA Pair 1 (Pins 3,6) If the cable is functioning properly, displays the SNR of the twisted pair; if the cable has a fault, displays the fault ("open" or "short") and the distance at which the fault has occurred. If the remote port is administratively shut down, this field displays "normal".

DATA Pair 2 (Pins 4,5) If the cable is functioning properly, displays the SNR of the twisted pair; if the cable has a fault, displays the fault ("open" or "short") and the distance at which the fault has occurred. If the remote port is administratively shut down, this field displays "normal".

DATA Pair 3 (Pins 7,8) If the cable is functioning properly, displays the SNR of the twisted pair; if the cable has a fault, displays the fault ("open" or "short") and the distance at which the fault has occurred. If the remote port is administratively shut down, this field displays "normal".

Monitor

There are two monitoring tools accessible via the links on the *Main* tab. The default is *Performance*, which is displayed when you first open the *Main* tab.

Performance

Throughput and *Capacity* charts display the current and potential data traffic.
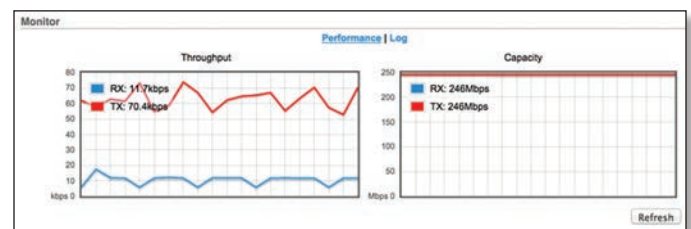
Throughput

Throughput displays the current data traffic on the *Data* port in both graphical and numerical form. The chart scale and throughput dimension (Bps, Kbps, Mbps) change dynamically depending on the mean throughput value. The statistics are updated automatically.
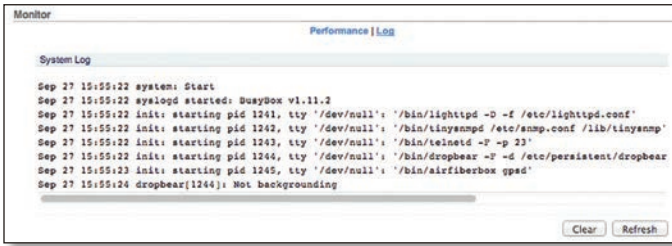
Capacity

Capacity displays the potential data traffic on the *Data* port in both graphical and numerical form. The chart scale and throughput dimension (Bps, Kbps, Mbps) change dynamically depending on the mean throughput value. The statistics are updated automatically.

Refresh If there is a delay in the automatic update, click **Refresh** to manually update the statistics.

Log

When logging is enabled (see **"System Log" on page 29** to enable logging), this option lists all registered system events. By default, logging is not enabled.
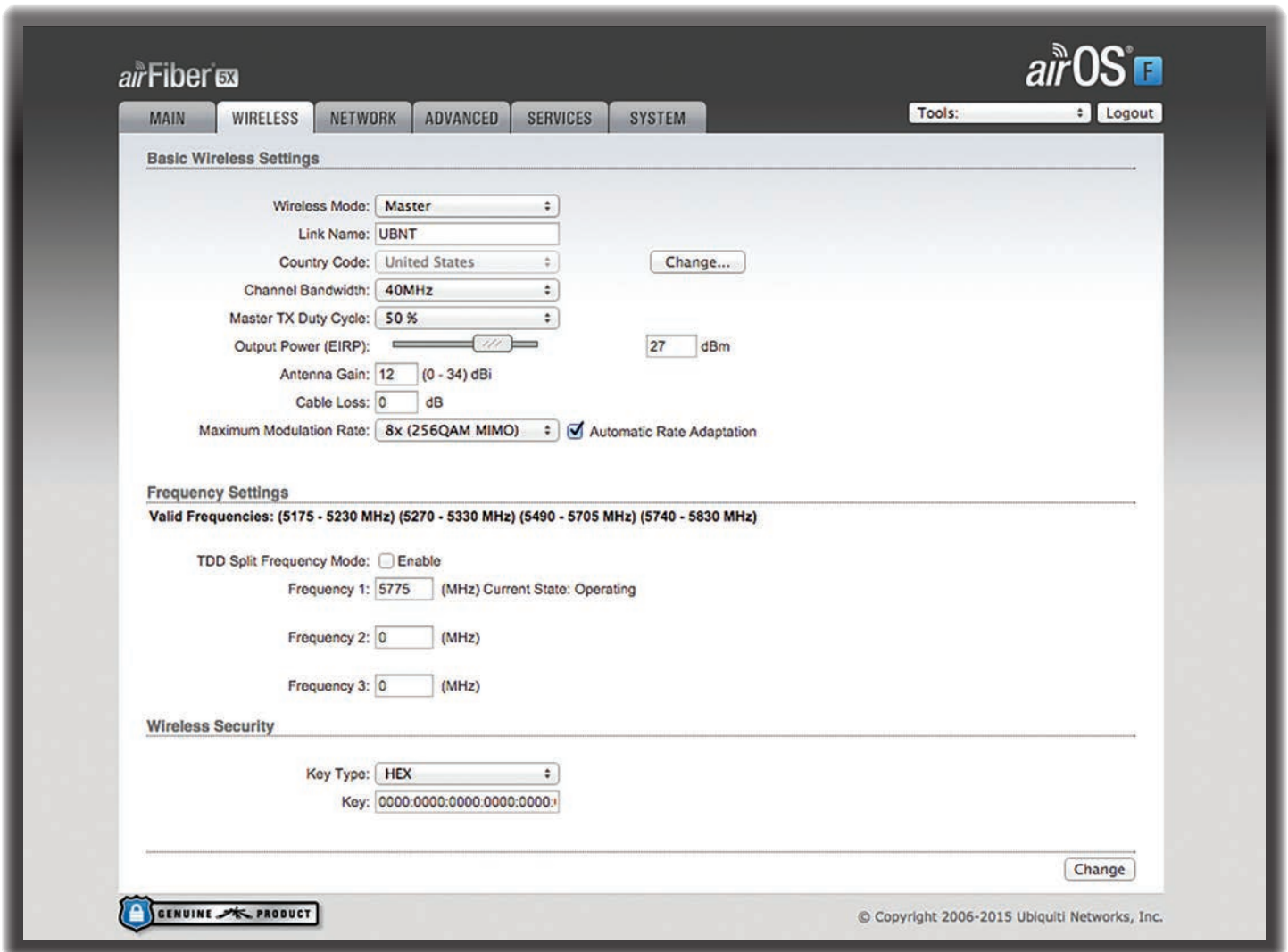

Clear To delete all entries in the system log, click **Clear**.

Refresh To update the log content, click **Refresh**.

Chapter 5: Wireless Tab

The *Wireless* tab contains options to set up the wireless part of the link. This includes wireless mode, link name, frequencies, output power, speed, and wireless security.

Change To save or test your changes, click **Change**.

A new message appears. You have three options:

- **Apply** To immediately save your changes, click **Apply**.
- **Test** To try the changes without saving them, click **Test**. To keep the changes, click **Apply**. If you do not click *Apply* within 180 seconds (the countdown is displayed), the airFiber X radio times out and resumes its earlier configuration.
- **Discard** To cancel your changes, click **Discard**.

Write down the settings you configure on the *Wireless* tab. You will need to enter the same settings on the airFiber X radio at the other end of your PtP link. The exceptions are as follows:

- **Wireless Mode** Configure one airFiber X radio as the *Master* and the other as the *Slave*.

Basic Wireless Settings

In this section, configure the basic wireless settings, such as wireless mode, link name, country code, frequencies, output power, speed, and gain.
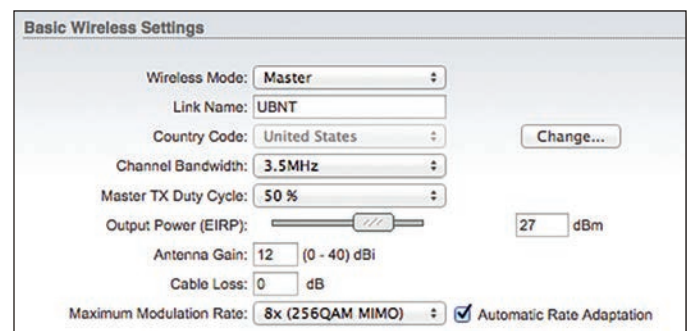
Wireless Mode By default, the Wireless Mode is *Slave*. You must configure one airFiber X radio as **Master** because each PtP link must have one *Master*.
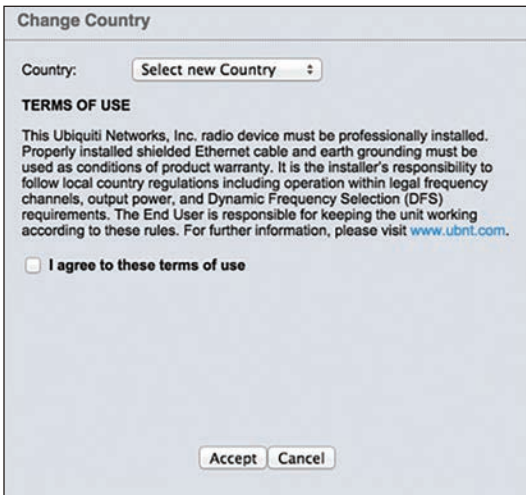
Link Name Enter a name for your PtP link. This name must be the same on both Master and Slave radios in order for them to connect.

Country Code Each country has its own power level and frequency regulations. *To ensure the airFiber X radio operates under the necessary regulatory compliance rules, you must select the country where your device will be used*. The frequency settings and output power limits will be tuned according to the regulations of the selected country. For details, refer to this table, **"Frequency Ranges and Power Levels per Country/Region" on page 63**.

This radio is restricted to use with a license and to use only in certain EU countries or geographical areas of EU countries.

• **Change** To select a new country, click **Change**.

Note: U.S. product versions are locked to the U.S. Country Code to ensure compliance with FCC regulations.

- **Country** Select the new country.
- **I agree to these terms of use** Check this box; you must agree to the *Terms of Use* to use the product.
- **Accept** Saves your change.
- **Cancel** Discards your change.

Channel Bandwidth Select the appropriate channel size:

• AF-2X and AF-3X: **3.5**, **5**, **7**, **10**, **14**, **20**, **28**, **30**, **40**, **50**, or **56 MHz**

• AF-5X only: **5**, **10**, **20**, **30**, **40**, or **50 MHz**

Note:. The available channel bandwidths depend on the regulatory requirements of the currently selected country or region.

Frame Length (Available on AF-2X and AF-3X only.) Use this to specify the frame length of the radio: **default**, **2.0ms**, **2.5ms**, **4.0ms,** or **5ms**. The frame length must be the same on both Master and Slave radios. The *default* value corresponds to *5ms* for the 3.5 MHz and 5 MHz bandwidths, or *2.0ms* for all other bandwidths.

Note:. The AF-5X uses a frame length of 2.0ms (this value cannot be changed).

Master TX Duty Cycle Use this to change the duty cycle of the RF link (the Master's TX percentage). Choose one of the following values: **25%**, **33%**, **50%**, **67%**, or **75%**.

Output Power (EIRP) Defines the maximum average transmit output power (in dBm) of the airFiber X radio. To specify the output power, use the slider or manually enter the output power value. The transmit power level maximum is limited according to country regulations.

Note: The *Antenna Gain* and *Cable Loss* should be configured before the *Output Power*. This is because the range of the *Output Power* field is affected by the *Antenna Gain* and *Cable Loss* values – changing the antenna gain or cable loss adjusts the maximum and minimum values you can select using the *Output Power* slider. Since the *Output Power* already includes the antenna gain and cable loss, it represents EIRP; therefore, the value of *Output Power* is actually the total power the radio is transmitting over the air. The current transmit power is displayed by the TX Power EIRP setting on the *Main* tab.

Note: The airFiber X radio may limit the output power to a value less than the value specified by this field, to comply with regulatory region requirements. For a list of maximum output power values by country and region, refer to **"Frequency Ranges and Power Levels per Country/Region" on page 49**.

Antenna Gain Enter the gain in dBi of the antenna that is used in your installation. An improper value could cause DFS false detections when operating on DFS frequencies.

Cable Loss Enter the cable loss in dB of the cable that is used in your installation. An improper value could cause DFS false detections when operating on DFS frequencies.

Note: If you are using the airFiber AF-5X radio with an airFiber NxN Multiplexer, set the *Cable Loss* to a value that includes the *additional* cable loss due to the Multiplexer. The additional cable loss (in dB) is:

• **4.1** for the AF-MPx4, or

• **7.2** for the AF-MPx8

Maximum Modulation Rate or Modulation Rate Higher modulations support greater throughput but generally require stronger RF signals and a higher Signal-to-Noise Ratio (SNR). By default, *Automatic Rate Adaptation* is enabled, and *Maximum Modulation Rate* is displayed. This allows the airFiber X radio to automatically adjust the modulation rate to changing RF signal conditions. Under certain conditions, you may prefer to lock the *Maximum Modulation Rate* to a lower setting to improve link performance.

When *Automatic Rate Adaptation* is disabled, *Modulation Rate* is displayed. Lock the *Modulation Rate* to the setting of your choice.

Select one of the available modulation rates:

- **8x (256QAM MIMO)**
- **6x (64QAM MIMO)**
- **4x (16QAM MIMO)**
- **2x (QPSK MIMO)**
- **1x (½ Rate QPSK xRT)**
- **¼x (¼ Rate QPSK xRT)**

Frequency Settings

The *Valid Frequencies* for your *Country Code* selection are displayed. Ensure that you use frequencies that comply with the local country regulations.

TDD Split Frequency Mode This option lets you configure separate frequencies for TX and RX. To configure split frequencies, enable this option and select a different RX frequency on each side of the link. This feature is useful if both sides of the link do not have a common, clean frequency. It is important for the RX frequency to be clean; if different frequencies are clean on each end of the link, select the clean RX frequency on each end.

AF-2X Split Frequency Settings

AF-3X Split Frequency Settings

AF-5X Split Frequency Settings

Note for AF-5X only: Split frequency mode is not available in DFS bands because the RX frequency must match the TX frequency to allow the receiver to scan for DFS on the TX frequency. In regions where both DFS and non-DFS frequencies are available, enabling split frequencies will disable any DFS band frequencies. In regions where only DFS frequencies are available, there will be no option to turn on split frequencies.

Frequency Enter a valid frequency. The current state is displayed.

Note: The Master and Slave should have the same *Frequency* setting.

Wireless Security

airFiber uses 128-bit, AES (Advanced Encryption Standard) encryption at all times.

Key Type Specifies the character format.

- **HEX** By default, this option uses hexadecimal characters. 0-9, A-F, or a-f are valid characters.
- **ASCII** ASCII uses the standard English alphabet and numeric characters (0-9, A-Z, or a-z).

Key Select the format of the MAC address.

- **HEX** Enter 16 bytes (eight, 16-bit HEX values). You can omit zeroes and use colons, similar to the IPv6 format. The default is:
  0000:0000:0000:0000:0000:0000:0000:0000

  Note: The airFiber Configuration Interface supports IPv6 formats excluding dotted quad and "::" (double-colon) notation.

- **ASCII** Enter a combination of alphanumeric characters. Using 128-bit SHA1 (Secure Hash Algorithm 1), the airFiber X radio hashes the ASCII key to create a 128-bit key for AES.
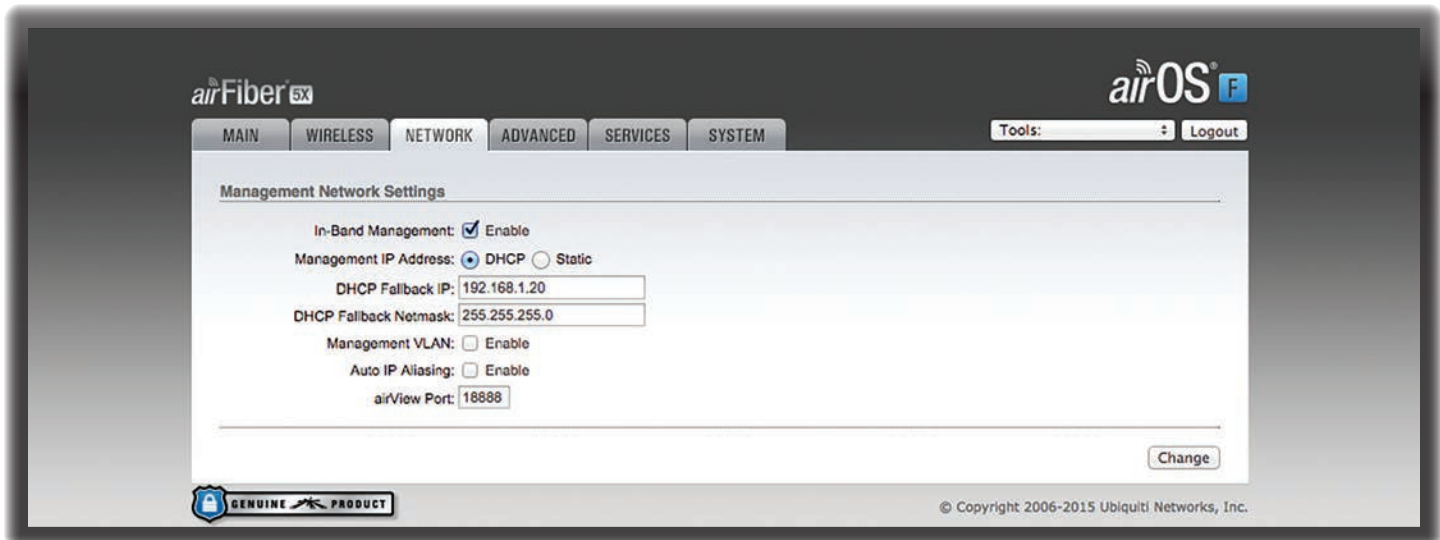
Chapter 6: Network Tab

The *Network* tab allows you to configure settings for the management network. There are two ways to access the airFiber Configuration Interface:

- **Management Port** Enabled by default. Use a direct connection to the *Management* port for out-of-band management.
- **In-Band Management** Enabled by default. In-band management is available through the local *Data* port or the *Data* port at the other end of the link.

The *Management* port and in-band management share the default IP address of *192.168.1.20*.

Change To save or test your changes, click **Change**.

A new message appears. You have three options:

- **Apply** To immediately save your changes, click **Apply**.
- **Test** To try the changes without saving them, click **Test**. To keep the changes, click **Apply**. If you do not click *Apply* within 180 seconds (the countdown is displayed), the airFiber X radio times out and resumes its earlier configuration.
- **Discard** To cancel your changes, click **Discard**.

Management Network Settings

In-Band Management Enabled by default. In-band management is available through the local *Data* port or the *Data* port at the other end of the link.

> Note: If *In-Band Management* is enabled, ensure that each airFiber X radio in a link has a unique *IP Address*. If the airFiber X radios use the same *IP Address*, you may lose access via the *Data* ports.

Management IP Address The airFiber X radio can use a static IP address or obtain an IP address from its DHCP server.

- **DHCP** Keep the default, *DHCP*, to use DHCP reservation on your router to assign a unique *IP Address*. The local DHCP server assigns a reserved IP address, gateway IP address, and DNS address to the airFiber X radio.

  > Note: If you select the *DHCP* option, ensure that you use DHCP reservation because if you do not know the IP address, then the only way to manage the airFiber X radio is to reset the airFiber X radio to its factory default settings. (Press and hold the **Reset** button for more than five seconds.) Its default *Management IP Address* is reset to *192.168.1.20*.
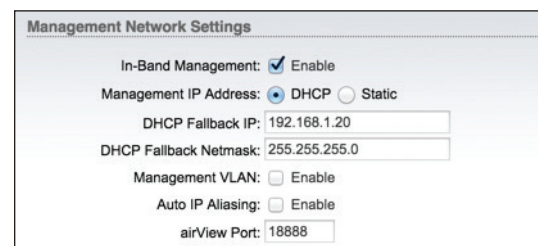
  - **DHCP Fallback IP** Specify the IP address the airFiber X radio should use if a DHCP server is not found.
  - **DHCP Fallback Netmask** Specify the netmask the airFiber X radio should use if a DHCP server is not found.

- **Static** Assign static IP settings to the airFiber X radio.

  > Note: IP settings should be consistent with the address space of the airFiber X radio's network segment.

Management Network Settings

In-Band Management: ☑ Enable
Management IP Address: ○ DHCP ◉ Static
IP Address: 0.0.0.0
Netmask: 255.255.255.0
Gateway IP: 192.168.1.1
Primary DNS IP:
Secondary DNS IP:
Management VLAN: ☐ Enable
Auto IP Aliasing: ☐ Enable
airView Port: 18888

airView Port The port number associated with the airView spectrum analyzer tool. The default value is *18888*. For detailed information on the airView tool, refer to **"airView" on page 36**.

- **IP Address** Specify the IP address of the airFiber X radio. This IP will be used for device management purposes.

- **Netmask** When the netmask is expanded into its binary form, it provides a mapping to define which portions of the IP address range are used for the network devices and which portions are used for host devices. The netmask defines the address space of the airFiber X radio's network segment. The 255.255.255.0 (or "/24") netmask is commonly used on many Class C IP networks.

- **Gateway IP** Typically, this is the IP address of the host router, which provides the point of connection to the Internet. This can be a DSL modem, cable modem, or WISP gateway router. The airFiber X radio directs data packets to the gateway if the destination host is not within the local network.

- **Primary DNS IP** Specify the IP address of the primary DNS (Domain Name System) server.

- **Secondary DNS IP** Specify the IP address of the secondary DNS server. This entry is optional and used only if the primary DNS server is not responding.

Management VLAN If enabled, automatically creates a management Virtual Local Area Network (VLAN).

• **VLAN ID** Enter a unique VLAN ID from 2 to 4094.

Auto IP Aliasing If enabled, automatically generates an IP address for the corresponding WLAN/LAN interface. The generated IP address is a unique Class B IP address from the 169.254.X.Y range (netmask 255.255.0.0), which is intended for use within the same network segment only. The Auto IP always starts with 169.254.X.Y, with X and Y as the last two octets from the MAC address of the airFiber X radio. For example, if the MAC address is 00:15:6D:A3:04:FB, then the generated unique Auto IP will be 169.254.4.251. (The hexadecimal value, *FB*, converts to the decimal value, *251*.)

The Auto IP Aliasing setting can be useful because you can still access and manage devices even if you lose, misconfigure, or forget their IP addresses. Because an Auto IP address is based on the last two octets of the MAC address, you can determine the IP address of a device if you know its MAC address.
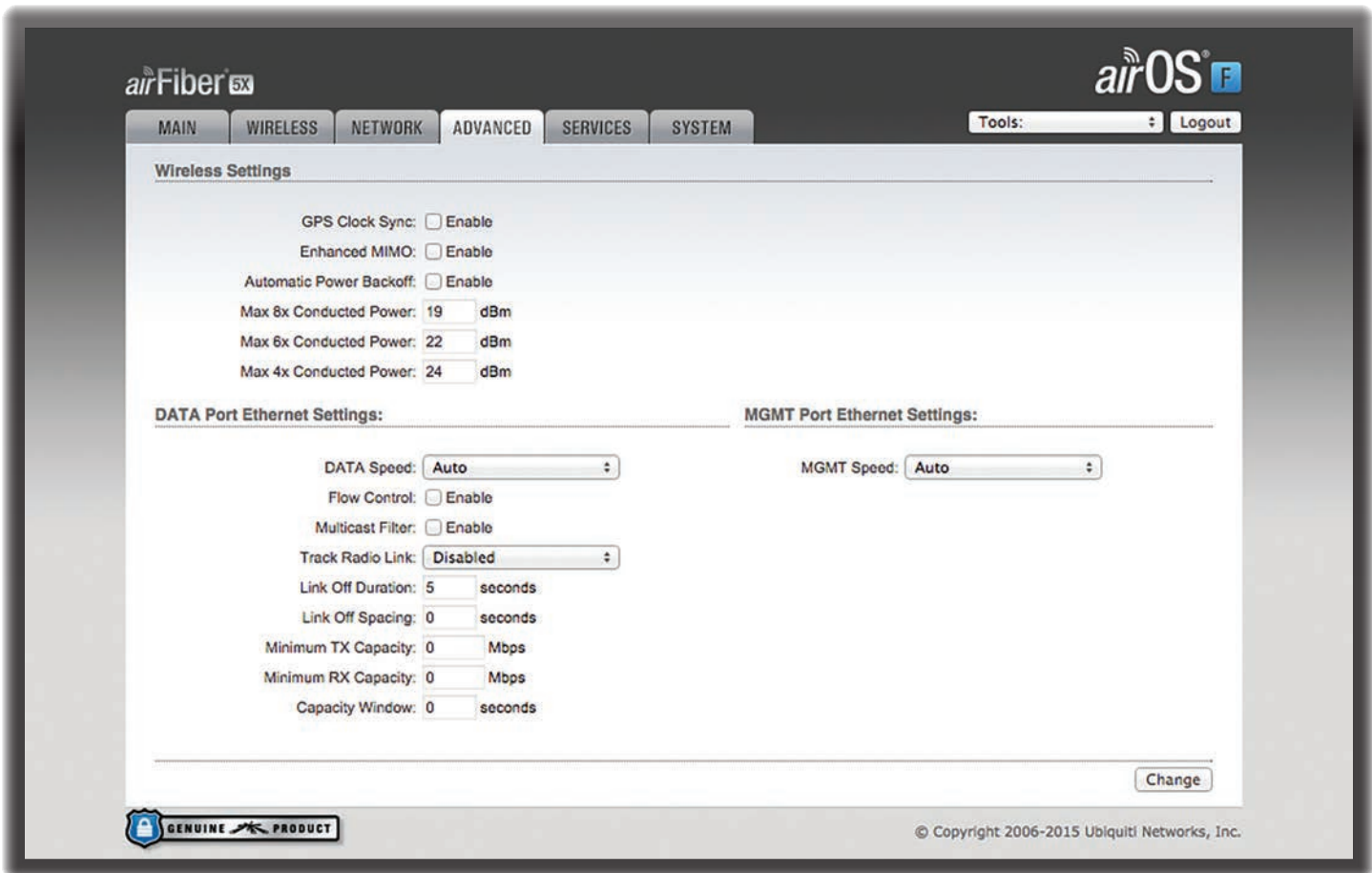
Chapter 7: Advanced Tab

The *Advanced* tab handles advanced wireless and Ethernet settings. These settings should not be changed unless you understand how the changes will affect the airFiber X radio.

Change To save or test your changes, click **Change**.

A new message appears. You have three options:

- **Apply** To immediately save your changes, click **Apply**.

- **Test** To try the changes without saving them, click **Test**. To keep the changes, click **Apply**. If you do not click *Apply* within 180 seconds (the countdown is displayed), the airFiber X radio times out and resumes its earlier configuration.

- **Discard** To cancel your changes, click **Discard**.

Wireless Settings
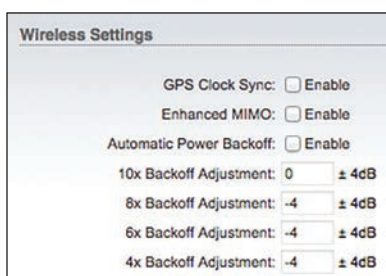
GPS Clock Sync The airFiber uses GPS to synchronize the timing of its transmissions. By default, this option is disabled.

Automatic Power Backoff This feature allows the radio to automatically adjust the maximum TX power per modulation so that the radio never transmits at a higher power than each modulation rate can decode. The default values in the *Max 8x/6x/4x Conducted Power* fields are values determined to work at all temperatures and all frequencies supported by the radio.

It may, however, be possible to increase the maximum TX power for one or more modulations based on your radio's operating environment. For example, if a radio is running at 6x and trying to switch into 8x operation, you can increase the *Max 8x Conducted Power* value 1 dB at a time to see if the radio can maintain 8x operation (*Automatic Power Backoff* must be enabled to allow the *Max Conducted Power* fields to be edited). The same can be done with 6x and 4x up to the maximum conducted power of the radio.

Max 8x/6x/4x Conducted Power The maximum conducted power for the 8x/6x/4x modulation rates. Each field is editable only if *Automatic Power Backoff* is enabled.

DATA Port Etherbet Settings
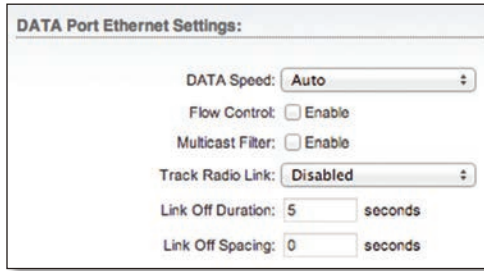
DATA Speed This is the speed of the *Data* port. The default is **Auto.** The airFiber X radio automatically negotiates transmission parameters, such as speed and duplex, with its counterpart. In this process, the networked devices first share their capabilities and then choose the fastest transmission mode they both support.

To manually specify the maximum transmission link speed and duplex mode, select one of the following options: **100 Mbps-Full**, **100 Mbps-Half**, **10 Mbps-Full**, or **10 Mbps-Half**.

To disable the Ethernet data port, select **Disabled**.

> 📋 Note: If *Disabled* is selected, ensure that the radio is accessible using the *Management* Ethernet port or over the RF link (with in-band management enabled), or all communication with the radio will be lost.

Full-duplex mode allows communication in both directions simultaneously. Half-duplex mode allows communication in one direction at a time, alternating between transmission and reception.

Flow Control If enabled, the airFiber X radio generates and responds to Ethernet layer PAUSE frames. The airFiber X radio regulates inbound traffic from the customer's network to avoid buffer overflows within the airFiber X radio. Flow control has the effect of controlling the inter-packet spacing of packets headed into the airFiber Data interface.

Multicast Filter If enabled, the filter blocks multicast traffic from overloading the CPU when in-band management is enabled. This allows the airFiber X radio to be managed in-band when the customer's network is carrying large volumes of multicast traffic, such as IPTV. The filter does not block multicast traffic going over the radio; it simply blocks it from reaching the airFiber's management interface CPU.

Track Radio Link If this option is enabled, the airFiber X radio disconnects the Data port's Ethernet link when the RF link is lost (The Management port is never disabled by this option). The *Track Radio Link* option is useful because it quickly indicates a "link lost" condition to the customer's routing equipment (such as a direct connection to OSPF-enabled routers).

- **Disabled** The *Track Radio Link* option is disabled by default. The Data port's Ethernet link will always remain up regardless of the RF link state.

- **Use Timeout Duration** This option is designed for use by operators who are using in-band management. Two timers control the Data port's Ethernet link.

RF Link	Ethernet Link	Notes
Goes down for the first time	The Ethernet link goes down and remains down for the number of seconds specified by the *Link Off Duration* timer. The Ethernet link will then come back up so that the airFiber X radio can be managed even when the RF link is down.	Even if the RF link goes back up before the *Link Off Duration* timer elapses, the Ethernet link remains down. The Ethernet link's downtime is long enough to signal to the customer's routing equipment that the path is lost.
Goes down for the second time	The Ethernet link remains up as long as time remains on the *Link Off Spacing* timer. When the *Link Off Spacing* timer elapses, then the Ethernet link goes down again for the number of seconds specified by the *Link Off Duration* timer. (This happens only if the RF link is still down.)	The Ethernet link's uptime is long enough so the operator has enough time to access the airFiber X radio, make configuration changes, and save those changes. Sufficient Ethernet link uptime is vital when a RF link is constantly up and down.

If the *Use Timeout Duration* option is enabled, the *Track Radio Link* option and the following timers are enabled:

- **Link Off Duration** The *Link Off Duration* timer controls the length of time the Data port's Ethernet link will be down if the RF link goes down. Enter the number of seconds that the Ethernet link should be offline. For example, if this is set to 10 seconds, then when the RF link goes down, the Ethernet link will go down and remain down for 10 seconds (regardless of the RF link state), and then it will go back up.

- **Link Off Spacing** The *Link Off Spacing* timer controls the length of time the airFiber X radio will wait before allowing the Data port's Ethernet link to go down for a second time if the RF link goes down again. Enter the minimum interval (in seconds) between offline events of the Ethernet link, regardless of the RF link status. The value for *Link Off Spacing* should be larger than the value for *Link Off Duration*, and it should be enough time for the operator to access the airFiber X radio, make any configuration changes, and apply those changes.

> 📋 Note: If the *Link Off Spacing* timer is set to 0 seconds, then the Ethernet link will only use the *Link Off Duration* timer. If the *Link Off Duration* timer is set to 10 seconds and the RF link goes down, then the Ethernet link will go down for 10 seconds and then go back up regardless of the RF link state. If the RF link is still down, then the Ethernet link will not go down again until the RF link goes back up and then down again.

Here are a couple of examples involving the use of the *Use Timeout Duration* option.

- Example #1
    - **Link Off Duration** *5* seconds
    - **Link Off Spacing** *60* seconds

    The Data port's Ethernet link will be initially disconnected when the RF link first goes down. That event will start a 60-second timer. The Ethernet link will remain offline for 5 seconds (regardless of the RF link status) and then come back online. The Ethernet link will remain online (regardless of the RF link state) until the 60-second timer expires.

- Example #2
    - **Link Off Duration** *20* seconds
    - **Link Off Spacing** *120* seconds

    The Data port's Ethernet link will be initially disconnected when the RF link first goes down. That event will start a 120-second timer. The RF link goes back up after 10 seconds; however, that does not affect the Ethernet link. The Ethernet link will remain offline for 20 seconds and then come back online. The RF link goes down again after 60 seconds; however, that does not affect the Ethernet link. The Ethernet link will then remain online until the 120-second timer expires.

- **Enabled** This option is designed for use by operators who are not using in-band management. The *Track Radio Link* option is enabled without timers, so the Data port's Ethernet link follows the RF link state exactly. If the RF link goes down, then the Ethernet link goes down and remains down until the RF link goes back up.

Minimum TX Capacity This is the minimum allowable TX capacity before the link is dropped. If the capacity drops below this threshold, the Ethernet link will be dropped. If set to 0, then capacity will not be used; only the RF link state will be used.

Minimum RX Capacity This is the minimum allowable RX capacity before the link is dropped. If the capacity drops below this threshold, the Ethernet link will be dropped. If set to 0, then capacity will not be used; only the RF link state will be used.

Capacity Window This is the number of continuous seconds that the radio must remain under the minimum TX or RX capacity before the link is dropped. If set to 0, then as soon as capacity drops below a set limit, the Ethernet link will be dropped.

MGMT Port Ethernet Settings
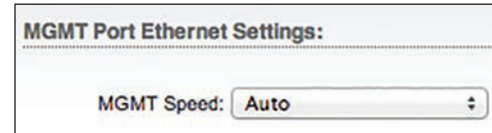
MGMT Speed This is the speed of the *Management* port. By default, the option is **Auto.** The airFiber X radio automatically negotiates transmission parameters, such as speed and duplex, with its counterpart. In this process, the networked devices first share their capabilities and then choose the fastest transmission mode they both support.

To manually specify the maximum transmission link speed and duplex mode, select one of the following options: **100 Mbps-Full**, **100 Mbps-Half**, **10 Mbps-Full**, or **10 Mbps-Half.** If you are running extra long Ethernet cables, a link speed of *10* Mbps could help to achieve better stability.

Full-duplex mode allows communication in both directions simultaneously. Half-duplex mode allows communication in one direction at a time, alternating between transmission and reception.
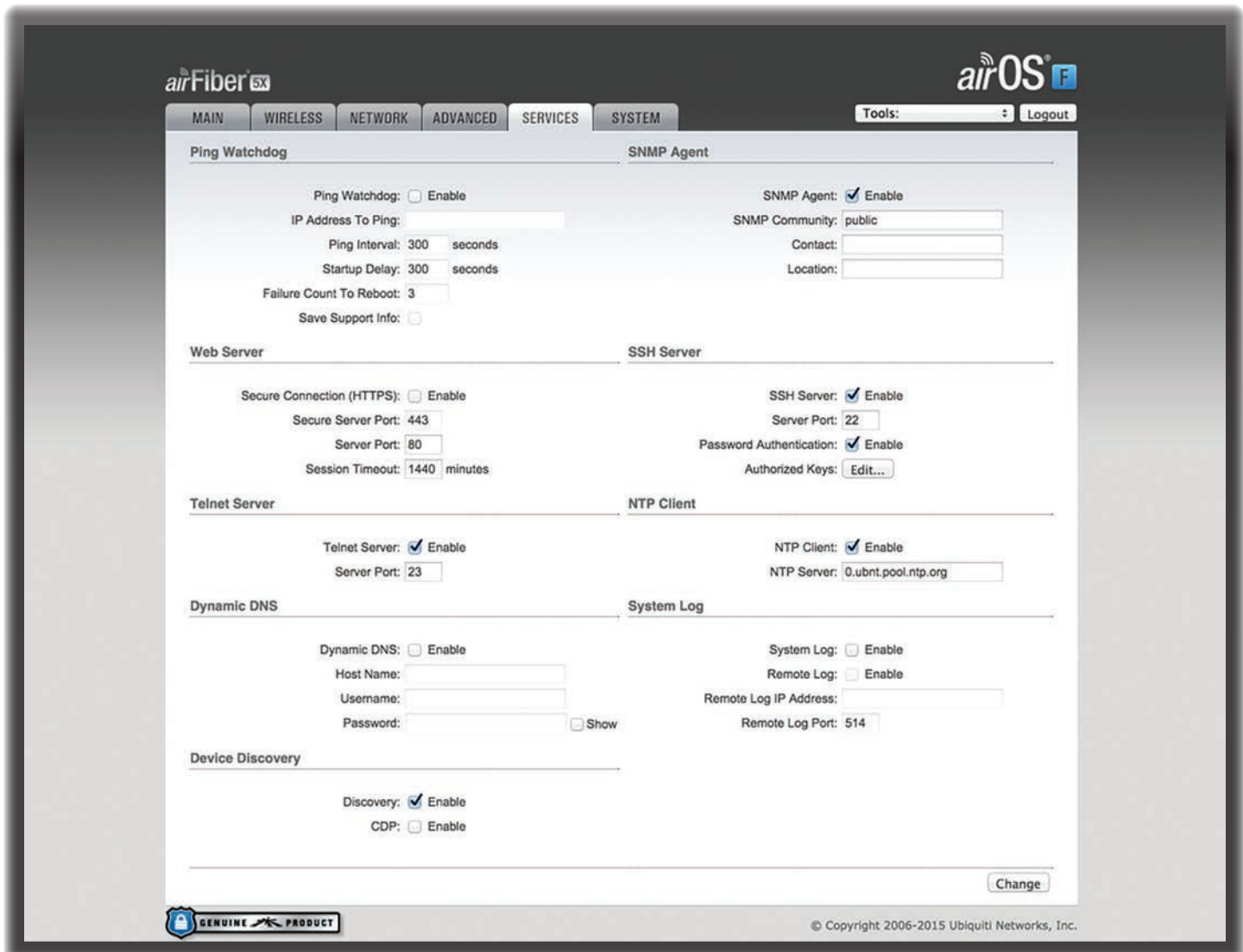
Chapter 8: Services Tab

The *Services* tab configures system management services: *Ping Watchdog*, *SNMP Agent*, *Web Server*, *SSH Server*, *Telnet Server*, *NTP Client*, *Dynamic DNS*, *System Log*, and *Device Discovery*.

Change To save or test your changes, click **Change**.

A new message appears. You have three options:

• **Apply**   To immediately save your changes, click **Apply**.

• **Test**   To try the changes without saving them, click **Test**. To keep the changes, click **Apply**. If you do not click *Apply* within 180 seconds (the countdown is displayed), the airFiber X radio times out and resumes its earlier configuration.

• **Discard** To cancel your changes, click **Discard**.

Ping Watchdog

Ping Watchdog sets the airFiber X radio to continuously ping a user-defined IP address (it can be the Internet gateway, for example). If it is unable to ping under the user-defined constraints, the airFiber X radio will automatically reboot. This option creates a kind of "fail-proof" mechanism.

Ping Watchdog is dedicated to continuous monitoring of the specific connection to the remote host using the *Ping* tool. The *Ping* tool works by sending ICMP echo request packets to the target host and listening for ICMP echo response replies. If the defined number of replies is not received, the tool reboots the airFiber X radio.

Ping Watchdog Enables use of *Ping Watchdog*.

• **IP Address To Ping** Specify the IP address of the target host to be monitored by *Ping Watchdog*.

- **Ping Interval** Specify the time interval (in seconds) between the ICMP echo requests that are sent by *Ping Watchdog*. The default value is *300* seconds.

- **Startup Delay** Specify the initial time delay (in seconds) until the first ICMP echo requests are sent by *Ping Watchdog*. The default value is *300* seconds.

  The Startup Delay value should be at least 60 seconds as the network interface and wireless connection initialization takes a considerable amount of time if the airFiber X radio is rebooted.

- **Failure Count to Reboot** Specify the number of ICMP echo response replies. If the specified number of ICMP echo response packets is not received continuously, *Ping Watchdog* will reboot the airFiber X radio. The default value is *3*.

- **Save Support Info** This generates a support information file.

SNMP Agent

Simple Network Monitor Protocol (SNMP) is an application layer protocol that facilitates the exchange of management information between network devices. Network administrators use SNMP to monitor network-attached devices for issues that warrant attention.

The airFiber X radio contains an *SNMP Agent*, which does the following:

- Provides an interface for device monitoring using SNMP

- Communicates with SNMP management applications for network provisioning

- Allows network administrators to monitor network performance and troubleshoot network problems

For the purpose of equipment identification, configure the *SNMP Agent* with contact and location information:

SNMP Agent Enables the *SNMP Agent*.

- **SNMP Community** Specify the SNMP community string. It is required to authenticate access to Management Information Base (MIB) objects and functions as an embedded password. The airFiber X radio also supports a read-only community string; authorized management stations have read access to all the objects in the MIB except the community strings, but do not have write access. The airFiber X radio supports SNMP v1. The default SNMP Community is *public*.

- **Contact** Specify the contact who should be notified in case of emergency.

- **Location** Specify the airFiber X radio's physical location.

Web Server

The following *Web Server* parameters can be set:

Secure Connection (HTTPS) If enabled, the *Web Server* uses secure HTTPS mode.

- **Secure Server Port** If secure HTTPS mode is used, specify the TCP/IP port of the *Web Server*.

Server Port If HTTP mode is used, specify the TCP/IP port of the *Web Server*.

Session Timeout Specifies the maximum timeout before the session expires. Once a session expires, you must log in again using the username and password.

SSH Server

The following *SSH Server* parameters can be set:

SSH Server This option enables SSH access to the airFiber X radio.

- **Server Port** Specify the TCP/IP port of the *SSH Server*.

- **Password Authentication** If enabled, you must authenticate using administrator credentials to grant SSH access to the airFiber X radio; otherwise, an authorized key is required.

- **Authorized Keys** Click **Edit** to import a public key file for SSH access to the airFiber X radio instead of using an admin password.

- - **Choose File** Click **Choose File** to locate the new key file. Select the file and click **Open**.
  - **Import** Imports the file for SSH access.
  - **Enabled** Enables the specific key. All added keys are saved in the system configuration file; however, only the enabled keys are active on the airFiber X radio.
  - **Type** Displays the type of key.

- **Key** Displays the key.
- **Comment** You can enter a brief description of the key.
- **Action** You have the following options:
  - **Add** Adds a public key file.
  - **Edit** Make changes to a public key file. Click **Save** to save your changes.
  - **Del** Deletes a public key file.
- **Save** Saves your changes.
- **Close** Discards your changes.

Telnet Server

The following *Telnet Server* parameters can be set:

Telnet Server This option activates Telnet access to the airFiber X radio.

- **Server Port** Specify the TCP/IP port of the *Telnet Server*.

NTP Client

Network Time Protocol (NTP) is a protocol for synchronizing the clocks of computer systems over packet-switched, variable-latency data networks. You can use it to set the system time on the airFiber X radio. If the *Log* option is enabled, then the system time is reported next to every log entry that registers a system event.

NTP Client Enables the airFiber X radio to obtain the system time from a time server on the Internet.

- **NTP Server** Specify the IP address or domain name of the NTP server.

Dynamic DNS

Domain Name System (DNS) translates domain names to IP addresses; Each DNS server on the Internet holds these mappings in its respective DNS database. Dynamic Domain Name System (DDNS) is a network service that notifies the DNS server in real time of any changes in the airFiber X radio's IP settings. Even if the airFiber X radio's IP address changes, you can still access the airFiber X radio through its domain name.

Dynamic DNS If enabled, the airFiber X radio allows communications with the DDNS server.

- **Host Name** Enter the host name of the DDNS server.
- **Username** Enter the user name of the DDNS account.
- **Password** Enter the password of the DDNS account.
- **Show** Check the box to display the password characters.

System Log

System Log This option enables the registration routine of system log (syslog) messages. By default it is disabled.

- **Remote Log** Enables the syslog remote sending function. System log messages are sent to a remote server, which is specified in the *Remote Log IP Address* and *Remote Log Port* fields.
  - **Remote Log IP Address** The host IP address that receives syslog messages. Properly configure the remote host to receive syslog protocol messages.
  - **Remote Log Port** The TCP/IP port that receives syslog messages. *514* is the default port for the commonly used system message logging utilities.

Every logged message contains at least a system time and host name. Usually a specific service name that generates the system event is also specified within the message. Messages from different services have different contexts and different levels of detail. Usually error, warning, or informational system service messages are reported; however, more detailed debug level messages can also be reported. The more detailed the system messages reported, the greater the volume of log messages generated.
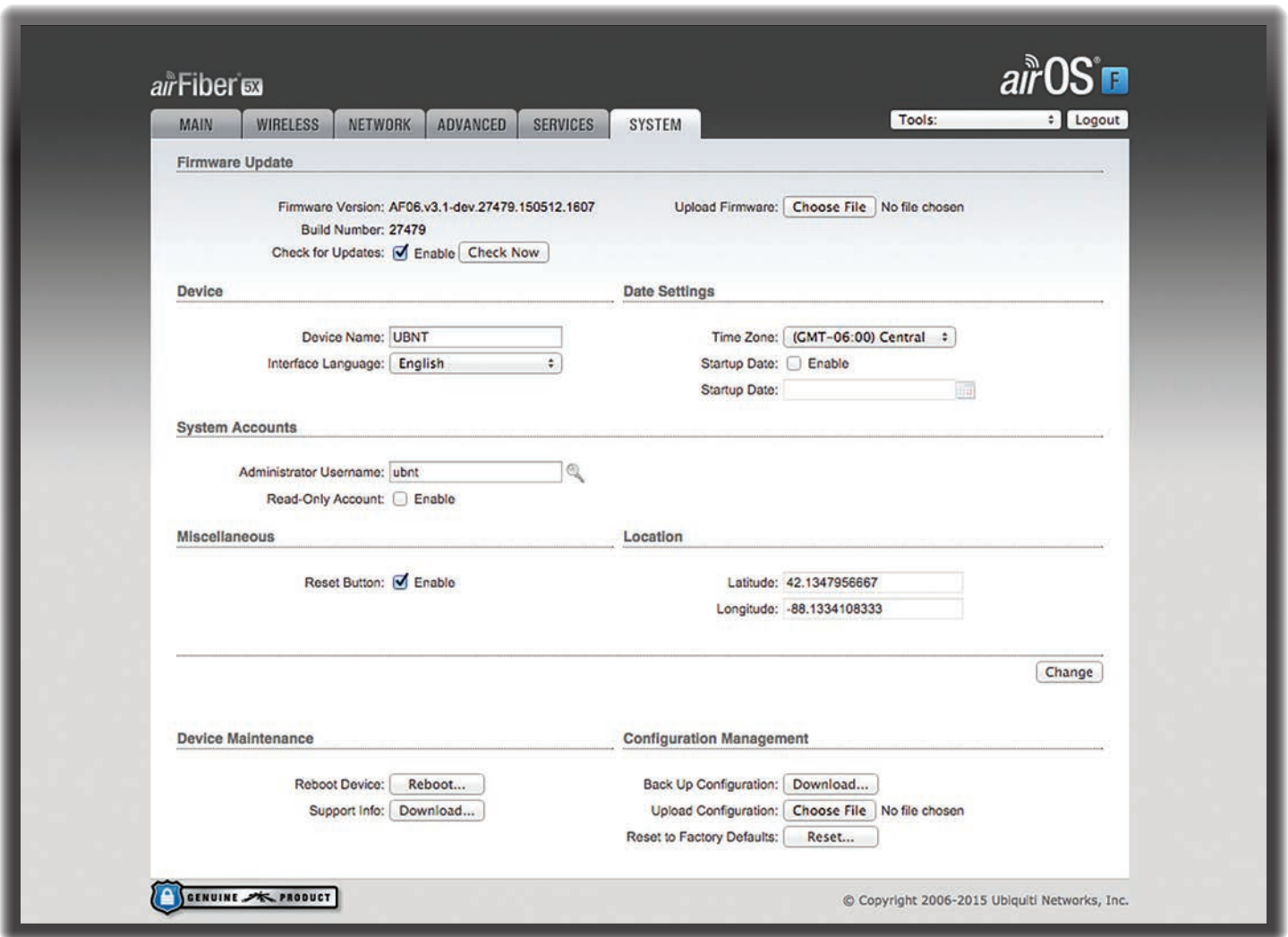
Device Discovery

Discovery Enables device discovery, so the airFiber X radio can be discovered by other Ubiquiti devices through the *Discovery* tool.

CDP Enables Cisco Discovery Protocol (CDP) communications, so the airFiber X radio can send out CDP packets to share its information.

Chapter 9: System Tab

The *System* tab contains administrative options. This page enables the administrator to reboot the airFiber X radio, reset it to factory defaults, upload new firmware, back up or update the configuration, and configure the administrator account.

Change To save or test your changes, click **Change**.

A new message appears. You have three options:

- **Apply** To immediately save your changes, click **Apply**.
- **Test** To try the changes without saving them, click **Test**. To keep the changes, click **Apply**. If you do not click *Apply* within 180 seconds (the countdown is displayed), the airFiber X radio times out and resumes its earlier configuration.
- **Discard** To cancel your changes, click **Discard**.

Firmware Update

The controls in this section manage firmware maintenance.
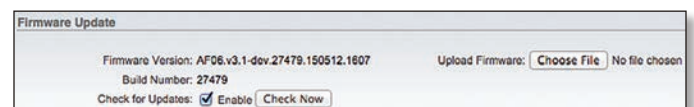
Firmware Version Displays the current firmware version.

Build Number Displays the build number of the firmware version.

Check for Updates By default, the firmware automatically checks for updates. To manually check for an update, click **Check Now**.

Upload Firmware Click this button to update the airFiber X radio with new firmware.

The airFiber X radio firmware update is compatible with all configuration settings. The system configuration is preserved while the airFiber X radio is updated with a new firmware version. However, we recommend that you back up your current system configuration before updating the firmware.

This is a three-step procedure:

1. Click **Choose File** to locate the new firmware file. Select the file and click **Open**.

2. Click **Upload** to upload the new firmware to the airFiber X radio.

3. The Uploaded Firmware Version is displayed. Click **Update** to confirm.

If the firmware update is in process, you can close the firmware update window, but this does not cancel the firmware update. Please be patient, as the firmware update routine can take three to seven minutes. You cannot access the airFiber X radio until the firmware update routine is completed.

> ⚠ **WARNING:** Do not power off, do not reboot, and do not disconnect the airFiber X radio from the power supply during the firmware update process as these actions will damage the airFiber X radio!

Device

The Device Name (host name) is the system-wide device identifier. The SNMP agent reports it to authorized management stations. The Device Name will be used in popular router operating systems, registration screens, and discovery tools.

Device Name Specifies the host name.

Interface Language Allows you to select the language displayed in the web management interface. *English* is the default language.

Date Settings

Time Zone Specifies the time zone in relation to Greenwich Mean Time (GMT).

Startup Date When enabled, you are able to change the airFiber X radio's startup date.

- **Startup Date** Specifies the airFiber X radio's startup date. Click the **Calendar** icon or manually enter the date in the following format: 2-digit month/2-digit day/4-digit year. For example, for January 5, 2014, enter **01/05/2014** in the field.

System Accounts

You can change the administrator password to protect your device from unauthorized changes. We recommend that you change the default administrator password when initially configuring the device.

Administrator Username Specifies the name of the administrator.

Key icon Click this icon to change the administrator password.

- **Current Password** Enter the current password for the administrator account. It is required to change the *Password* or *Administrator Username*.

- **New Password** Enter the new password for the administrator account.

- **Verify New Password** Re-enter the new password for the administrator account.

> 📓 Note: The password length is 8 characters maximum; passwords exceeding 8 characters will be truncated.

Read-Only Account Check the box to enable the read-only account, which can only view the *Main* tab. Configure the username and password to protect your device from unauthorized changes.

- **Read-Only Account Name** Specifies the name of the system user.

- **Key icon** Click this icon to change the read-only password.

  - **New Password** Enter the new password for the read-only account.

  - **Show** Check the box to display the read-only password characters.

Miscellaneous

Reset Button To allow use of the airFiber X radio's physical reset button, check the box. To prevent an accidental reset to default settings, uncheck the box.

> 📓 Note: You can reset the airFiber X radio to default settings via the airFiber Configuration Interface. Go to the *System* tab > *Reset to Defaults*.

Location

After the on-board GPS determines the location of the airFiber X radio, its latitude and longitude are displayed. If the GPS does not have a fix on its location, then "Searching for Satellites" will be displayed.
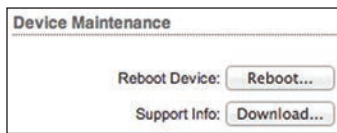

Latitude The latitude of the airFiber X radio's location is displayed.

Longitude The longitude of the airFiber X radio's location is displayed.

Device Maintenance

The controls in this section manage the airFiber X radio maintenance routines: reboot and support information reports.

Reboot Device Initiates a full reboot cycle of the airFiber X radio. Reboot is the same as the hardware reboot, which is similar to the power-off and power-on cycle. The system configuration stays the same after the reboot cycle completes. Any changes that have not been applied are lost.

Support Info This generates a support information file that the Ubiquiti support engineers can use when providing customer support. This file only needs to be generated at their request.

Configuration Management

The controls in this section manage the airFiber X radio configuration routines and the option to reset the airFiber X radio to factory default settings.

The airFiber X radio configuration is stored in a plain text file (.cfg file). You can back up, restore, or update the system configuration file:

Back Up Configuration Click **Download** to download the current system configuration file.

Upload Configuration Click **Choose File** to locate the new configuration file. Select the file and click **Open**.

We recommend that you back up your current system configuration before uploading the new configuration.

Upload Click this button to upload the new configuration file to the airFiber X radio. Click **Apply** to confirm.

After the airFiber X radio reboots, the settings of the new configuration are displayed in the *Wireless*, *Network*, *Advanced*, *Services*, and *System* tabs of the airFiber Configuration Interface.

Reset to Factory Defaults Resets the airFiber X radio to the factory default settings. This option will reboot the airFiber X radio, and all factory default settings will be restored. We recommend that you back up your current system configuration before resetting the airFiber X radio to its defaults.