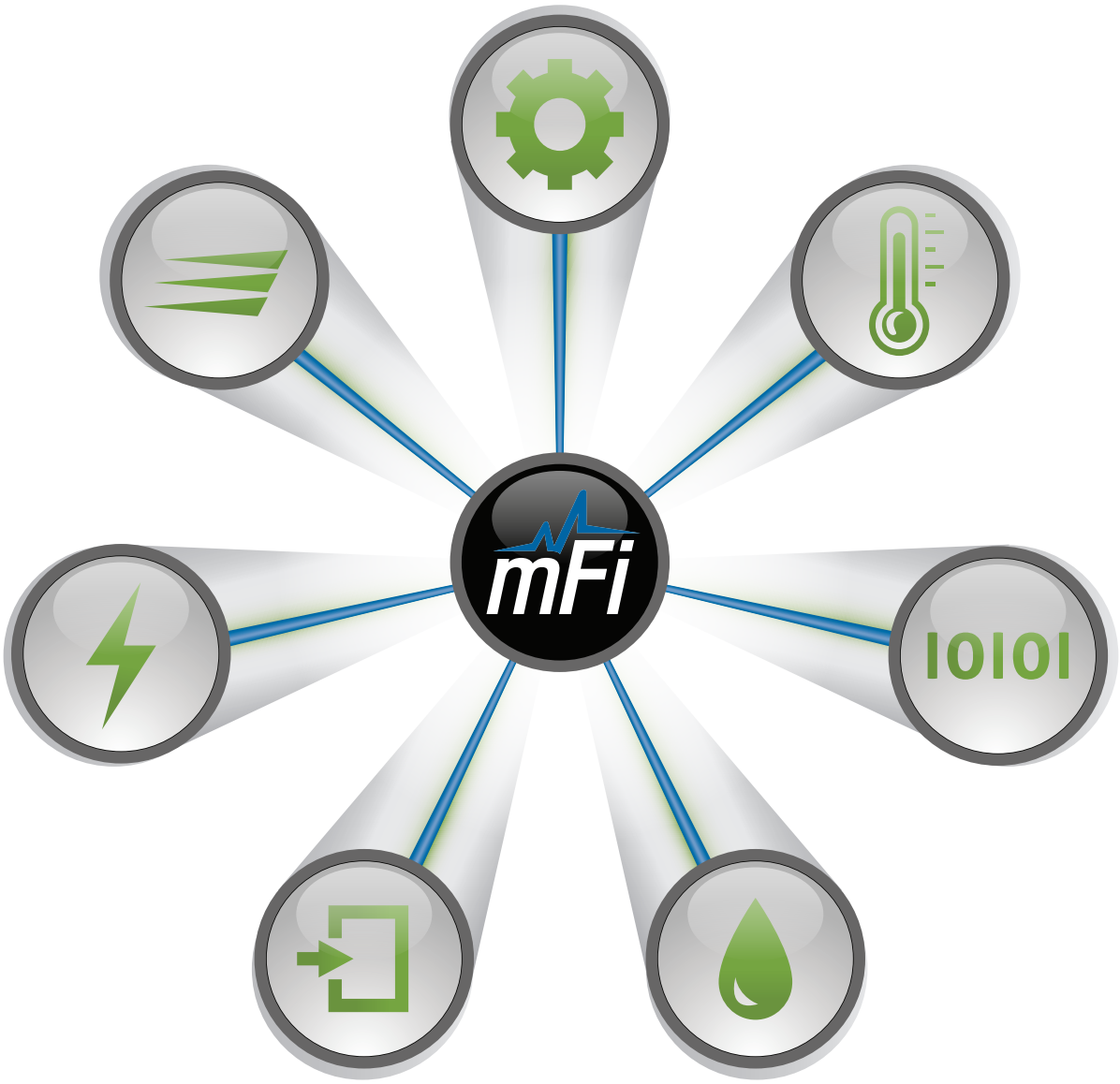
UBIQUITI NETWORKS



mFi™

M2M Management System

User Guide

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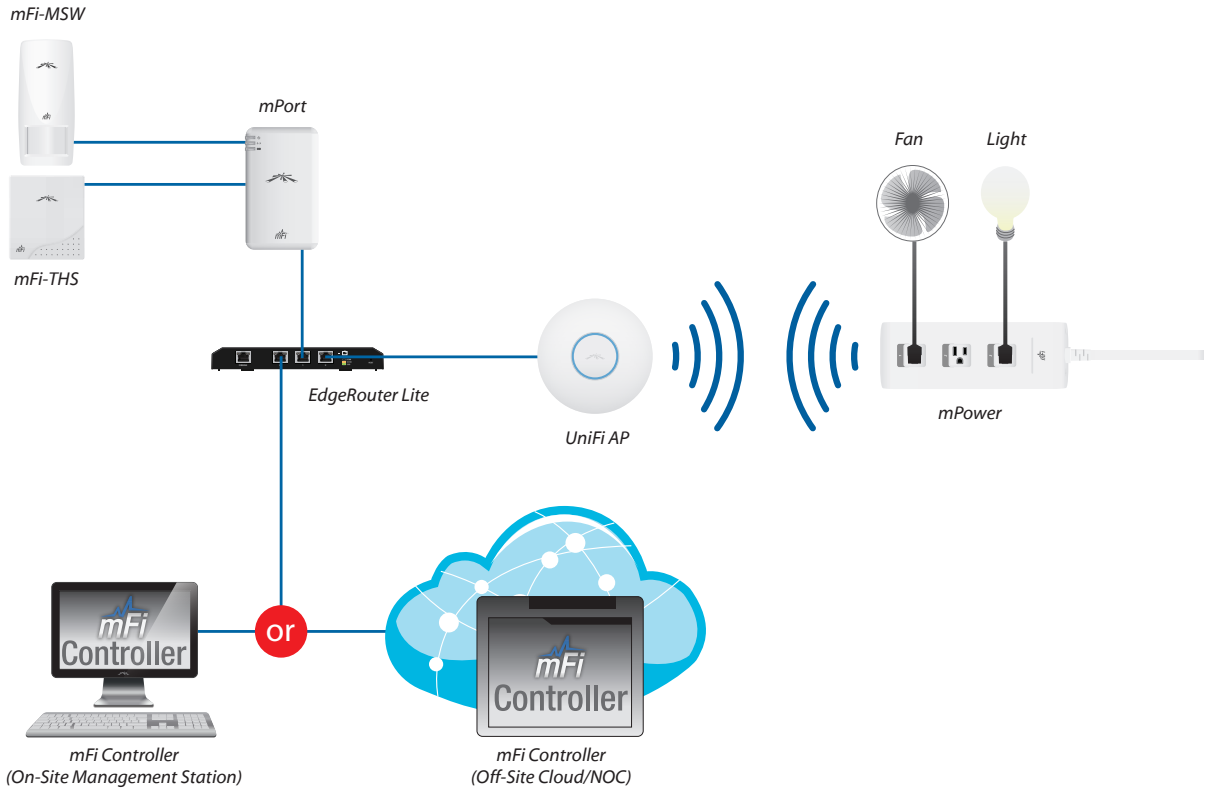
mFi Example Diagram



Chapter 1: System Setup

mFi System Overview

mFi™ is a M2M management software solution from Ubiquiti Networks, Inc. that is designed to work with Ubiquiti's mFi product line. The software interface design is based on the popular and easy to use UniFi™ software interface.

The *mFi Example Diagram* above illustrates an example of an mFi network.

The *mFi Controller* is connected to a router (in the example the EdgeRouter Lite is used but not required). The router is connected via Ethernet to the *mPort* (the *mPort* can alternatively be connected wirelessly to a Wi-Fi Access Point). The *mPort* has a motion sensor (*mFi-MSW*) and temperature sensor (*mFi-THS*) connected using RJ45 cabling.

The router is connected to a Wi-Fi access point, which in this example is the *UniFi AP* (recommended, but not required). The *UniFi AP* is connected wirelessly to the *mPower* power strip which is controlling a fan and a light.

The *mFi Controller* software allows you to create rules that trigger actions based on data from your mFi sensors. Using the example network above, a rule could be created to turn the light on when motion is detected by the *mFi-MSW*. Another rule could power on the fan when a temperature is detected above a specified level by the *mFi-THS*.

mFi Controller

The mFi Controller software allows you to monitor and manage your mPort, mPower, mSensor, and third party devices from your web browser.

The mFi Controller software can run on a computer that meets the following minimum requirements:

- Microsoft Windows 7, Windows Vista, Windows XP, Mac OS X, or Ubuntu Linux version 11.04. 64-Bit Operating System Recommended (32-Bit only supports 2 GB Database)
- 2 GB RAM is highly recommended
- Java Runtime Environment 1.6 (1.6.0_26 or above recommended)

The mFi Controller requires a web browser for configuration with the following requirements:

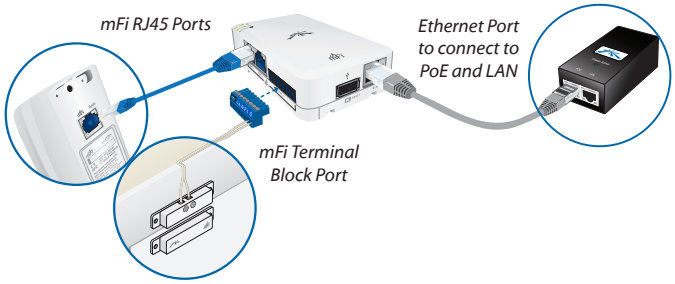
- Web browser: Mozilla Firefox, Google Chrome, or Microsoft Internet Explorer 8 (or above)
- FlashPlayer 10

mFi Hardware

The Ubiquiti Networks mFi platform has multiple solutions for connecting devices to the mFi Controller.

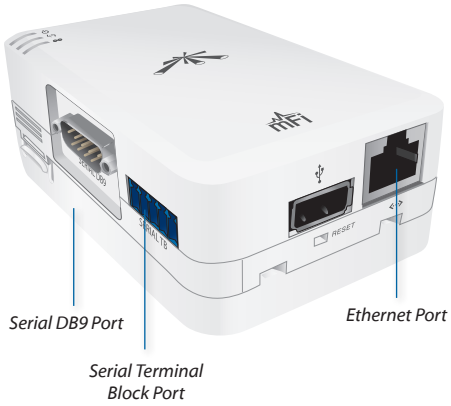
mPort

The mPort has two mFi RJ45 connectors and a terminal block connector. It has built-in Wi-Fi and Ethernet to connect to the IP network.

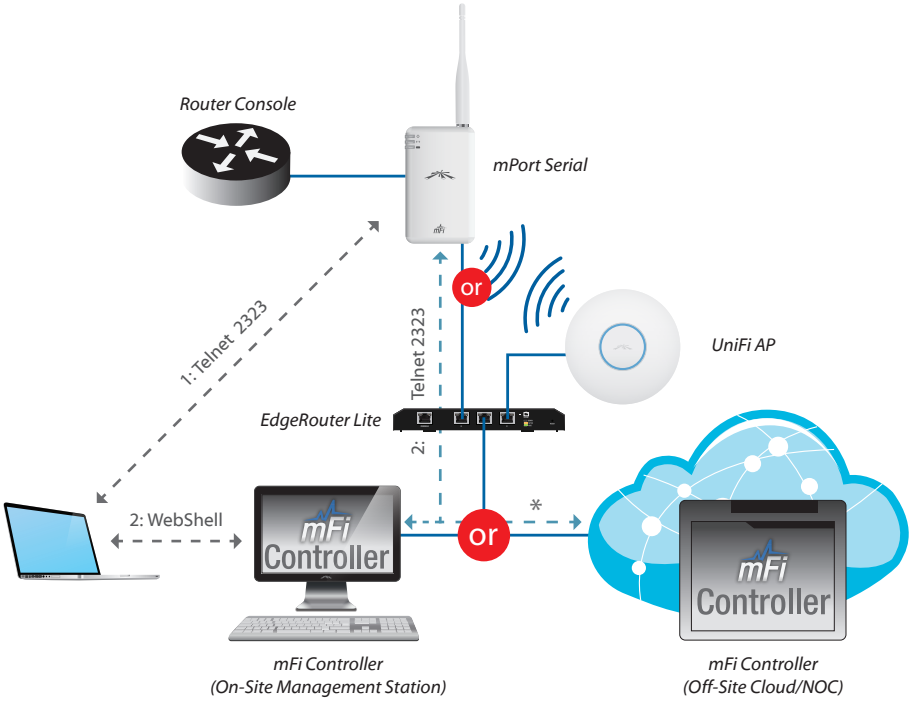


mPort Serial

The mPort Serial features RS232/422/485 serial connectivity through a standard DB9 serial port or a terminal block connector. It has built-in Wi-Fi and Ethernet to connect to the IP network.



mPort Serial Example Diagram



** Need port 2323 open if the cloud is outside a firewall*

mPower

mPower is a mFi Power Strip with independent, switchable AC ports, and energy monitoring. It has built-in Wi-Fi to connect to the IP network.

mSensors

Ubiquiti Networks offers a variety of sensors to connect to the mPort and your mFi network. These sensors connect to the mPort using a standard RJ45 cable, except for the mFi-DS, which connects using a terminal block connector.

Ceiling Mount Motion Sensor *mFI-MSC*

Wall Mount Motion Sensor *mFi-MSW*

Temperature Sensor *mFi-THS*

Current Sensor *mFi-CS*

Door Sensor *mFi-DS*

Hardware Installation

Follow the directions in the Quick Start Guide that accompanied your Ubiquiti Networks mFi product.

For third party products, refer to any documentation you may have for the product. You may also want to check our mFi user forum at **forum.ubnt.com**.

For pinout information, refer to **"Pinouts" on page 32**.

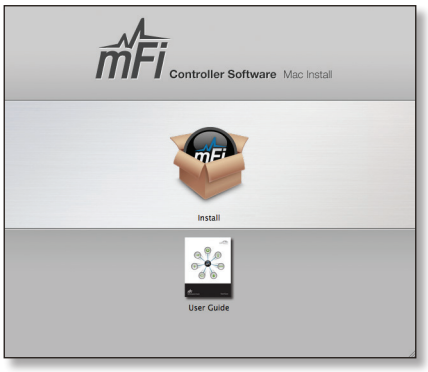
Software Installation

The mFi Controller software is installed just once when you initially create a mFi network. Devices can be added at any time through the controller interface but you do not need to go through the software installation process every time you add another mFi device.

Insert the mFi Controller software CD into your CD-ROM drive and follow the instructions for your computer type.

Mac Users

1. Click the **Install** icon.



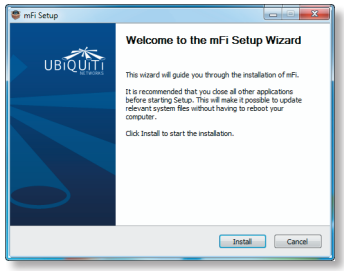
2. Click **Continue** and follow the on-screen instructions to install the software.

3. Go to **Go** > **Applications** and double-click the **mFi** icon.

Proceed to **"Configuring the mFi Controller Software" on page 4**.

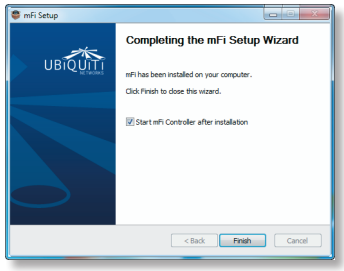
PC Users

1. Launch **mFi-installer.exe**.
2. Click **Install**.

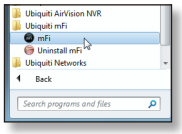


3. If your computer doesn't have Java 1.6 or above installed, you will be prompted to install it. Click **Install** to continue.

4. Ensure the *Start mFi Controller after installation* option is checked and click **Finish**.



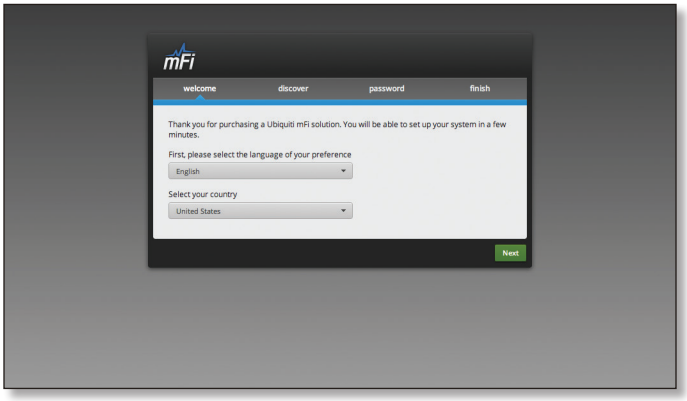
Note: The mFi Controller software can also be launched from **Start** > **All Programs**.



Configuring the mFi Controller Software

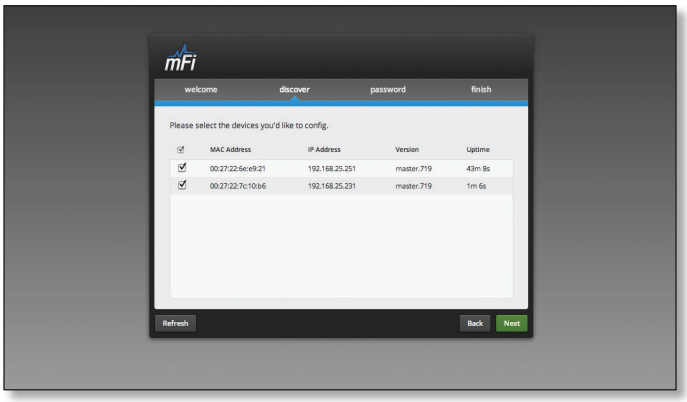
1. The mFi Controller software startup will begin. Click **Launch a Browser to Manage Network**.

2. The *mFi Configuration Wizard* will appear the first time you launch the mFi Controller software. On the *Welcome* screen, select your language and country. Click **Next**.

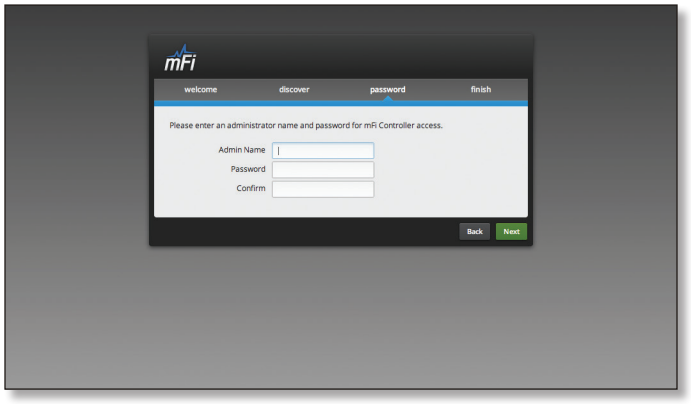


3. Any devices that have already been discovered at this point. Select the device(s) that you want to configure. The **Refresh** button can be used to refresh the list of devices. Click **Next** to continue.

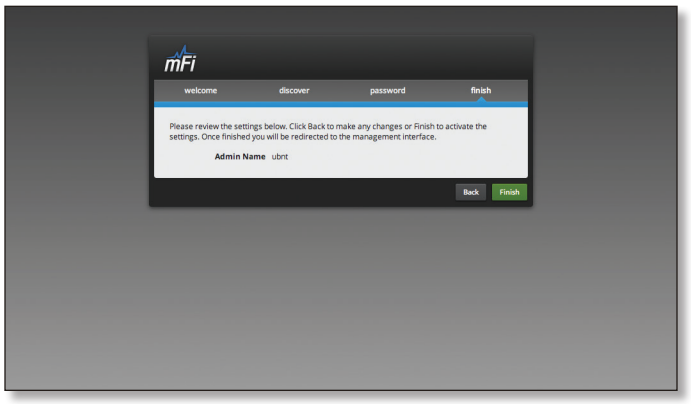
Note: Devices that you have already connected to your DHCP enabled network will appear here, unless already managed by another mFi Controller. Once the mFi Controller software is installed, you can add devices to mFi at any time. Devices can be added later. It is not necessary to install all devices during software installation.



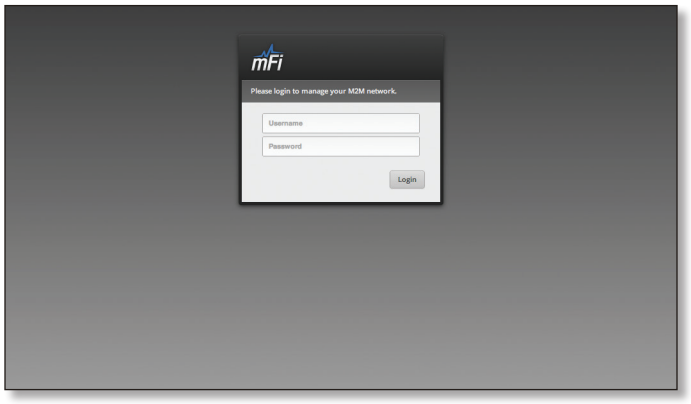
4. Enter an administrator name in the *Admin Name* field. Enter a password in the *Password* and *Confirm* fields. Click **Next**.



5. Click **Finish** to confirm your settings.



6. A login screen will appear for the mFi Controller management interface. Enter the *Admin Name* and *Password* that you created and click **Login**.



Methods of Adoption

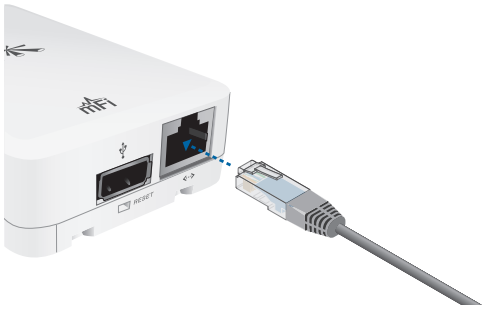
Devices that were not found or connected during the mFi Controller software configuration can be added afterwards. The mPort and mPort Serial can be connected via Ethernet or Wi-Fi. The mPower must be configured via Wi-Fi.

Devices that are not on the same Layer 2 network as the mFi Controller and devices being added via Wi-Fi must be added through the Configuration Portal of the device. Refer to **"Adopting the mPort, mPort Serial, or mPower via the Device's Configuration Portal" on page 6.**

Adopting the mPort or mPort Serial via Layer 2 Ethernet

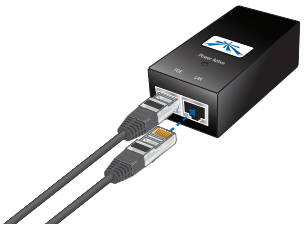
If the mPort or mPort Serial that you want to add to an mFi network is connected to the same layer 2 network as the mFi Controller, perform the following steps to add it:

1. Connect an Ethernet cable to the Ethernet port.

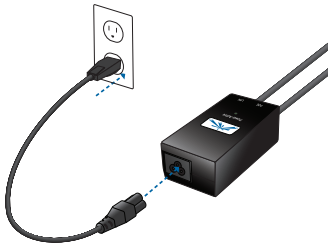


2. Connect the other end of the Ethernet cable to the Ethernet port labeled **POE** on the *PoE Adapter*.

3. Connect an Ethernet cable from your LAN to the Ethernet port labeled **LAN** on the *PoE Adapter*.

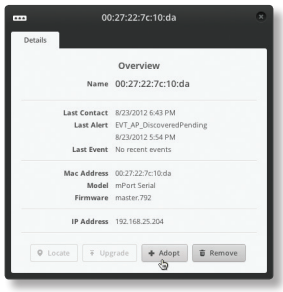


4. Connect the power cord to the power port on the *PoE Adapter*. Connect the other end of the power cord to a power outlet. The Power LED should light up.

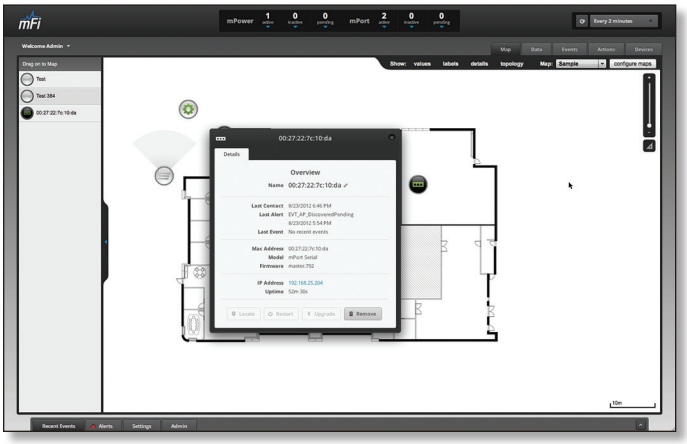


5. Go to the mFi Controller interface and click on the MAC address of the device listed under pending.

6. Click the **Adopt** button.



7. The device will appear in the left panel. Click the **x** in the upper right to close the *Details* window.



Adopting the mPort, mPort Serial, or mPower via the Device's Configuration Portal

The *Device Configuration Portal* is embedded in the hardware. It can be accessed with a wired Ethernet or wireless connection.

Wired

To adopt the mPort or mPort Serial by a mFi Controller that is not located on the same layer 2 network, you must enter the IP address and login information of the mFi Controller in the *Device Configuration Portal*. To do so, performing the following steps:

1. Make sure that your host machine is connected directly to the mPort or mPort Serial via Ethernet.
2. Configure the Ethernet adapter on your host system with a static IP address on the 192.168.1.x subnet.
3. Launch your web browser and type **http://192.168.1.20** in the address field. Press **enter** (PC) or **return** (Mac).

4. Enter your network information:

a. Enter the mFi Controller address.
b. Enter the User Name.
c. Enter the Password.
d. Click **Save Settings**.

Wireless

To adopt the mPort, mPort Serial, or mPower wirelessly you must connect to the SSID of the device. The devices have a default SSID (wireless network name) labeled *mFi* followed by the last six characters of the MAC address. To access the SSID, perform the following steps for your specific computer operating system:

Windows

1. Go to **Connect to Network**.
   - **Windows 7** Right-click the *Network* icon.
   - **Windows Vista** Go to **Start** > **Connect To**.
   - **Windows XP** Right-click the *Wireless Network* icon in the *System Tray* (lower right corner of the screen). Click **View Available Wireless Networks**.
2. Select the wireless network (SSID) that begins with *mFi* and then click **Connect**. Go to *Accessing the Configuration Portal* after the Mac instructions.

Mac

1. Click the *AirPort* icon in the menu bar (top left side of the screen).
2. Select the wireless network (SSID) that begins with *mFi*. Once connected, the *AirPort* icon will change from gray to solid black.

Accessing the Configuration Portal

1. Launch your web browser. Type **config.mfi** in the address field. Press **enter** (PC) or **return** (Mac).

2. The *Configuration Portal* will appear. Select the wireless network name (SSID) of your existing wireless network from the drop-down list. To refresh the list, click *rescan*.

3. Enter your network information:

a. Enter your Wi-Fi security credentials. The options that appear are based on the encryption method used on your Wi-Fi network.
b. Enter the mFi Controller address.
c. Enter the User Name.
d. Enter the Password.
e. Click **Save Settings**.

4. A screen will appear with information about checking the device for connection status. Verify the *Status* LED is blue. It may take a few moments.

5. Reconnect to your existing wireless network by selecting the SSID from your wireless network utility.
6. The mPower device appears with the mPower icon in the left panel under the *Drag on to Map* heading. Once you've customized your map, you can position the mPower device in the appropriate location.

Chapter 2: Using the mFi Software

The mFi software has a browser-based interface for easy configuration and management.

To access the interface, perform the following steps:

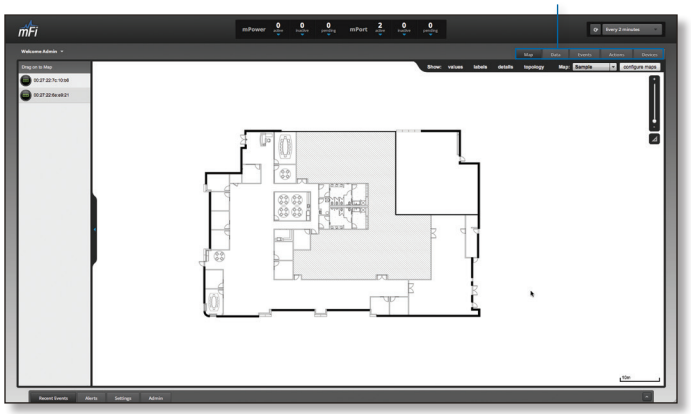
1. Launch the mFi application if hasn't already been started. Windows users go to **Start > All Programs > Ubiquiti mFi > mFi**.
2. A window will open as the application is starting. Once it is ready to launch, you will be able to click the **Launch a Browser to access mFi** button.

3. The login screen will appear. Enter the admin name and password in the appropriate fields and click **Login**.

Interface Tabs

The mFi software consists of five primary tabs.

Interface tabs



This User Guide covers each tab with a chapter. For details on a specific tab, refer to the appropriate chapter.

- **"Map Tab" on page 11**
- **"Data Tab" on page 16**
- **"Events Tab" on page 19**
- **"Actions Tab" on page 21**
- **"Devices Tab" on page 24**

Common Interface Options

The common interface options are accessible from all tabs in the mFi interface.

mPower Status *mPort Status*

mPower Status

mPower is a power strip with energy monitoring and management capabilities when used with the mFi Controller software. Power can be enabled or disabled for each power outlet on the strip and energy costs can be monitored. Clicking on a mPower in any of the lists will display the mPower's *Configuration* tab.

- **active** Drop-down clickable list of all of active mPower units.
- **inactive** Drop-down clickable list of all mPower units that were once active but are not currently active.
- **pending** Drop-down clickable list of pending mPower units. Pending devices have been discovered but have not yet been assigned to be managed by an mFi Controller. Select a device from this list, then click the **Adopt** button from the device's *Details* tab to manage it from this Controller.

mPort Status

mPorts are points of connection for your sensors, machines, and/or devices. The mPort supports mFi RJ45 and terminal block connections. The mPort Serial supports serial-based connections. Clicking on a mPort in any of the lists will display the mPort's *Configuration* tab.

- **active** Drop-down clickable list of all of the mPorts that are online.
- **inactive** Drop-down clickable list of all of the mPorts that were once active but are not currently active.
- **pending** Drop-down clickable list of pending mPorts. Pending devices have been discovered but have not yet been assigned to be managed by an mFi Controller. Select a device from this list, then click the **Adopt** button from the device's *Details* tab to manage it from this Controller.

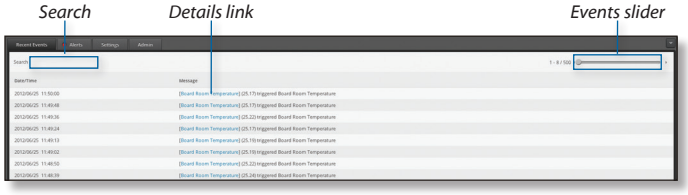
Refresh

Choose an option from the *Refresh Rate* pull-down menu to change how often the screen is refreshed. Options include *Manually, Every 5 Seconds, Every 15 Seconds, Every 30 Seconds, Every Minute, Every 2 Minutes*, and *Every 5 Minutes*. By default, the screen is refreshed every 2 minutes. When you select *Manually*, the screen will only update when you click the **Refresh** button.

Recent Events

Recent Events, Alerts, Settings and Admin

Displays a list of recent device related events. Date/time, device, and the event trigger are displayed.



Search Allows you to search for specific text. Simply begin typing, there is no need to press enter. The results are filtered in real-time as soon as you type two or more characters.

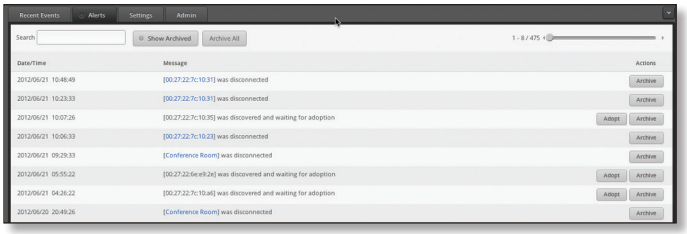
Date/Time Displays the date and time that the event took place. The year/month/day and hour:minute:seconds are displayed.

Message Displays the device, triggering value, and event triggering information. Click the highlighted **Details** link to open the *Details* window.

Events Slider If there is more than one page of events for viewing, the *Events* slider will appear. Drag the slider to the page you wish to view or click the arrows on the side of the slider to go forward or backward page by page.

Alerts

Alerts displays a list of network management related notifications.



Search Allows you to search for specific text. Simply begin typing, there is no need to press enter. The results are filtered in real-time as soon as you type two or more characters.

Show Archived Displays a list of all archived messages.

Archive All Archives all of the current messages.

Date/Time Displays the date and time that the event took place. The year/month/day and hour:minute:seconds are displayed.

Message Details of the alert are listed here. Some messages contain clickable links which are highlighted in blue. These links will open the device details window.

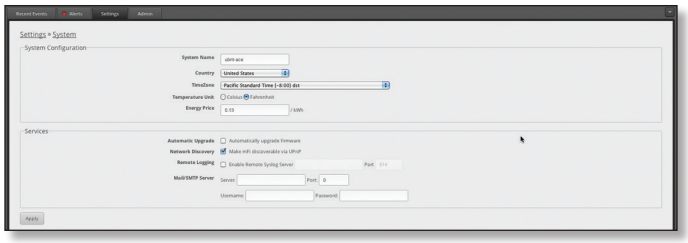
Actions

- **Archive** Click this button to archive the alert message to the left of the button.
- **Adopt** Click this button to adopt a pending mPort.

Events Slider If there is more than one page of events for viewing, the *Events* slider will appear. Drag the slider to the page you wish to view or click the arrows on the side of the slider to go forward or backward page by page.

Settings

System



System Configuration

System Name mFi System name.

Country Select the country the product is being used in from the drop-down list.

Time Zone Select the appropriate time zone from the drop-down list.

Temperature Unit Select Celsius or Fahrenheit for temperature data.

Energy Price Enter a flat price per kWh to be used with mPower devices to calculate a rough estimate of power costs.

Services

Automatic Upgrade Option to enable automatic firmware upgrades.

Network Discovery Allows you to *Make mFi discoverable via UPnP* (Universal Plug and Play) over the network.

Remote Logging Option to *Enable Remote Syslog*. When enabled, you need to enter the server address and port number.

- **Server** The address of the Remote Syslog Server.
- **Port** The port used for the Remote Syslog Server. The default port is 514.

Mail/SMTP Server The Mail/SMTP Server settings are necessary to allow mFI to send out email notifications.

- **Server** Enter the SMTP (outgoing) mail server address.
- **Port** Enter the port used for communication with the SMTP server.
- **Username** Enter the email username of the account that will be used to send email notifications.
- **Password** Enter the password associated with the username that will be used to send email notifications.

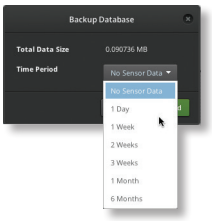
Admin

Server Information

Version The software version is displayed here. If there is an update, mFi will automatically download it and display it here.

Backup

Download Click **Backup Database** to download a backup of the data. You will have the option to select the time period of the data that you backup. Click **Download** to backup the mFi database for the selected time period.



Restore

Browse Click **Choose File** to locate a previously saved backup configuration file to restore.

Support Info

Download Click **Download Support Info** to download a file to your computer with information about your configuration that can be emailed to our support team.

Chapter 3: Map Tab

The mFi Controller software allows you to upload custom map images of your location for a visual representation of your mFi device layout. When you initially launch mFi, a default sample map is displayed.

You can have multiple maps with device locations placed and stored separately for each map. This allows you to manage/monitor everything connected in your mFi network whether it is in a different room, floor, or building.

Adding a Map

To add a custom map, you must first create the image. You can add an image you've created or photo that you've taken as a map image background. You can use an illustration, image editing, or blueprint application to create a map or take a photo of your location. Map files can be in .jpg, .gif, or .png file formats.

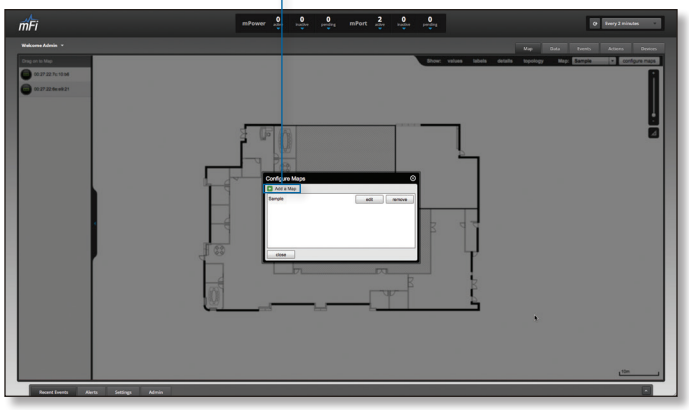
Once you've created the map, you can upload it to the mFi software by performing the following steps:

1. Click **Configure Maps**.

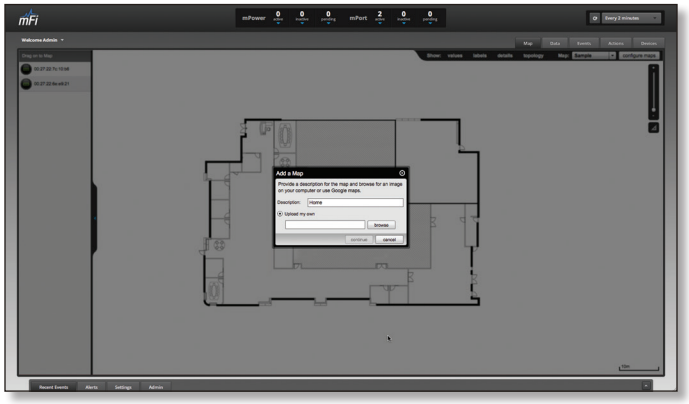
Configure Maps button

2. Click **Add a Map**.

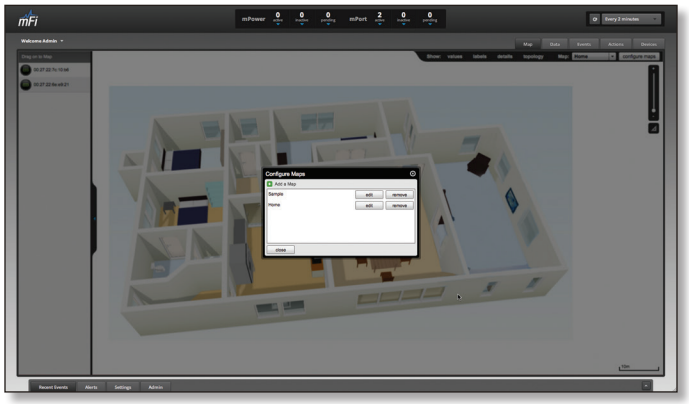
Add a Map



3. Enter a map name in the *Description* field and click **Upload my own**. Click the **Browse** button to locate the file to use as a map (valid file formats are .jpg, .gif, and .png). Click **Continue**.



4. Click **Close**.



5. You can adjust the zoom using the slider on the right.

Zoom Slider Use to zoom the map detail in and out.

6. Drag *Device* , mPower , and *mPort* icons from the list on the left to the appropriate location on the map. The icons will appear where you place them and remain linked to the map that you place them on until you remove them.

Repeat steps 1-6 to add additional rooms, floors, or buildings connected to your mFi network. After you've added all of the locations, you can switch between them using the *Map Selector*.

Map Selector

Device Icons

Device icons are placed on the map to show the location of your devices. Click and hold the icon to drag the *Device* to another location on the map.

Current This icon represents an electrical current sensor. Current sensors measure values in amps.

Door/Window This icon represents a door or window sensor. These sensors indicate whether a door or window is open or closed.

Generic This icon represents a generic device that doesn't fall into another category. It returns an on or off value.

Humidity This icon represents a humidity sensor. Humidity sensors provide a percentage value measurement.

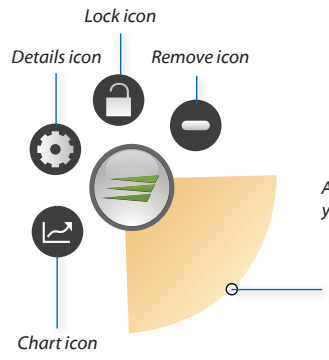
Motion This icon represents a motion detection sensor. A visual representation of the motion detection field is displayed and can be edited on the map. When motion is detected, this field changes colors on the map.

Serial-Based Device This icon represents a serial-based device such as a switch that is connected via a serial port.

Temperature This icon represents a temperature sensor. Temperature values can be displayed in degrees Celsius or Fahrenheit.

Click on the *Device* icon to reveal additional options. Click a blank area of the map to hide the additional options.

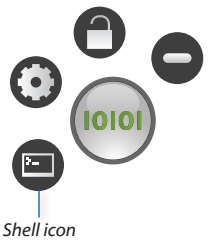
Motion Sensor



Adjustable Motion Detection Field allows you to define the visual representation of the motion sensor detection field.

Note: This doesn't adjust the field of motion detection on the sensor.

Serial Based Device



Generic device w Output 5V, 12v, or 24v

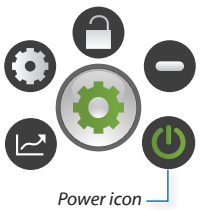


Chart Displays a chart of color coded values representing low, average, and high values or event frequency based on the type of device. The time frame of the chart can be changed by clicking the letters in the upper right corner. See the chart below for values:

H	Displays data for the last hour.
D	Displays data for the last 24 hours.
W	Displays data for the last week.
M	Displays data for the last month.
Y	Displays data for the last year.

Chart Time Frame Selections

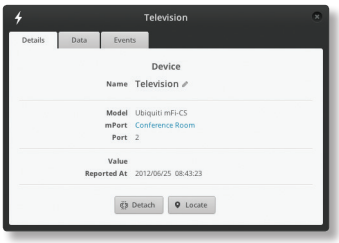
Note: This option is not available for serial-based devices.

Shell Opens up a command line interface shell (only available for serial-based devices).

Note: If your mFi Controller is outside of a firewall, be sure that TCP port 2323 (inbound) is open on your firewall.

Power Toggles power off or on. Icon is green when powered on. (available only on generic devices with output 5v, 12v, or 24v).

Details Brings up the *Device Details* window.



The *Device Details* window includes the *Details*, *Data*, and *Events* tabs.

- **Details** Displays the Name, Model, mPort, and Port.
- **Data** Displays data from the last H|D|W|M|Y.
- **Events** Displays a searchable list of events. Event details such as the time, date, sensor, sensor type, the value, and the rule that triggered the event are displayed here.

Refer to **"Device Details" on page 26** for additional information.

Lock Locks the selected sensor to the current location on the map and disables the *Remove* icon functionality for this sensor while locked.

Remove Remove the sensor from the location on the map.

Motion Sensor Detection Field States

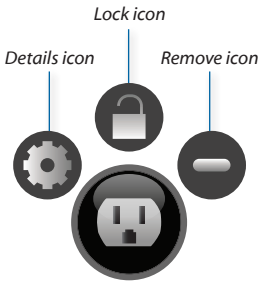
Motion *No Motion* *Alert*

mPower Icons

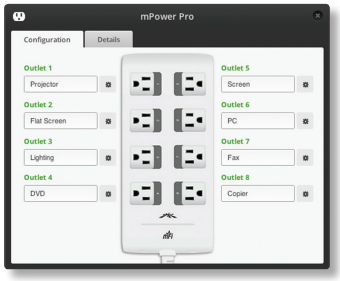
mPower icons can be placed on the map to show the location of the mPower outlet. Click and hold the icon to drag the *mPower* icon to another location on the map.

mPower This icon represents a mPower outlet. It can be a mPower Mini, mPower, or mPower Pro outlet.

Click on the *mPower* icon to reveal additional options. Click a blank area of the map to hide the additional options.



Details Brings up the *mPower Details* window.



The *mPower Details* window contains two tabs.

- **Configuration** Displays the devices that are currently connected and allows you to add or change devices. You can also click to view details and detach the device.
- **Details** Displays the Name, Type, Last Contact, MAC Address, Model, Firmware, IP Address, and Uptime. There are also *Locate*, *Restart*, and *Remove* buttons.

Lock Locks the selected mPower to the current location on the map and disables the *Remove* icon functionality for this mPower while locked.

Remove Remove the mPower from the location on the map.

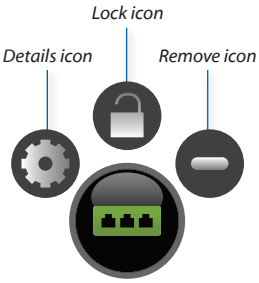
mPort Icons

mPort icons can be placed on the map to show the location of the mPort. Click and hold the icon to drag the *mPort* to another location on the map.

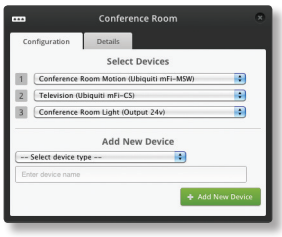
mPort This icon represents a mPort.

mPort-Serial This icon represents a mPort-S.

Click on the *mPort* icon to reveal additional options. Click a blank area of the map to hide the additional options.



Details Brings up the *mPort Details* window.



The *mPort Details* window contains two tabs.

- **Configuration** Displays the devices that are currently connected and allows you to add or change devices.
- **Details** Displays the Name, Last Contact, Last Alert, Last Event, MAC Address, Model, Firmware, IP Address, and Uptime.

Lock Locks the selected mPort to the current location on the map and disables the *Remove* icon functionality for this mPort while locked.

Remove Remove the mPort from the location on the map.

Map Display Options

Show: You can select to show labels or details and wireless coverage on the map. The following are the options available:

- **Values** Displays real-time values of *Device* data.
- **Labels** Displays the name of the *Device* or *mPort*.
- **Details** Displays details for the *Device* or *mPort*.
- **Topology** Displays which sensors are connected to which *mPorts*.

Map: If multiple maps have been uploaded, you can select which map you want to view using this option.

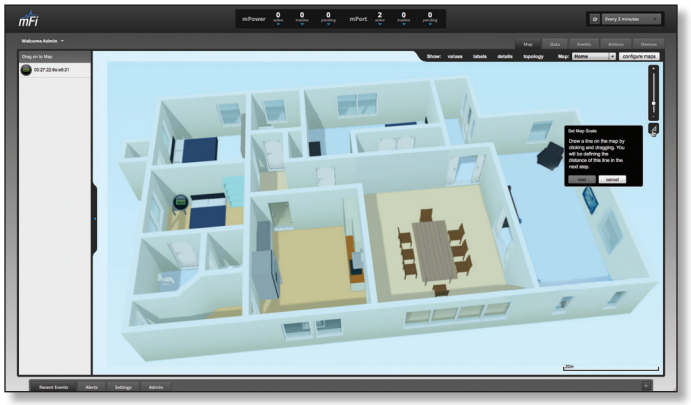
Configure Maps Use this option to add maps, edit the name of an existing map, or remove a map from the list.

Zoom Slider Use to zoom the map detail in and out.

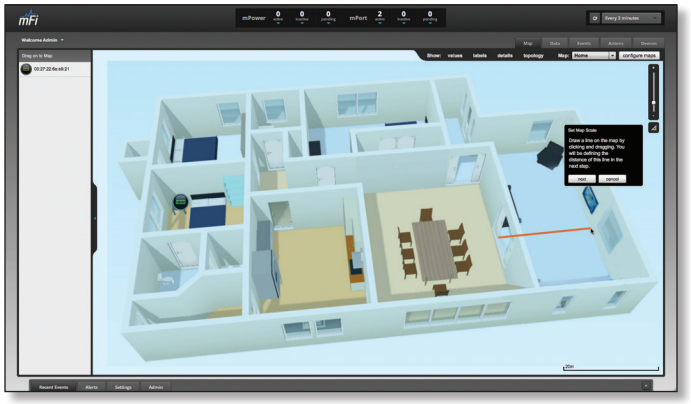
Set Map Scale Use this option to define the scale of the map. You will draw a line and define the distance that the line represents.

Setting the Map Scale

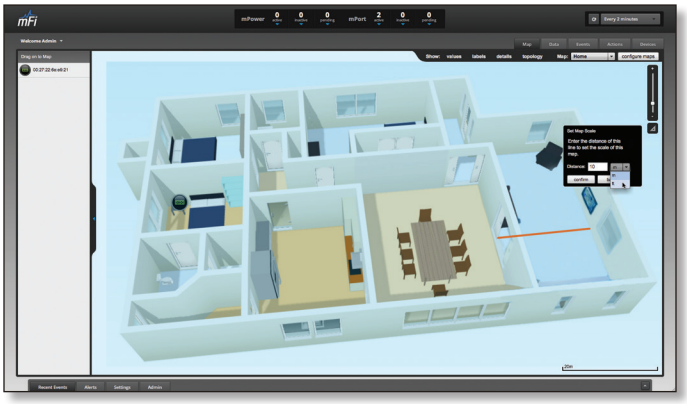
1. Click the **Set Map Scale** button.

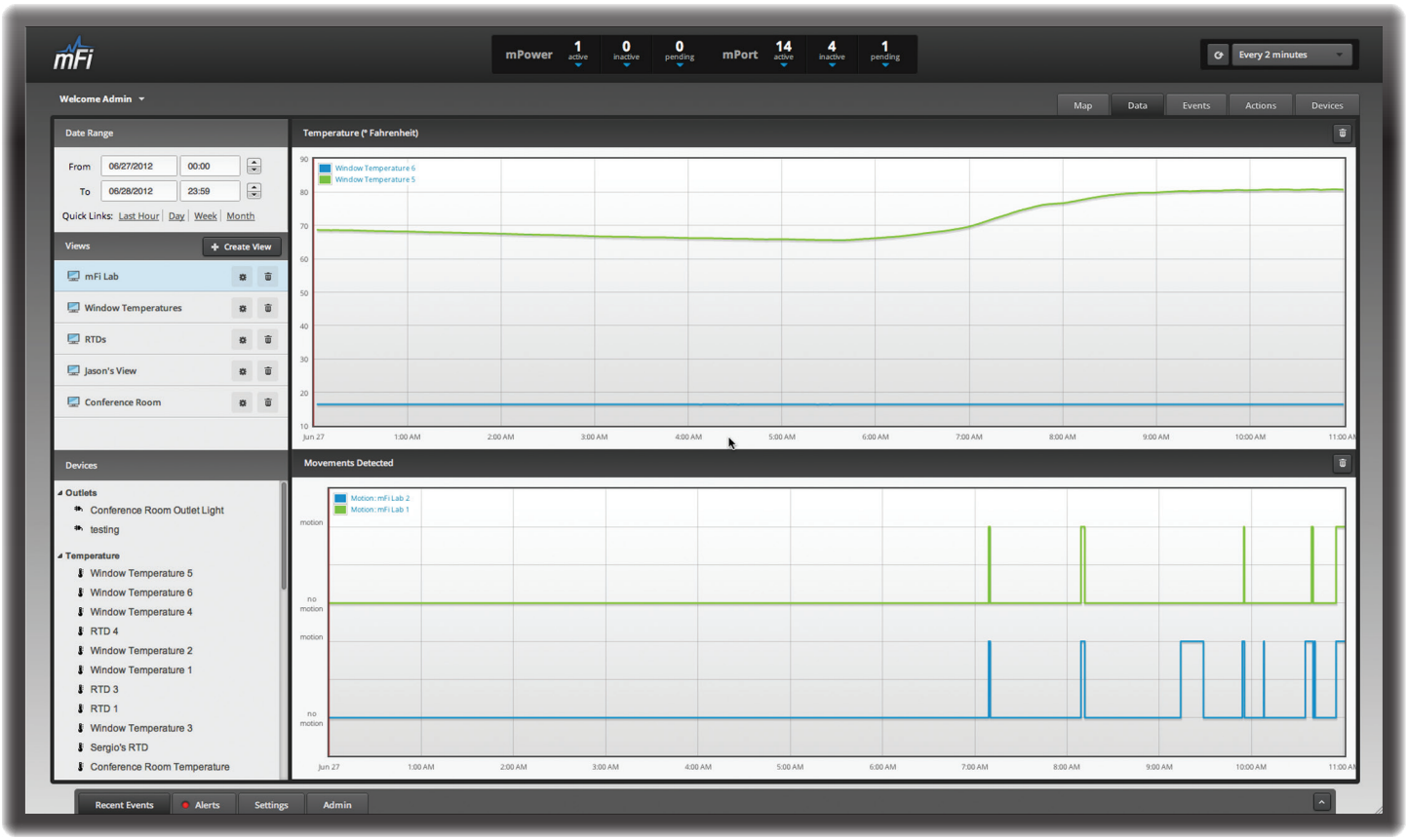


2. Click and hold to draw a line in the area that you want to use to set the scale of the map. If you need to redraw the line, just click and hold again to draw a new line. Once you're happy with the line, click **Next**.



3. Enter the distance that the line represents in the *Distance:* field. The distance is specified in meters by default but you can switch to feet using the drop-down selection menu on the right. Click **Confirm**.

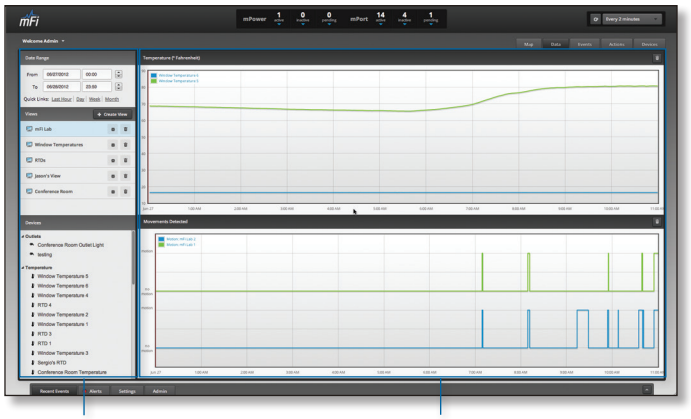




Chapter 4: Data Tab

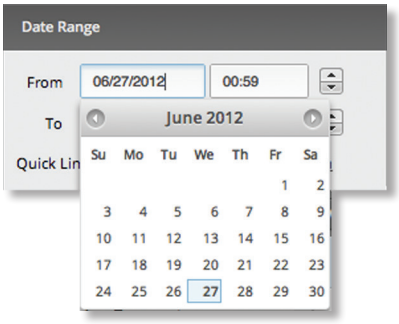
The *Data* tab allows you to view device data. You can set a date range for data results, create customized views, and compare data.

On the left side of the screen there are three selection panels: *Date Range*, *Views*, and *Devices*. On the right side of the screen, data is displayed based on the selections made in the selection panels.



Selection Panels *Data Panels*

Date Range



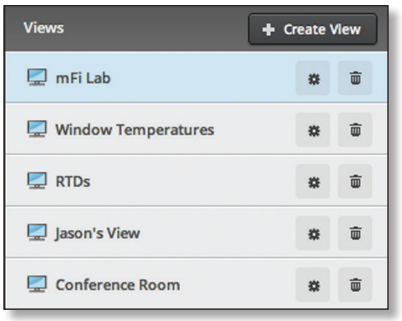
- **From** Click in the *From* date field and a calendar will appear that will allow you to select a beginning date. Click the time field and either manually enter a time or use the arrows to select an hour.
- **To** Click in the *To* date field and a calendar will appear that will allow you to select an ending date. Click the time field and either manually enter a time or use the arrows to select an hour.

Quick Links Quick links display the data values for the selected time period:

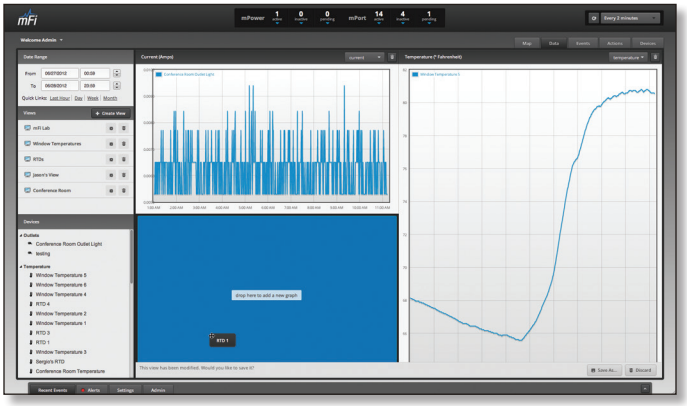
- **Last Hour** Displays data for the last hour.
- **Day** Displays data for the last day.
- **Week** Displays data for the last week.
- **Month** Displays data for the last month.

Views

Custom views can be created, saved, and selected for viewing here.



Create View Click to create a new view. Drag and drop devices from the selection panel on the left side of the screen to the data panel on the right side of the screen to display data from multiple devices in one view. Sizing and positioning are determined by where you drop the device data in the view. You can drag and drop similar devices into the same data grid to compare values.

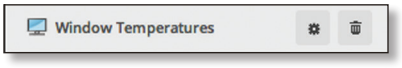


Save As... Click to save a new view. You will be prompted to enter a name for the new view. Enter the name and click **Save**. Click *Cancel* if you don't wish to save the view.

Discard Click if you do not wish to save the new view.

Renaming or Deleting a View

To rename or delete a view, click the view name to select the view. The edit and delete icons will appear to the right of the view name.

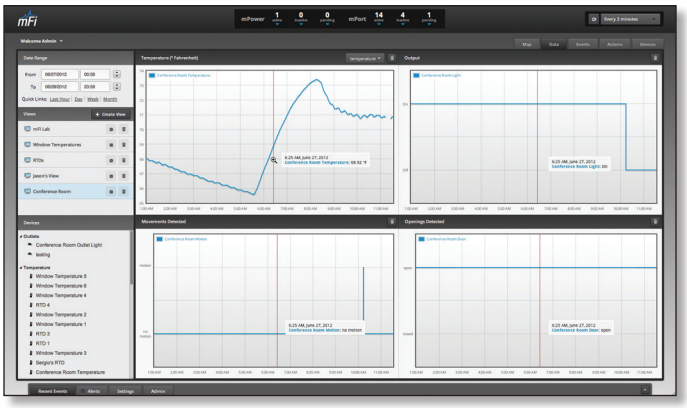


Config Click the *Config* icon and the *Rename View* window will open. Change the name and click **Save**. Click *Cancel* if you don't wish to rename the view.

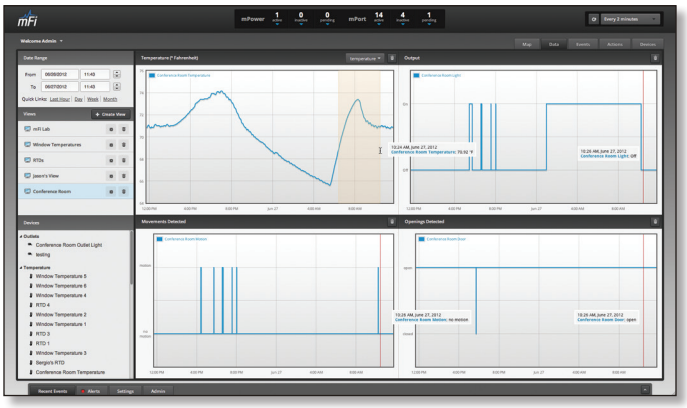
Remove Click the *Remove* icon next to the view name. There is no confirmation, so be sure you want to delete the view.

Data Panel Mouseover Functionality

Use the mouse to hover over the data timeline and view specific details.



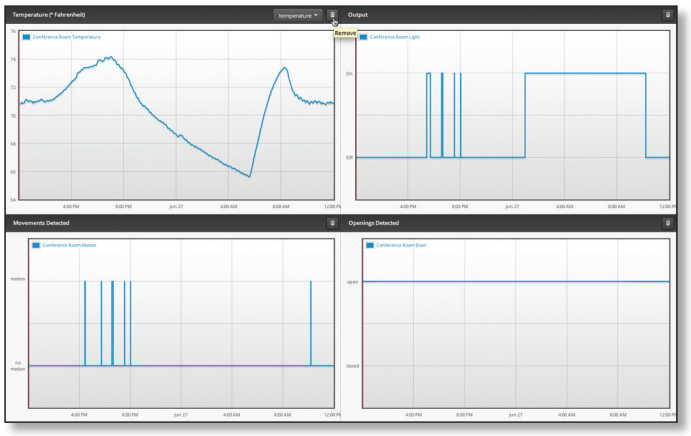
Click and highlight specific areas of the timeline to zoom in on a specific section of the timeline. A magnifying glass icon will appear and the timeframe you select will be highlighted with a beige color. After making your selection, all of the devices in the view will zoom to the timeframe you specify. Use the Quick Links under the Data Range selection if you need to zoom back out.



Device names can be clicked on in the data panel to open the *Device Details* window.

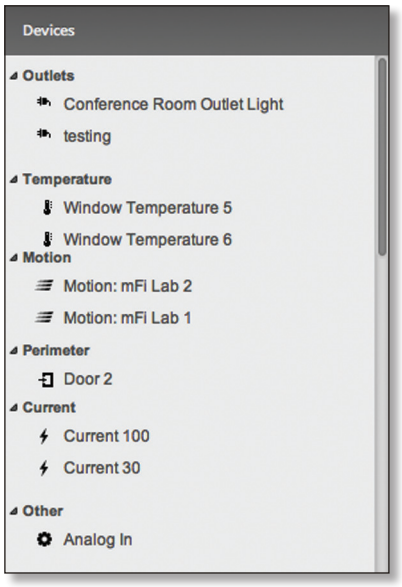
For information on the Device Details window, go to **"Device Details" on page 26**.

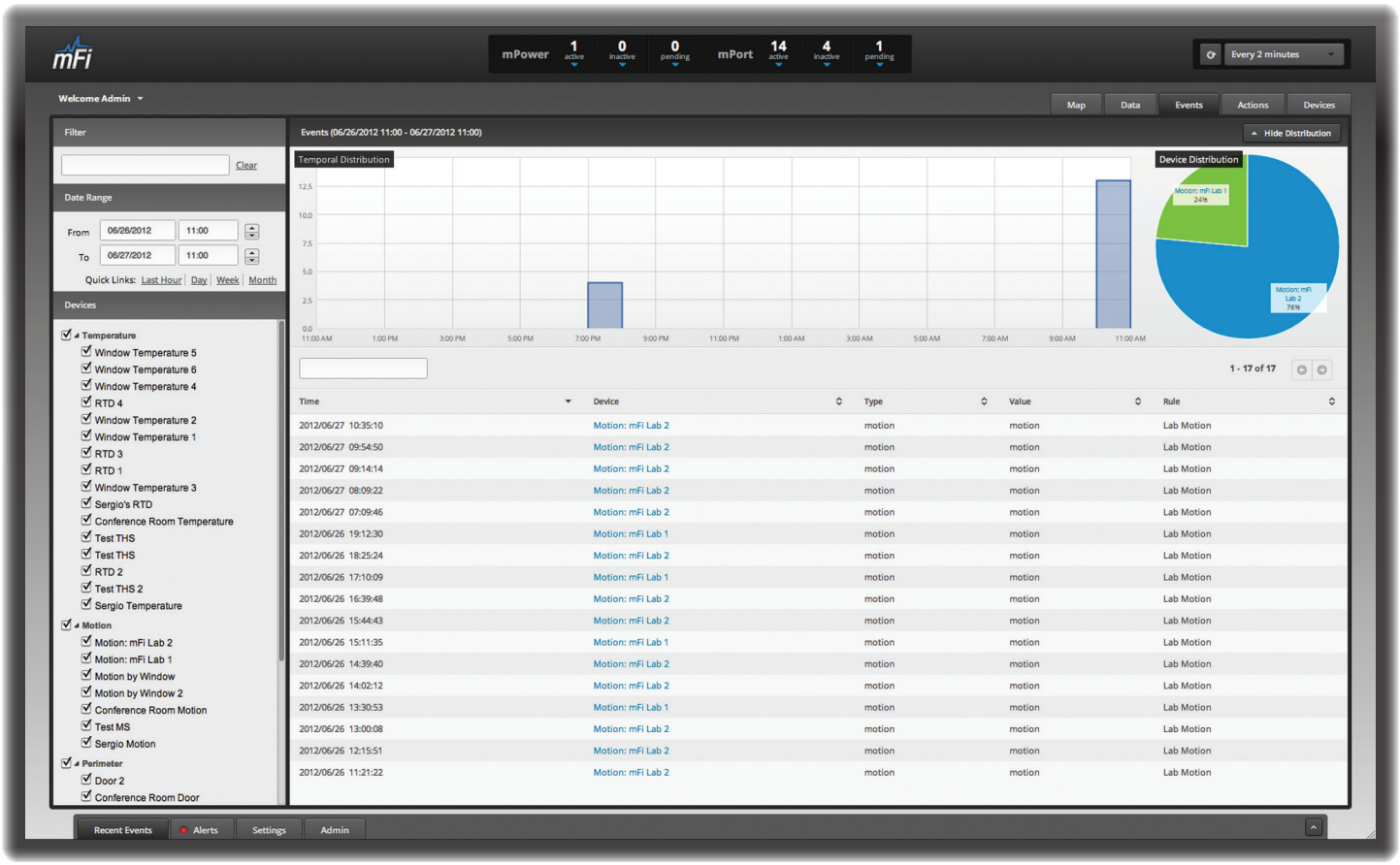
If you wish to remove a device from the view, click the remove icon to the far right of the device name. If you wish to save the modified view, click **Save**. If you wish to save it as a new view, click **Save As...**. If you want to revert to the previous view setting, click **Discard**.



Devices

Displays a list of the available devices categorized by type. Click on a specific device to view the data for the device in the data panel. When creating custom views, devices are dragged from this selection panel to the data panel.

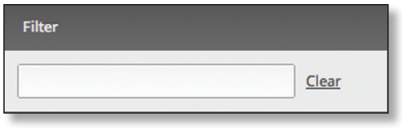




Chapter 5: Events Tab

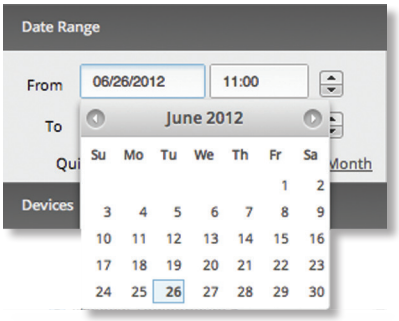
The *Events* tab displays event information that can be filtered by search strings, date ranges, or devices. It also displays distribution information in visual charts.

Filter



Filter Allows you to filter data using specific search criteria. Any text that is entered is used as real-time search criteria and anything that doesn't match the entered characters will be removed from the view. Click **Clear** or delete the search string to return to a normal view.

Date Range



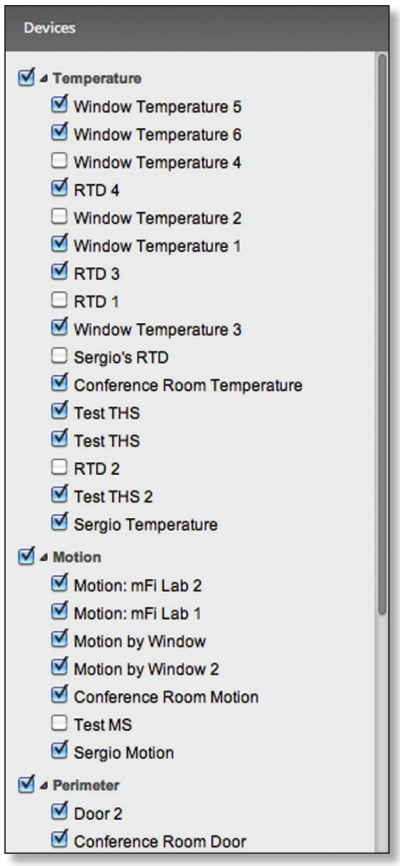
- **From** Click in the *From* date field and a calendar will appear that will allow you to select a beginning date. Click the time field and either manually enter a time or use the arrows to select an hour.
- **To** Click in the *To* date field and a calendar will appear that will allow you to select an ending date. Click the time field and either manually enter a time or use the arrows to select an hour.

Quick Links Quick links display the data values for the selected time period:

- **Last Hour** Displays data for the last hour.
- **Day** Displays data for the last day.
- **Week** Displays data for the last week.
- **Month** Displays data for the last month.

Devices

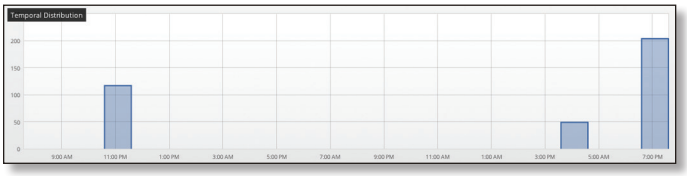
Allows you to control which devices are included in the event data that is displayed. Select or deselect individual devices or entire device categories.



Events

Show/Hide Distribution Toggles between showing or hiding the distribution graphs.

Temporal Distribution

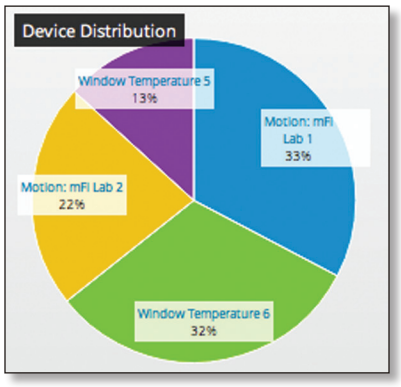


Temporal Distribution displays a bar graph representation of events generated during a specific timeframe. By default, 2 hour increments during a 24 hour period are displayed.

Click on any bar to display the specific events generated during the selected timeframe. The *Device Distribution* graph will also update to reflect the device distribution during this timeframe. Click on the area outside of the graph to return to the overview.

Event data can be filtered by using the *Filters*, *Date Range*, and *Devices* selections. Clicking on a *Quick Link* will change the timeframe reference of the graphs to the *Last Hour*, *Day*, *Week*, or *Month*.

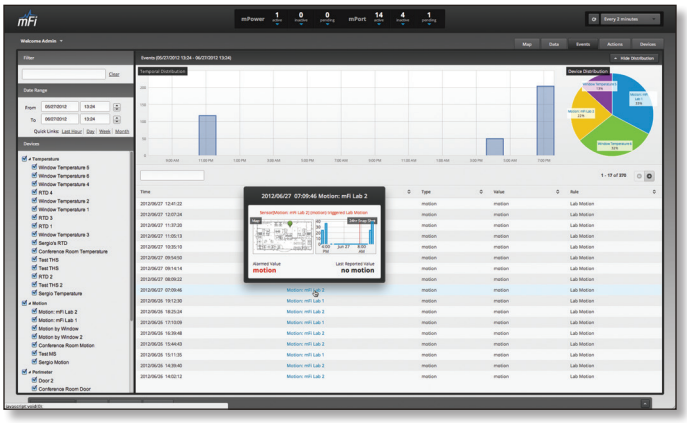
Device Distribution



Device Distribution displays a pie chart representation of events generated by specific devices during a specific timeframe.

If specific timeframes are selected on the *Temporal Distribution* graph, the timeframe will also be applied to the *Device Distribution* graph.

The *Device Distribution* graph also updates when event data is filtered using the *Filters*, *Date Range*, and *Devices* selections or if a *Quick Link* is selected.



Placing the mouse over an event will display the current location of the device on the map, a 24 hour snapshot of values, when the event occurred, the alarmed value, and the last reported value.

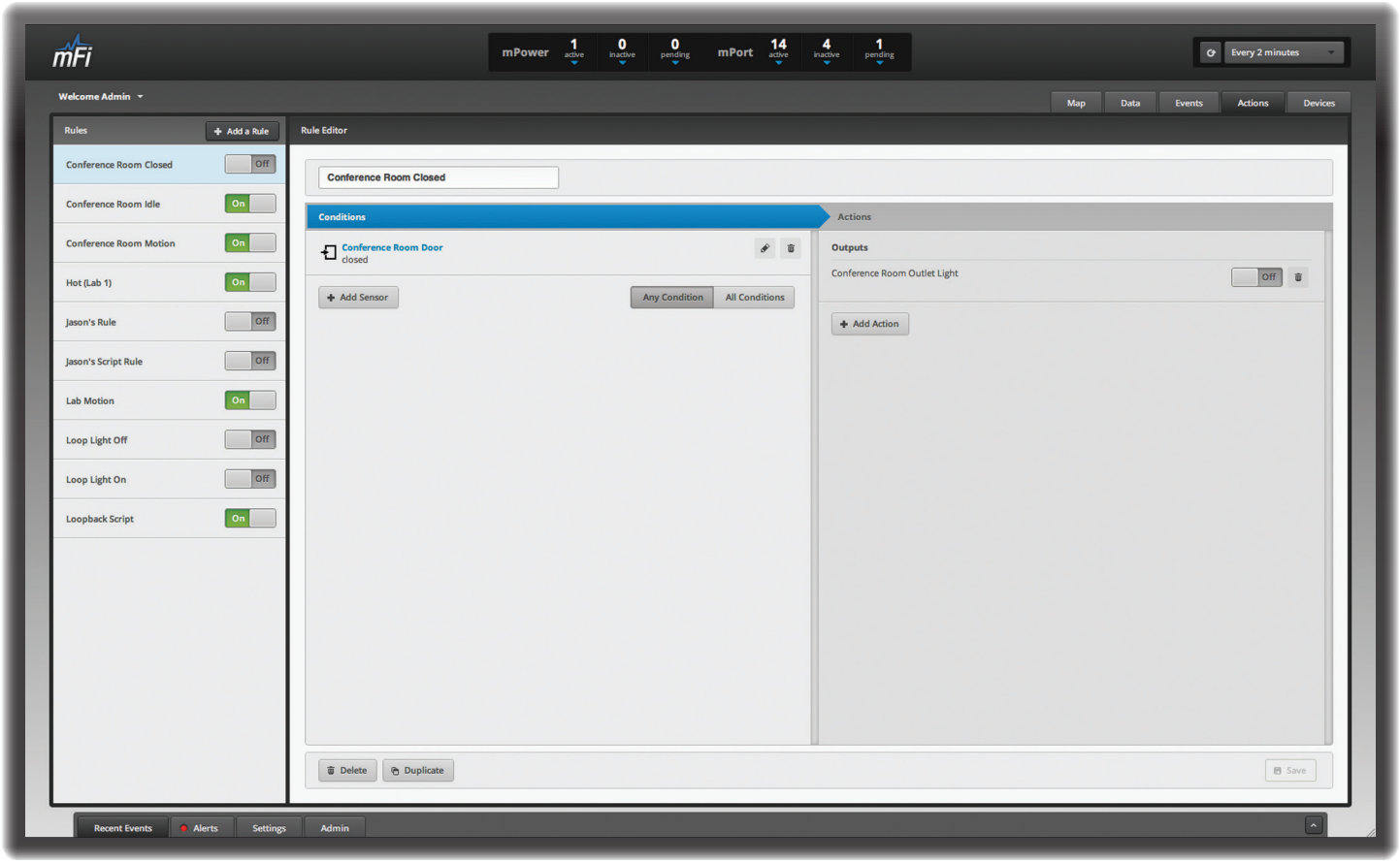
Time Displays the date and time that an event occurred. Click on the *Time* header to toggle the display order between oldest and most recent events.

Device Displays the name of the device that generated the event. Click on the *Device* header to toggle the alphabetical display order from a-z to z-a.

Type Displays the type of event. Click on the *Type* header to toggle the alphabetical display order from a-z to z-a.

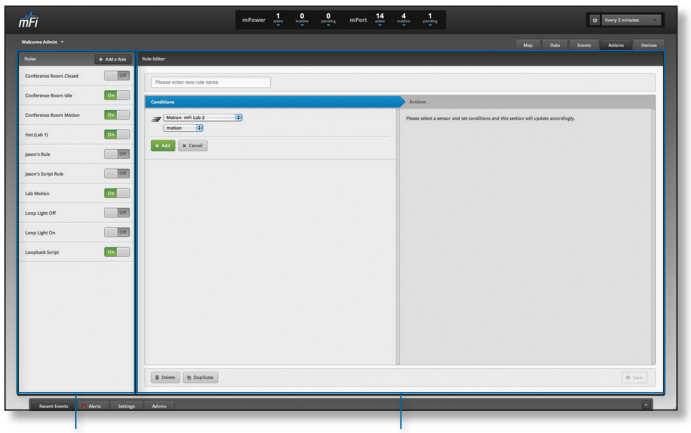
Value Displays the value that triggered the event. Click on the *Value* header to toggle the numerical and alphabetical display order from 0-9 to 9-0 and a-z to z-a.

Rule Displays the name of the rule that triggered the event. Click on the *Rule Name* header to toggle the alphabetical display order from a-z to z-a.



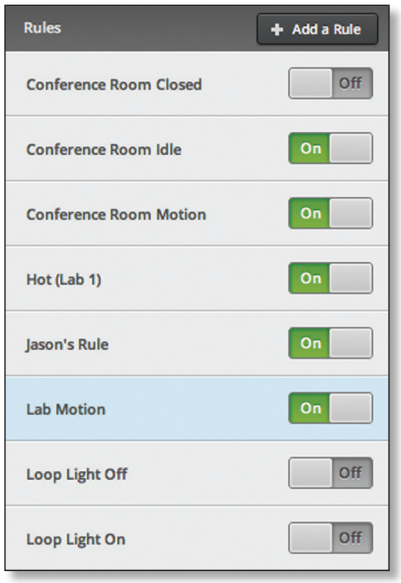
Chapter 6: Actions Tab

The *Actions* tab is where rules are created. Rules define the conditions that trigger actions and what actions occur once conditions are met.



Rules *Rule Editor*

Rules

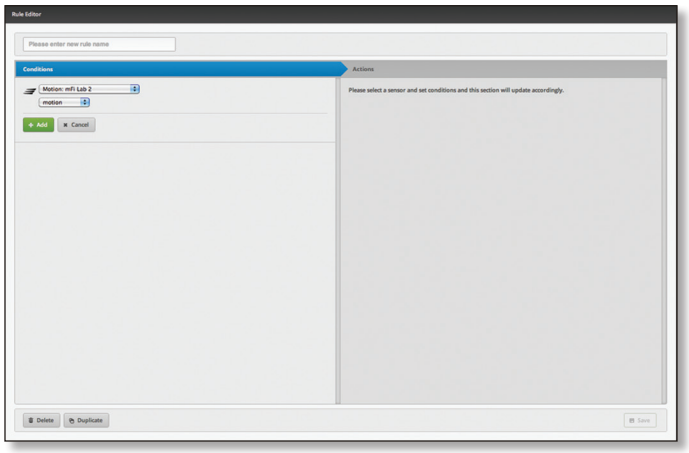


Click on a rule to display the conditions and actions in the *Rule Editor* or click *Add a Rule* to define a new rule.

Add a Rule Click to create a rule.

Creating Rules

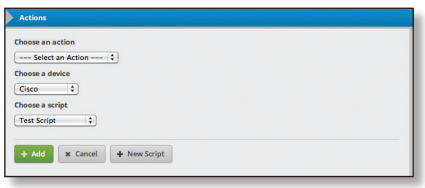
Rules trigger actions when a specified condition or conditions occur. For example, a rule might be created to turn on a light when a door is opened. The door opening is the condition and the action that is triggered is the light turning on. Note that if the light is manually turned off while the door is open, the rule will not trigger again until the door has been closed and re-opened.



1. Enter the name for the rule in the field with the text *Please enter new rule name*.
2. Select a device from the drop-down list.
3. Once a device is selected, a list of conditions applicable to the device are made available. For example, temperature sensors can have an action defined that is triggered when the temperature is above or below a certain temperature. Define the conditions and click **Add**.
4. (Optional) To add additional conditions, click **Add Sensor**.
5. Select whether Any Condition or All Conditions must be met to trigger the action.
   - **Any Condition** Action is triggered if any of the defined conditions occur.
   - **All Conditions** All conditions listed in the rule must occur before the action is triggered.
6. Click **Add Action**.
7. Choose an Action:

- **Script** A script is a block of text that is sent out to the serial port of the corresponding mPort Serial. This option allows you to run a script.

a. Choose a device from the drop-down list.

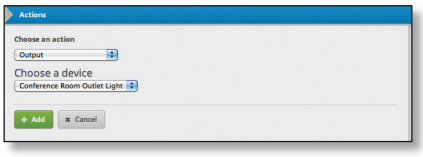


b. Choose a script from the drop-down list or click the *New Script* button. If you select *New Script*, the *New Script* window will appear. Enter a name for the script, the script details, and click **Save**.

c. Click **Add**.

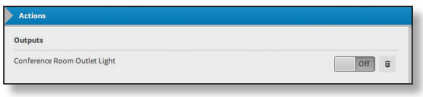
- **Output** Allows you to set the state of a device.

a. Choose a device from the drop-down list.



b. Click **Add**.

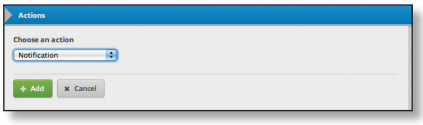
c. Select whether you want the device **On** or **Off**.



- **Notification** Allows you send an email notification, event, or system alert when rule conditions are met.

Note: In order for email notifications to work properly, Mail/SMTP server settings must be configured on the *Settings* > *System* page. Refer to **"Services" on page 10** for additional details.

a. Select **Notification** and click **Add**.



b. Select **Send Email**, **Generate Event** or both options:

- **Send Email** Click to send an email notification when rule conditions are met. Enter emails in the *Add Email(s)* field and separate additional emails with a space. Enter the amount of time to wait before an action triggers another email by entering a time in minutes in the *Don't send an email again for __ minute(s)* field.

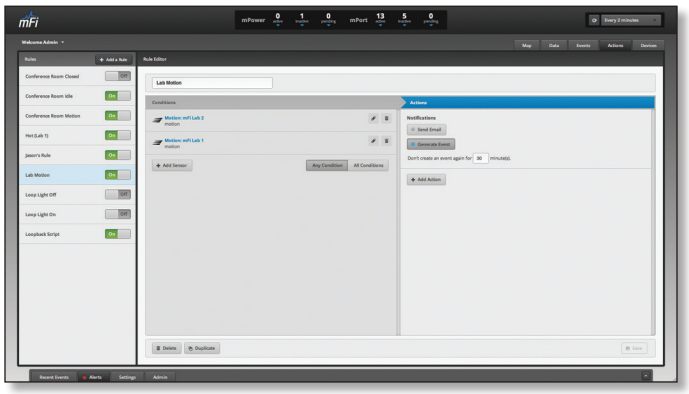
Note: To send text messages, enter the address of the Mail-to-SMS Gateway.
For example, for AT&T wireless, you would enter **areacodephonenumber@txt.att.net**. A list of gateways can be found on Wikipedia at **en.wikipedia.org/wiki/List_of_SMS_gateways**

- **Generate Event** Click to generate an event when rule conditions are met. A system alert can also be generated by clicking on the Create System Alert button. Enter the amount of time to wait before an action triggers another event by entering a time in minutes in the *Don't create an event again for __ minute(s)* field.

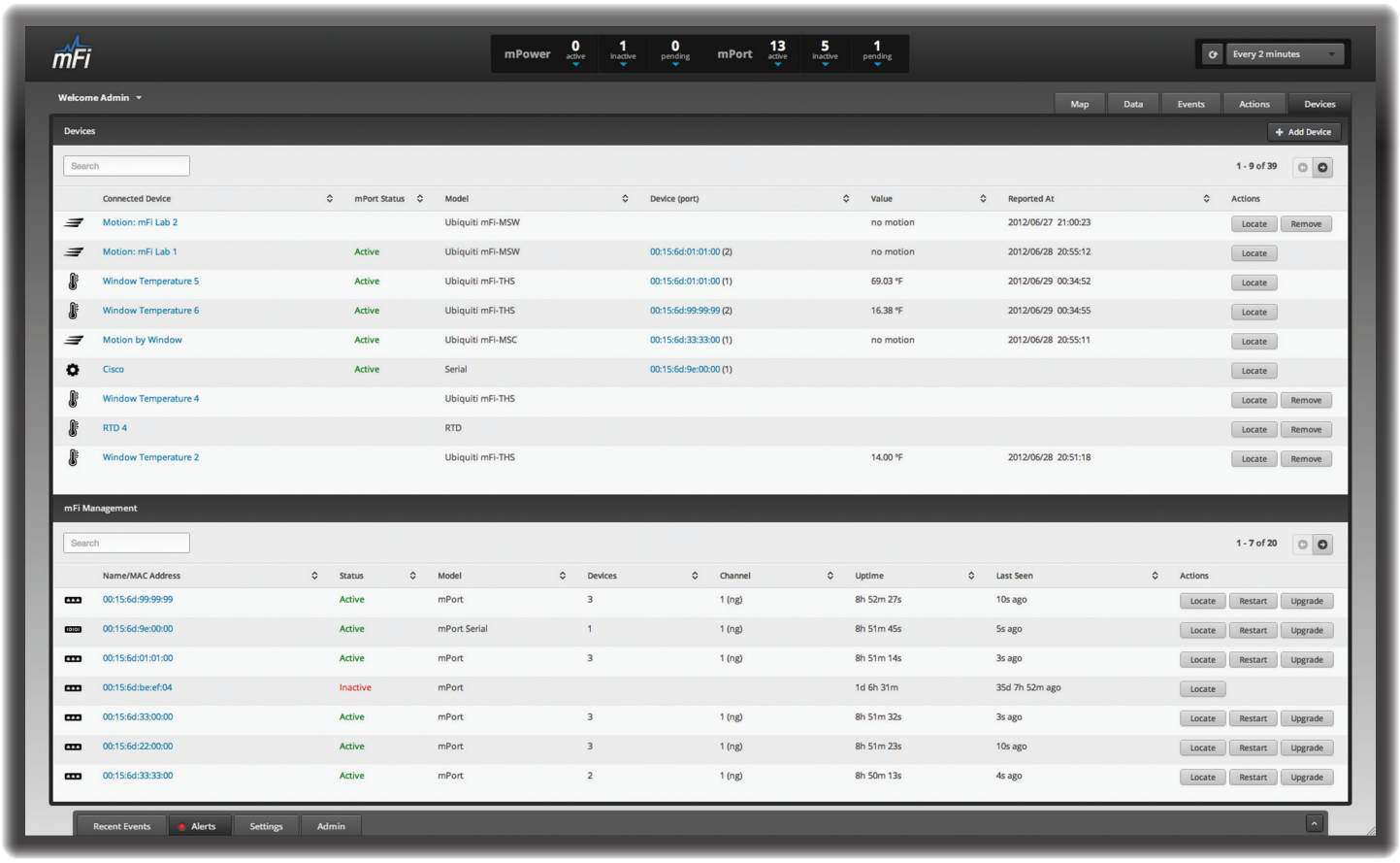
8. You can add additional actions by clicking the **Add Action** button. Once you've finished creating your rule, click **Save**.

Rule Management

Rules that have been saved can be viewed by highlighting the rule in the *Rules* panel. You can modify the rule by making changes and saving the rule again. There are also links to *Delete Rule* and *Make a copy of this rule*.



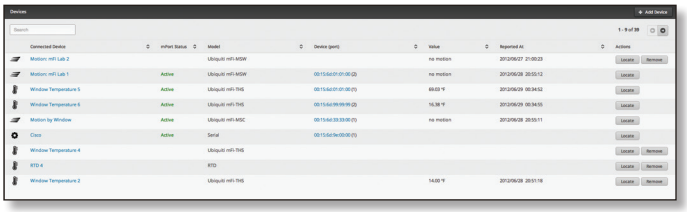
Existing rules can be enabled or disabled by clicking on the On/Off button to the right of the rule name.



Chapter 7: Devices Tab

The *Devices* tab displays a list and details of the connected devices and mPorts.

Devices



Add Device Click to add a device. If you have multiple mPorts, you will select the appropriate mPort.

Search Allows you to search for specific characters. Any text that is entered is used as real-time search criteria and anything that doesn't contain the entered characters will be removed from the view. Delete the search string to return to a normal view.

Connected Device Displays the name of the device. Click on the name of the device to display the *Device Details* window. For additional information on the *Device Details* window, refer to **"Device Details" on page 26**.

mPort Status Displays the status of the mPort the device is associated with.

Model Displays the model information.

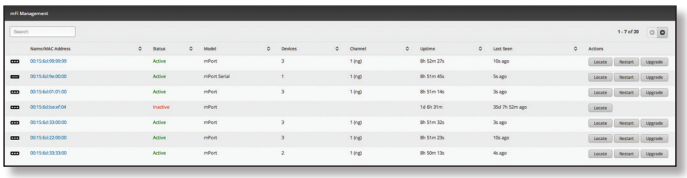
Device (port) Displays the name or MAC address of the mPort the device is associated with and the port it is connected to is displayed in parenthesis.

Value Displays the last reported value from the device.

Reported At Displays the time of the last reported value.

Actions Use the *Locate* button to display the device on the map. Click *Remove* to remove an unattached device from the system.

mFi Management



Search Allows you to search for specific characters. Any text that is entered is used as real-time search criteria and anything that doesn't contain the entered characters will be removed from the view. Delete the search string to return to a normal view.

Name/MAC Address Displays the name or MAC address of the mPort. Click on the name or MAC address of the mPort to display the *mPort Details* window. For additional information on the *mPort Details* window, refer to **"mPort Details" on page 28**.

Status Indicates if the mPort is active.

Model Displays the model of the mPort.

Devices Displays the number of devices configured with the mPort.

Channel Displays the wireless channel being used by the mPort.

Uptime Displays the total uptime of the mPort.

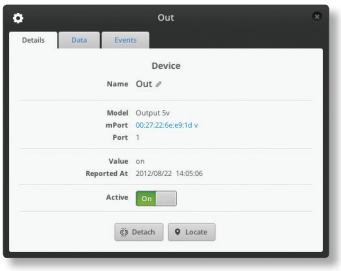
Last Seen Displays the amount of time it had been since the mPort was last seen when the page was loaded. To refresh the values, reload the web page or navigate to another tab and then back again.

Actions Use the *Locate* button to display the mPort on the map. Click *Restart* to restart a mPort from the list. Click *Upgrade* to upgrade to new firmware.

Chapter 8: Device Details

Details

Device



Name Displays the name of the device To edit the name, click the pencil icon.

Model Displays the device model information.

mPort Displays a clickable link to the mPort the device is associated with.

Port Displays the port number that the device is using on the mPort.

Value Displays the last reported value.

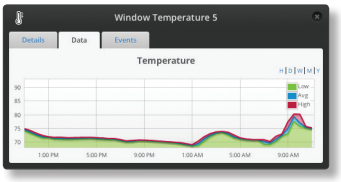
Reported At Displays the date and time of the last reported value.

Active This option is only displayed on devices that have an on/off state. It will display the current state of the device.

Detach Used to detach the device from a mPort.

Locate Click this to locate the device on the map. The sensor will be highlighted with a flashing beacon.

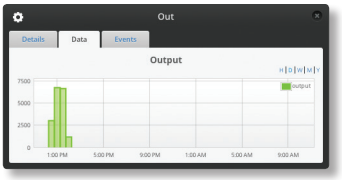
Data



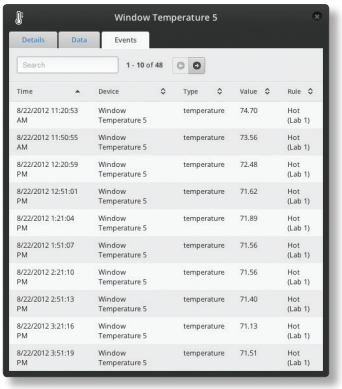
Displays a visual representation of data for the specific device during the selected time period. By default, D is selected showing data from the last 24 hours.

- **H** Displays data for the last hour.
- **D** Displays data from the last 24 hours.
- **W** Displays data from the last week.
- **M** Displays data from the last month.
- **Y** Displays data from the last year.

Binary devices will display event frequency for the selected time period.



Events



Search Allows you to search for specific characters. Any text that is entered is used as real-time search criteria and anything that doesn't contain the entered characters will be removed from the view. Delete the search string to return to a normal view.

Time Displays the date and time that an event occurred. Click on the *Time* header to toggle the display order between oldest and most recent events.

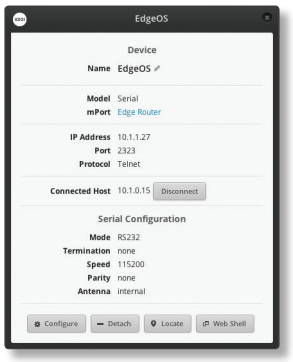
Device Displays the name of the device that generated the event. Click on the *Device* header to toggle the alphabetical display order from a-z to z-a.

Type Displays the type of event. Click on the *Type* header to toggle the alphabetical display order from a-z to z-a.

Value Displays the value that triggered the event. Click on the *Value* header to toggle the numerical and alphabetical display order from a-z to z-a.

Rule Displays the name of the rule that triggered the event. Click on the *Rule Name* header to toggle the alphabetical display order from a-z to z-a.

Serial-Based Device Details



Device

Name Displays the name of the device. To edit the name, click the pencil icon.

Model Displays the device model information.

mPort Displays a clickable link to the mPort the serial-based device is associated with.

IP Address Displays the IP address used to communicate with the device.

Port Displays the port used for Telnetting to the device.

Protocol Displays the protocol that is used to communicate with the device.

Connected Host Displays the IP address of the Telnet client connected to the mPort Serial. If the device is connected via WebShell, it will display the IP address of the mFi Controller. The *Disconnect* button will disconnect the client.

Serial Configuration

Mode Displays the mode, RS232 or RS485.

Port DB9 or Terminal Block. When RS485 mode is selected, the option to enable *120Ω Term* is available. 120 Ohm termination enables a built-in 120 Ohm termination resistor between the TX and RX lines.

Termination Displays termination method.

Speed Speed can be between 300 and 115200

Parity None, odd, or even.

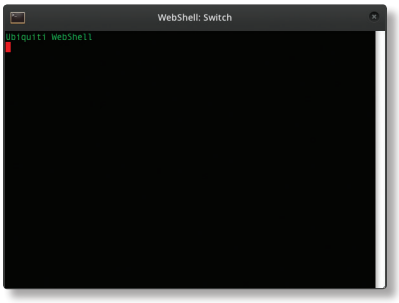
Antenna Displays internal or external antenna.

Configure Use this button to change Serial Configuration settings.

Detach Used to detach the device from a mPort.

Locate Click this to locate the device on the map. The sensor will be highlighted with a flashing beacon.

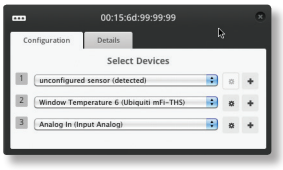
Web Shell Opens up a command line interface shell.



Chapter 9: mPort Details

mPort

Configuration

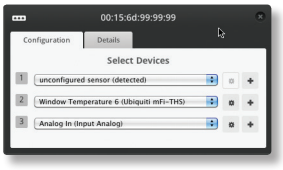


Select Devices

Ubiquiti devices that are connected to the mFi RJ45 port are detected as present. There will be a message stating *unconfigured sensor (detected)*. Ubiquiti devices connected via terminal block or any other third party devices will not appear as detected

Add New Device

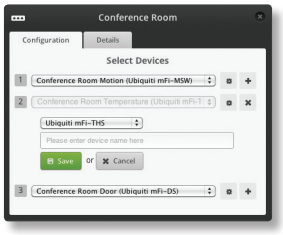
1. Click the **+** sign next to the appropriate port.



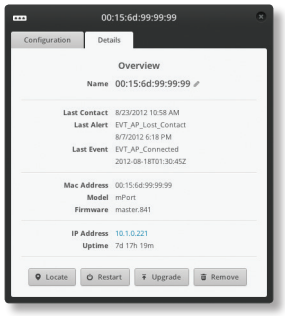
2. *Select device type* from the drop-down selection list.

Device Type	Description
Input Analog	Used to read raw voltages, without converting them. Reports analog value between -2 and +2 volts, as measured on the A- and A+ inputs
Input Digital	Reports a read on/off (closed/open) state from a device such as an external mechanical switch. Reports "*on*" if a voltage is received on the Input (I) pin, and "*off*" otherwise. +24V is provided on the Output (O) pin, and +12V is provided on the Power (P) pin, which can be used by an external device to switch back to the Input (I) pin.
RTD	RTD (Resistance Temperature Detector) reports industrial temperature measurements using 2-wire PT-100. Measures temperature between -50 and +250° C.
Output 5v	Signal an external device that requires a 5V signal, such as an AC switch. Outputs 5V on the Output (O) pin, when the port is on, and 0v otherwise. This type of machine displays an on/off button in the mFi Controller interface, and can be selected as an output when creating a rule from the *Actions* tab.
Output 12v	Switch an external 12V relay. Outputs 12V on the Output (O) pin, when the port is on, and 0v otherwise. This type of machine displays an on/off button in the mFi Controller interface, and can be selected as an output when creating a rule from the *Actions* tab.
Output 24v	Switch an external 24V relay. Outputs 24V on the Output (O) pin, when the port is on, and 0v otherwise. This type of machine displays an on/off button in the mFi Controller interface, and can be selected as an output when creating a rule from the *Actions* tab.
Ubiquiti mFi-CS Current Sensor	The *Current Sensor* measures the root-mean-square (RMS) voltage being received on the A+ and A- pins and converts it to a current measurement (using a conversion factor of 1V = 100 amps). It is optimized for linear loads (non-linear loads will have reduced accuracy).
Ubiquiti mFi-DS Door Sensor	The *Door Sensor* uses an open/closed magnetic contact sensor interface that outputs 24V on the Output (O) pin. A *closed* door sensor sends the voltage back to the door sensor to be read by the Input (I) pin. An *open* door sensor does not return the voltage indicating that the door is open.
Ubiquiti mFi-MSC Ceiling Mount Motion Sensor	The *Ceiling Mount Motion Sensor* is powered by 12V it receives from the mPort. It also receives 24V from the Output (O) pin, which the motion sensor sends back to the Input (I) pin if motion is not detected. When motion is detected, the motion sensor opens the circuit so that the mPort does not receive the voltage back. This indicates to the mPort that motion is detected.
Ubiquiti mFi-MSW	The *Wall Mount Motion Sensor* is powered by 12V it receives from the mPort. It also receives 24V from the Output (O) pin, which the motion sensor sends back to the Input (I) pin if motion is not detected. When motion is detected, the motion sensor opens the circuit so that the mPort does not receive the voltage back. This indicates to the mPort that motion is detected.
Ubiquiti mFi-THS Temperature Sensor	The *Temperature Sensor* is powered by 12V it receives from the mPort. The temperature sensor outputs a voltage that is read by the mPort's A+ and A- pins. The received voltage is multiplied by thirty minus ten (V x 30 - 10) and the result is the temperature in Celsius degrees.

3. Enter a device name in the *Please enter device name here* field and click **Save**.



Details



Overview

Name Displays the MAC address or name of the mPort. Click on the pencil icon to the right of the name to edit the name.

Last Contact Displays the last time and date of contact upon page load.

Last Alert Displays the last alert message and time and date of the last alert.

Last Event Displays the most recent event.

MAC Address Displays the MAC address of the mPort.

Model Displays the model information of the mPort.

Firmware Displays the version of firmware installed on the mPort.

IP Address Displays the IP address of the mPort.

Uptime Displays the total time the mPort has been running uninterrupted.

Locate Click to view the location of the mPort on the map.

Restart Click to restart the mPort.

Upgrade Click to upgrade device firmware.

Remove If you no longer wish to manage this mPort, click the *Remove* button.

mPort Serial

Configuration

Serial Device Name

Devices need to be added via *Add a New Serial Device*. Once your device is added, you can select it from the drop-down.

Add a New Serial Device

Please enter device name here Enter the device name in this field.

UART Mode Select RS232 or RS485.

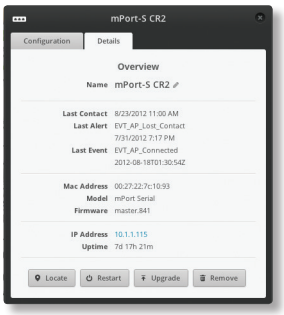
Baud Rate Select the baud rate from the drop-down list.

Parity Select odd or even parity or select none.

Antenna Select internal or external antenna.

Add New Device After making your selections, click this button to create the new device.

Details



Overview

Name Displays the MAC address or name of the mPort Serial. Click on the pencil icon to the right of the name to edit the name.

Last Contact Displays the last time and date of contact upon page load.

Last Alert Displays the last alert message and time and date of the last alert.

Last Event Displays the most recent event.

MAC Address Displays the MAC address of the mPort Serial.

Model Displays the model information of the mPort Serial.

Firmware Displays the version of firmware installed on the mPort Serial.

IP Address Displays the IP address of the mPort Serial.

Uptime Displays the total time the mPort Serial has been running uninterrupted.

Locate Click to view the location of the mPort Serial on the map.

Restart Click to restart the mPort Serial.

Upgrade Click to upgrade device firmware.

Remove If you no longer wish to manage this mPort Serial, click the *Remove* button.

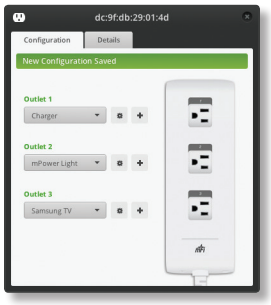
Chapter 10: mPower Details

Configuration

Outlet x When the outlet number heading is black the outlet hasn't been associated with a machine and the text will state *Select a machine*. Once the outlet has been associated with a machine, the outlet number heading is green and the name of the machine will be displayed.

Associating a Device with an Outlet

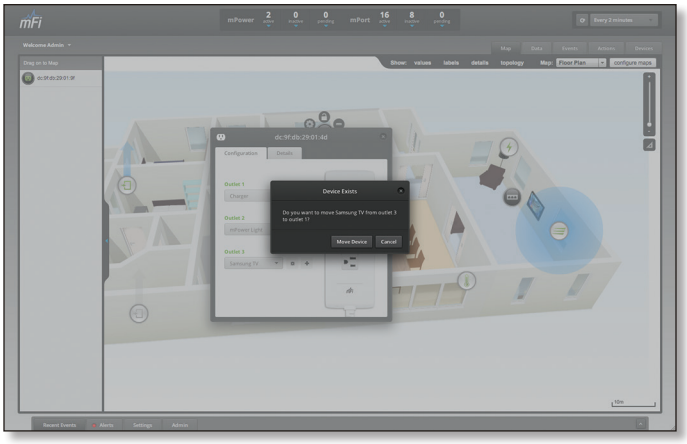
To associate a device with an outlet, click the + icon to the right of the outlet. The *Add a Machine* field will have a cursor ready for you to type in the name of the device you want to associate with the outlet. Type in the name and hit enter (or return).



Reassigning a Device to Another Outlet

If you want to switch a device to another outlet, you can reassign the device by selecting it from the drop-down list of devices under the outlet number heading of the new outlet the device will be plugging into. This allows the device data and rules to be preserved with the device on the new outlet.

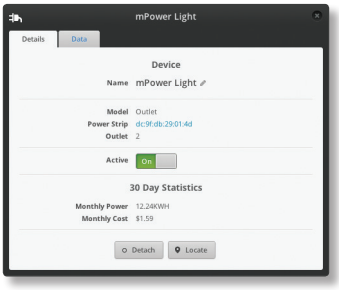
To confirm that you want to reassign the device to the new outlet, you need to click **Move Device**. Otherwise, click *Cancel* to revert to the original device assignment.



Device Details and Data

Once the machine is added, click the *Details* button to view/edit details.

Outlet Device Details



Device

Name Displays the name of the device. Click on the pencil icon to the right of the name to edit the name.

Model Displays model information.

Power Strip Clickable link with the mPower device name that links back to the mPower *Configuration* window.

Outlet Displays the number of the outlet the device is connected to.

Active Displays the current powered on or powered off state of the device.

30 Day Statistics

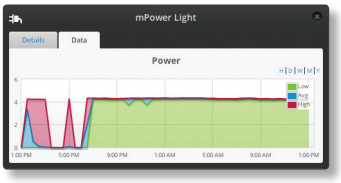
Monthly Power Price per kilowatt hour. This value is entered manually in the *Energy Price* field under *System* > *Settings*.

Monthly Cost Estimated cost based on calculations of hours running and energy cost.

Detach Click to detach the device from the mPower.

Locate Click to view the location of the device on the map.

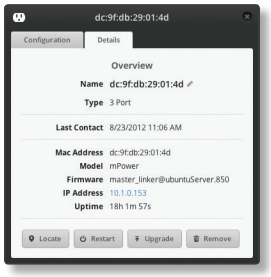
Outlet Device Data



Displays a visual representation of data for the specific device during the selected time period. By default, D is selected showing data from the last 24 hours.

- **H** Displays data for the last hour.
- **D** Displays data from the last 24 hours.
- **W** Displays data from the last week.
- **M** Displays data from the last month.
- **Y** Displays data from the last year.

Details



Overview

Name Displays the MAC address or name of the mPort. Click on the pencil icon to the right of the name to edit the name.

Type Displays the number of power outlets.

Last Contact Displays the last time and date of contact upon page load.

MAC Address Displays the MAC address of the mPower.

Model Displays the model information of the mPower.

Firmware Displays the version of firmware installed on the mPower.

IP Address Displays the IP address of the mPower.

Uptime Displays the total time the mPower has been running uninterrupted.

Locate Click to view the location of the mPower on the map.

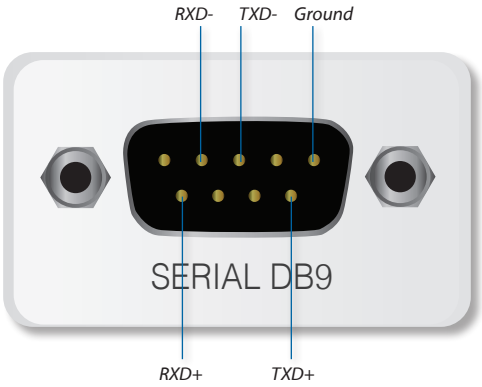
Restart Click to restart the mPower.

Remove If you no longer wish to manage this mPower, click the *Remove* button.

Appendix K: Pinouts

mPort-S Serial DB9

Pins 2, 3, 5, 6, and 9 are used for serial DB9 communication and grounding.



Pin	1	2	3	4	5
Function	-	RXD-	TXD-	-	Gnd

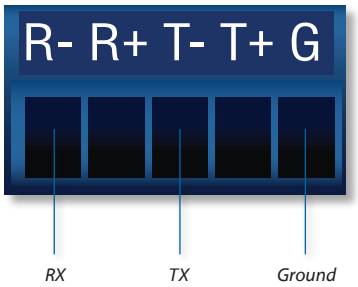
Pin	6	7	8	9
Function	RXD+	-	-	TXD+

mPort-S Terminal Block

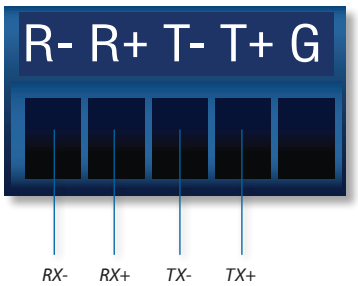
The Terminal Block port is labeled for RS485 pinout.

RS232

R+ and T+ are not used with RS232 connections.



RS422/RS485



The table below lists the pinouts for RS232, RS422, and RS485.

Function	RX		TX		Ground
Pinout	R-	R+	T-	T+	G
RS232	✓		✓		✓
RS422	✓	✓	✓	✓	*
RS485	✓	✓	✓	✓	*

Note: RX-/TX- and RX+/TX+ can be jumpered for 2-wire RS485 networks.

Appendix L: Contact Information

Ubiquiti Networks Support

Ubiquiti Support Engineers are located in the U.S. and Europe and are dedicated to helping customers resolve software, hardware compatibility, or field issues as quickly as possible. We strive to respond to support inquiries within a 24 hour period.

Email: **support@ubnt.com**

Phone: 408-942-1153 (9 a.m. - 5 p.m. PST)

Online Resources

Wiki Page: **wiki.ubnt.com**

Support Forum: **forum.ubnt.com**

Downloads: **downloads.ubnt.com**

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