

# Shadow Wireless

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Shadow Version 4.0

[www.motionshadow.com](http://www.motionshadow.com)

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## 1 Quick Start

For general installation instructions, refer to the **Getting Started** guide. Once you have the software installed you are ready to connect to a Shadow wireless device.

### Step 1: Power up the Shadow system

Plug in the battery to start up the wireless controller. The system takes about twenty seconds to start.

The indicator light on the controller pulses amber while booting up and then switches to blue when the sensors are streaming and the network is up.

### Step 2: Start the network connection

The Shadow system will either host its own network or connect to your access point. Refer to the **Wi-Fi Connection** section for more details.

By default, the Shadow device hosts a network named **Shadow** with the key 2062012708. Use your regular Wi-Fi browser to choose the network and enter the password.

### Step 3: Connect to the Shadow device

Run the Shadow application to scan for devices and start reading. The Shadow application detects device arrival on the network.

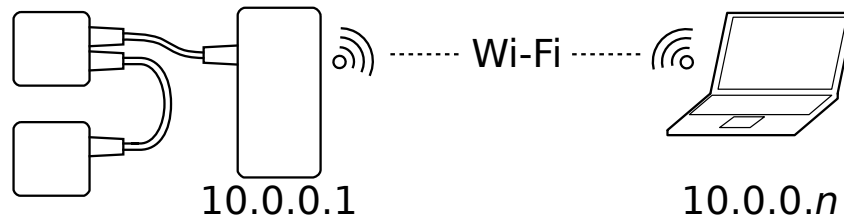
## 2 Wi-Fi Connection

The Shadow controller has two wireless modes. The device is configurable either to host its own network or join your existing access point at start up time. Once the Shadow controller has started up it will not change network settings to prevent data interruptions while streaming.

### Default Settings

The Shadow controller hosts a Wi-Fi network by default. To connect to the Shadow system simply join its wireless network. Use any Wi-Fi 802.11n compatible adapter.

Note that you will have to disconnect from other networks on that adapter. If you need Wi-Fi for your internet connection we recommend buying a dedicated USB Wi-Fi adapter to connect to the Shadow network.



### Hosted Network

The following table shows the default settings of the Shadow controller hosted network. Browse for the system from your computer, phone, or tablet by its *SSID*.

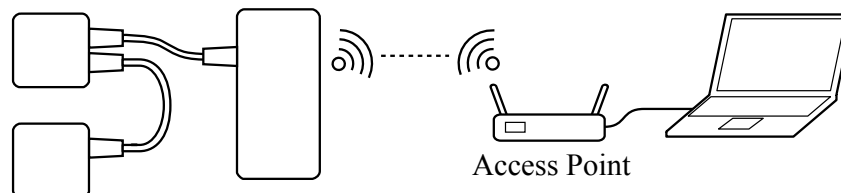
SSID	Shadow
WPA2 KEY	2062012708
PROTOCOL	802.11n 2.4 Ghz
CHANNEL	1 (2412 MHz)

The Shadow system will assign your computer an IP address on its network. The wireless controller itself has a fixed address. The following table shows the default network names of the device.

IP ADDRESS	10.0.0.1
USER INTERFACE	<a href="http://10.0.0.1:32080/">http://10.0.0.1:32080/</a>
NETWORK DRIVE	\\10.0.0.1\data

### Access Point

The Shadow system is configurable to automatically join your existing wireless network. When the device starts it will scan for your access point or wireless router.



If the access point is available, the Shadow system will connect to your network. If the access point is not found, the device will revert to its hosted wireless mode with the **default settings**.

This will delay the start of the Shadow system since it will wait up to 30 seconds looking for the access point. We do not automatically switch after starting up to prevent interruptions in the sensor data stream.

### Wi-Fi Selector

The Shadow device is unable to scan to networks while running in **host mode**. To select your access point use the Lua Console.

```
-- The next time this Shadow controller boots up it will try to
-- connect to the following access point.
-- SSID: ShadowAP
-- Key: 2062012708
=node.system.set_wifi('Any', 'ShadowAP', '2062012708')
```

Note that the Shadow system will only connect to an access point during start up. After changing your Wi-Fi settings, reboot the device to join your network.

You can clear the list of preferred networks using the Lua Console.

```
=node.system.reset_wifi()
```

### Dynamic Settings

When operating in access point mode the device settings will vary. The access point must assign the Shadow system an IP address dynamically.

To support device discovery and enumeration the Shadow system reports its services using the Bonjour mDNS protocol. The device has a local host name that is used rather its dynamic address.

```
HOST NAME    shadow.local
BONJOUR MDNS SERVICE  _shadowmocap._tcp
```

Even when the IP address of the device changes the network name remains the same. This is the same as an internet address for a web site except limited to the local network.

### Network Setup

To enable your access point verify that it supports 802.11n mode with WPA2-PSK security. The access point must also broadcast its *SSID* so that the Shadow device can find the network.

For best network performance, configure your access point to use a channel that is not used in your environment. Many wireless routers include function-

ality to find the best channel based on other active networks.

The Shadow device can connect to networks running on either the 2.4 GHz or 5 GHz frequency band. Setting up a 5 GHz only access point works well in locations where there is a lot of 2.4 GHz traffic and interference.

### 3 Discovery

The Shadow system supports automatic network discovery. When the device joins a network it publishes its name and address so that your computer can find it.

The device uses the Multicast DNS (mDNS) protocol to publish its named services. For best performance, you may need to install third party mDNS software for your system.

WINDOWS <http://support.apple.com/kb/DL999>

MACOS Bonjour

LINUX Avahi